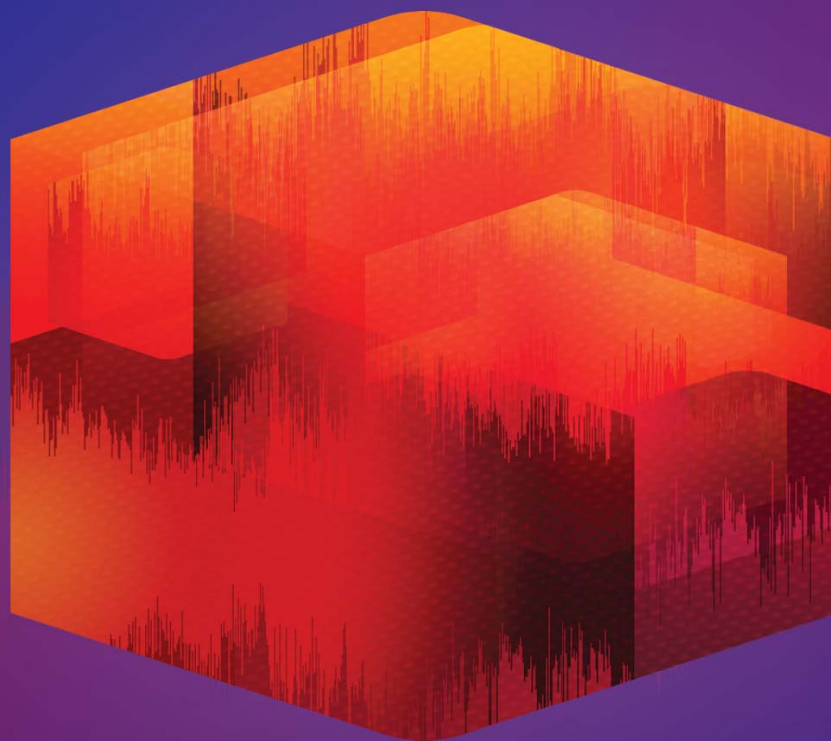


VERSION 12

SOUND FORGE



SOUND FORGE PRO

English language manual

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Sound Forge Pro 12

Sound Forge Pro software is the workhorse of countless audio professionals, and it just keeps getting better. You'll find that the new features in this version will help simplify your life by consolidating common tasks and allowing you to customize the software to suit your needs.

What's new in version 12?

- 64bit program version
 - Full VST3 support
 - New cleaning and audio restoration functions: Declicker/Decrackler, DeClipper and DeHisser
 - New multi band compressor Wave Hammer 2.0
 - Bit rate conversion dithering with high-quality POW-r algorithms
-

Technical Support

If you experience problems or have questions while using Sound Forge Pro software, our technical support department is always ready to help you. Additional support and information about Sound Forge Pro software and other MAGIX products can be found on the [MAGIX Web site](#).

For a detailed list of Technical Support options, please visit the [Support](#) page on our Web site.

Interactive Tutorials



From the Help menu, choose **Interactive Tutorials** to start an interactive guide that will show you each part of the Sound Forge Pro interface and teach you how to edit audio.

Choose a topic from the Interactive Tutorials overview to start a tutorial you'll be up and running in no time! —

Optimizing Sound Forge Pro Software

This topic contains information about configuring your system to maximize Sound Forge Pro performance.

Defragmenting your hard drive

With time and usage, hard drives become fragmented, leading to discontinuous files and slow access. This is particularly true for older hard drives. Since Sound Forge Pro software is hard drive intensive, faster disk access equates better performance. Therefore, the initial step in improving system performance is hard drive defragmentation.

The Windows Disk Defragmenter should be run prior to using Sound Forge Pro software.

Increasing playback buffer size

The playback buffer size determines the amount of RAM used for playing from the hard drive. A buffer size of 0.10 seconds is recommended, but increased buffering may be necessary if you detect gaps during playback.

Increasing the total buffer size requires additional memory. Combined with a large preload size, this may result in a delay when starting and stopping playback.

1. From the Options menu, choose **Preferences**. The Preferences dialog appears.
2. Click the Audio tab.
3. Use the **Playback buffering** slider to configure an appropriate buffer size value and click **OK**.

If you're using an ASIO device, click the **Advanced** button to display the Advanced Audio Configuration dialog, and then click the **Configure** button to edit your device settings.

Meters

If you experience gapping during playback and the channel meters are displayed, turn them off by choosing **Channel Meters** from the View menu.

If you experience gapping during recording and you have the **Monitor** check box selected in the **Record** dialog, clear the check box to turn off the record meters.

Passive updating for video and time displays

If you experience gapping during playback or your computer just seems to be bogging down during playback, try turning on **Passive Update**. This will force the video and time displays to update only if there is time to do so. In most cases you won't be able to tell if it is missing some updates.

- From the Options menu, choose **Time Display**, and choose **Passive Update** from the submenu.
- From the Options menu, choose **Video**, and choose **Passive Update** from the submenu.

Audio and video synchronization

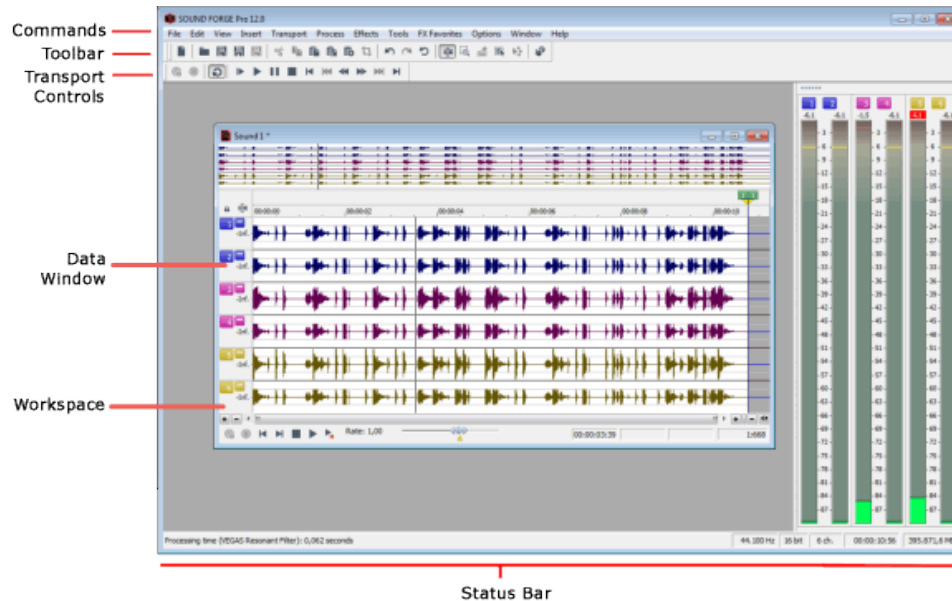
If your video has been opened from a slow device, such as a CD-ROM or network drive, Sound Forge Pro may have trouble accurately playing back the audio and video in sync. You should always copy your video files to a fast hard drive.

Following are tips that can help when trying to synchronize the audio and video:

- After assembling or editing the audio you wish to use with your video, place markers during video playback to correspond to any major synchronization points. You can locate a particular frame by dragging the cursor along the audio if the **Video Preview** window is open or the **Animate Video Strip** option is enabled. After primary locations have been identified, drag your audio to these markers to mix, paste, and crossfade audio.
- Features such as **Insert Silence**, **Delete/Clear**, and **Time Stretch** are commonly used to correct synchronization. Another useful trick is to create a region representing the offset between a video frame and audio event. Then you can enable **Lock Loop/Region Length** and drag the offset region to a preceding silent section. Use the region as a template for adjusting the audio stream length either copying and pasting to insert time or deleting to remove time. —

The Sound Forge Pro Window

The Sound Forge Pro window is divided into five main areas, and you can use views to manage the appearance of the window.



Sound Forge Pro Toolbars

The Sound Forge Pro window provides toolbars to help you find and use commands quickly. You can use the [Toolbars](#) tab in the Preferences dialog to specify which toolbars you want to display on the Sound Forge Pro workspace.

Show or hide toolbars

1. From the View menu, choose **Toolbars** to display the Toolbars tab in the Preferences dialog.
2. Specify which toolbars you want to see:
 - Select the check box for the toolbars you want to see.
 - Clear the check box for the toolbars you want to hide.
3. Click the **OK** button.

Customize a toolbar

1. From the View menu, choose **Toolbars** to display the Toolbars tab in the Preferences dialog.
2. Select the check box for the toolbars you want to customize. If the check box is already selected, click the toolbar's name to select it.
3. Click the **Customize** button. The Customize Toolbar dialog is displayed.

4. Use the controls in the Customize Toolbar dialog to add, remove, or rearrange the buttons on the selected toolbar:
 - Select a button in the **Available tools** column and click **Add** to add the button to the toolbar before the currently selected button.
 - Select a button in the **Current tools** column and click **Remove** to remove the button from the toolbar.
 - Select a button in the **Current tools** column and click **Move Up** or **Move Down** to rearrange the buttons.
5. Click **Reset** to restore the toolbar to its default setting.
6. Click the **OK** button.

Dock or float (undock) a toolbar

You can dock toolbars to the Sound Forge Pro workspace or allow them to float freely over the Sound Forge Pro window.

Docking a floating toolbar

1. Click the toolbar's title bar and drag it to one of the borders of the workspace.
2. When the toolbar's outline changes, release the mouse button to dock it to the mouse position.













 You can click an empty area of a toolbar and drag it to move the toolbar to a new location.








Floating a docked toolbar

1. Click an empty area of the docked toolbar and drag it to the center of the workspace.
2. When the toolbar's outline changes, release the mouse to dock it to the mouse position.

The Standard Toolbar














The Standard toolbar provides quick access to commonly used file and edit commands.










Button	Description
	New: click to create a new window.
	Open: click to open a file.
	Save: click to save the current file.
	Save As: click to save the current file with a new name or format.
	Render As: click to render your Sound Forge Pro project file as a media file.
	Cut: click to remove the selected sound data and move it to the clipboard.
	Copy: click to copy the selected sound data to the clipboard.
	Paste: click to insert a copy of the clipboard contents at the current insertion point.
	Mix: click to mix a copy of the clipboard contents at the current insertion point.
	Play Clipboard: click to play the contents of the clipboard.
	Trim/Crop: click to remove all data from the file except the current selection.
	Undo: click to reverse the last action performed.

	Redo: click to reverse an undo operation.
	Repeat: click to repeat the last performed operation.
	Edit Tool: click to select the Edit tool . Use the Edit tool to select data.
	Magnify Tool: click to select the Magnify tool . Use the Magnify tool to zoom in to a particular region without losing your selection.
	Pencil Tool: click to select the Pencil tool . Use the Pencil tool to edit the waveform by drawing on it.
	Event Tool: click to select the Event tool. Use the Event tool to perform event-based editing .
	Envelope Tool: click to select the Envelope tool. Use the Envelope tool to edit effect automation envelopes.

The Transport Toolbar

Use the Transport toolbar to perform playback and recording functions.

Button	Description
	<p>Arm: opens the wave device and loads all recording buffers in order to minimize the amount of time between clicking the Record button  and when recording starts.</p> <p>When Create new window is selected in the Mode drop-down list in the Record Options window, the Arm  and Record  buttons are enabled even when no data windows are open. When Normal or Create regions is selected, the Arm  and Record  buttons are not available until you create a data window or open a file.</p>
	<p>Record: starts and stops recording. For more information, please see one of the following topics:</p> <ul style="list-style-type: none"> • Creating a New Recording • Recording into an Existing Sound File • Recording Audio Automatically
	<p>Loop Playback: Plays the selected data in a continuous mode.</p> <p> If there is no selection, the entire sound file is played in an endless loop.</p>
	<p>Play All: click to play the entire file from beginning to end, regardless of cursor position, selection, or playlist.</p> <p>Playback for musical instrument files behaves slightly differently than playback in a normal data window.</p> <ul style="list-style-type: none"> • If no samples are selected, click Play All to play all samples in the data window. • If you have samples selected, click Play All to play all selected samples in the data window.
	<p>Play: click to play back the file in current playback mode.</p> <p>Playback for musical instrument files behaves slightly differently than playback in a normal data window.</p> <ul style="list-style-type: none"> • If no samples are selected, click Play to play all samples from the cursor position to the end of the data window. • If you have samples selected, click Play to play all selected samples from the cursor position to the end of the data window. <p> Select the Spacebar and F12 Play/Pause instead of Play/Stop check box in the General Preferences tab if you want the F12 and spacebar keyboard shortcuts to toggle between Play and Pause mode. In this mode, the cursor will maintain its position.</p>
	<p>Pause: click to pause playback and leave the cursor at its current position.</p>

	Stop: click to stop playback and return the cursor to its position prior to playback.
	Go to Start: click to move the cursor to the beginning of the current file.
	Go to Previous Track: Moves the cursor to the previous disc-at-once track or index . Hold Ctrl while clicking to skip index markers, or hold Shift to extend a selection.  This button is available only if disc-at-once tracks are present in your data window.
	Rewind: click to move the cursor backward through the current file.
	Forward: click to move the cursor forward through the current file.
	Go to Next Track: Moves the cursor to the next disc-at-once track or index. Hold Ctrl while clicking to skip index markers, or hold Shift to extend a selection.  This button is available only if disc-at-once tracks are present in your data window.
	Go to End: click to move the cursor to the end of the current file.

The Navigation Toolbar

Use the Navigation toolbar to navigate the data window. Some of the operations included are zooming, marking, moving the cursor, and moving to relevant points.

Button	Description
	Zoom in Full: click to maximize the horizontal magnification to 24:1.
	Zoom Normal: click to change the horizontal zoom ratio to the value specified on the Display tab of the Preferences dialog.
	Zoom Selection: click to maximize the selected area in the data window.
	Custom Zoom 1: click to change the horizontal zoom ratio to the value specified on the Display tab of the Preferences dialog.
	Custom Zoom 2: click to change the horizontal zoom ratio to the value specified on the Display tab of the Preferences dialog.
	Mark In: click to set the beginning of the loop region at the current cursor position.
	Mark Out: click to set the end of the loop region at the current cursor position.
	Go To: click to display the Go To dialog.
	Center Cursor: click to adjust the display so that the cursor appears in the center of the data window.
	Cursor to Selection Start: click to move the cursor to the start of the current selection.
	Cursor to Selection End: click to move the cursor to the end of the current selection.
	Center Sustaining Start: click to center the beginning of a sustaining loop in the data window.
	Center Sustaining End: click to center the end of a sustaining loop in the data window.
	Center Release Start: click to center the beginning of a release loop in the data window.
	Center Release End: click to center the end of a release loop in the data window.
	Double Selection: click to double the current selection.
	Halve Selection: click to reduce the current selection by half.
	Shift Selection Left: click to move the current selection left by the length of the selection.



Shift Selection Right: click to move the current selection right by the length of the selection.

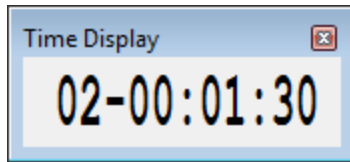
Tempo: the box at the right edge of the toolbar displays the tempo of the current selection as if the selection represents a complete measure.

The Status Toolbar

Use the Status toolbar to set the status format for display and to control selection snapping.

Button	Description
	Samples: click to display the time ruler, cursor position, and selection in samples.
	Time: click to display the time ruler, cursor position, and selection in hours:minutes:seconds.seconds.
	Seconds: click to display the time ruler, cursor position, and selection in seconds.
	Time and Frames: click to display the time ruler, cursor position, and selection in hours:minutes:seconds.frames.
	Absolute Frames: click to display the time ruler, cursor position, and selection in absolute frames from the beginning of the file.
	Measures and Beats: click to display the time ruler, cursor position, and selection in measures:beats.quarter-beats.
	SMPTE Film Sync: click to display the time ruler, cursor position, and selection in hours:minutes:seconds:frames with a frame rate of 24 frames per second. This frame rate matches the standard crystal-sync 16/33 mm film rate of 24 fps.
	SMPTE EBU: click to display the ruler in hours:minutes:seconds:frames with a frame rate of 25 frames per second. This is known as SMPTE EBU (European Broadcasting Union) because European television systems run at 25 fps. Use SMPTE 25 EBU format for PAL DV/D1 projects.
	SMPTE Non-Drop: click to display the ruler in hours:minutes:seconds:frames with a frame rate of 29.97 frames per second, which leads to a discrepancy between real ("wall clock") time and the SMPTE time, because there is no compensation in the counting system as there is in Drop Frame. Use SMPTE Non-Drop format for NTSC D1 projects that will be recorded on master tapes striped with Non-Drop timecode.
	SMPTE Drop: click to display the ruler in hours:minutes:seconds;frames with a frame rate of 29.97 fps to match the frame rate used by NTSC television systems (North America, Japan). Use SMPTE Drop Frame format for NTSC DV/D1 projects. Both SMPTE Drop and SMPTE Non-Drop run at 29.97 fps. In both formats, the actual frames are not discarded, but they are numbered differently. SMPTE Drop removes certain frame numbers the counting system to keep the SMPTE clock from drifting from real ("wall clock") time. The time is adjusted forward by two frames on every minute boundary except 0, 10, 20, 30, 40, and 50. For example, when SMPTE Drop time increments from 00:00:59.29, the next value will be 00:01:00.02.
	SMPTE 30: click to display the ruler in hours:minutes:seconds:frames with a frame rate of 30 frames per second. This rate is exactly 30 fps and is commonly used when synchronizing audio applications such as multitrack recorders or MIDI sequencers. This format should not be used when working with video.
	Audio CD Time: click to display the ruler in hours:minutes:seconds:frames with a frame rate of 75 frames per second for creating Red Book CDs .

If you want to display [disc-at-once CD](#) track numbers in the Time Display window, right-click the Time Display window and choose **CD Track Position** from the shortcut menu. In this mode, the Time Display will show track numbers and the running time for each track. Negative values indicate the pause time before a track:



Edit Tempo: click to display the [Edit Tempo](#) dialog.

The Regions/Playlist Toolbar

Use the regions/playlist toolbar to display and hide the [Regions List](#) and [Playlist/Cutlist](#) windows, control MIDI synchronization, and display synchronization status.

Button	Description
	Regions List: click to display and hide the Regions List window .
	Playlist: click to display and hide the Playlist/Cutlist window .
	Trigger from MIDI Timecode: click to enable or disable triggering from MIDI commands received through the MIDI input port.
	Generate MIDI Timecode: click to enable sending MIDI timecode through the MIDI output port.
	Pre-Queue for MIDI Timecode: click to open the wave device and pre-load data from the next region to be played in the Playlist. Pre-queuing helps ensure that audio will begin playing the moment the designated SMPTE time is detected by Sound Forge Pro when synchronizing to MIDI timecode (MTC).
Playlist Position: displays the total playback time starting at 00:00:00:000 (not the play cursor time) when playing from the Playlist.	
	
Sync Status: displays incoming MIDI timecode and trigger signals.	
	



Regions List: click to display and hide the [Regions List window](#).



Playlist: click to display and hide the [Playlist/Cutlist window](#).



Trigger from MIDI Timecode: click to enable or disable triggering from MIDI commands received through the [MIDI input](#) port.



Generate MIDI Timecode: click to enable sending MIDI timecode through the [MIDI output](#) port.

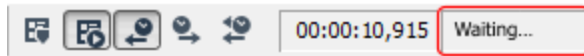


Pre-Queue for MIDI Timecode: click to open the wave device and pre-load data from the next region to be played in the Playlist. Pre-queuing helps ensure that audio will begin playing the moment the designated SMPTE time is detected by Sound Forge Pro when synchronizing to MIDI timecode (MTC).

Playlist Position: displays the total playback time starting at 00:00:00:000 (not the play cursor time) when playing from the Playlist.



Sync Status: displays incoming MIDI timecode and trigger signals.



The Insert Toolbar

Use the Insert toolbar for quick access to commands from the Insert menu.

Button	Description
	Insert Marker: click to add a marker at the cursor position.
	Insert Region: click to add a region using the current time selection.
	Insert Sample Loop: click to add a sample loop using the current time selection.
	Insert Command: click to add a metadata command marker at the cursor position.
	Insert CD Track: click to add a disc-at-once CD track using the current time selection.
	Insert CD Index: click to add a disc-at-once CD index marker at the cursor position.
	Insert Volume Envelope: click to add a volume envelope to the data window.
	Insert Pan Envelope: click to add a pan envelope to the data window.
	Insert Silence: click to display the Insert Silence dialog.



Insert Marker: click to add a [marker](#) at the cursor position.



Insert Region: click to add a [region](#) using the current time selection.



Insert Sample Loop: click to add a [sample loop](#) using the current time selection.



Insert Command: click to add a [metadata command marker](#) at the cursor position.



Insert CD Track: click to add a [disc-at-once CD track](#) using the current time selection.



Insert CD Index: click to add a [disc-at-once CD index marker](#) at the cursor position.






Insert Volume Envelope: click to add a volume envelope to the data window.



Insert Pan Envelope: click to add a pan envelope to the data window.



Insert Silence: click to display the [Insert Silence](#) dialog.

	DTMF/MF Tone Synthesis: click to display the DTMF/MF Tones dialog.
	FM Synthesis: click to display the FM Synthesis dialog.
	Simple Synthesis: click to display the Simple Synthesis dialog.























The Process Toolbar

Use the Process toolbar to perform functions from the Process menu.

Button	Description
	Auto Trim/Crop: click to display the Auto Trim/Crop dialog.
	Bit-Depth Converter: click to display the Bit Depth Converter dialog.
	Channel Converter: click to display the Channel Converter dialog.
	DC Offset: click to display the DC Offset dialog.
	Graphic EQ: click to boost or attenuate selected frequency bands.
	Paragrophic EQ: click to display the Paragrophic EQ dialog.
	Parametric EQ: click to display the Parametric EQ dialog.
	Graphic Fade: click to draw a fade envelope that will be applied across the current data selection.
	Fade In: click to perform a linear fade from -Inf. to 0 dB.
	Fade Out: click to perform a linear fade from 0 dB to -Inf.
	Invert/Flip: click to reverse the phase of the sound data.
	Mute: click to set the volume of a selection to -Inf dB (silence).
	Normalize: click to display the Normalize dialog.
	Pan/Expand: click to display the Pan/Expand dialog.
	Resample: click to display the Resample dialog.
	Reverse: click to reverse the current selection.
	Rotate Audio: click to change the feel of a given loop by moving the selection to the opposite end of the file. This command has no effect if the selection does not touch the beginning or end of the file.
	Smooth/Enhance: click to display the Smooth/Enhance dialog.
	Time Stretch: click to display the Time Stretch dialog.
	élastique Timestretch: click to display the élastique Timestretch
	Volume: click to change the volume of a sound file selection.





The Effects Toolbar


















Use the Effects toolbar to apply effects to a file.

Button	Description
	Acoustic Mirror: click to use the Acoustic Mirror plug-in.
	Amplitude Modulation: click to apply a sinusoidal or square-shaped periodic gain to the input signal. The frequency of the gain waveform can be adjusted to create effects varying from a slow tremolo to unusual sound distortions.
	Chorus: click to add a pitch-modulated and delayed version of the input signal to the unprocessed input signal. The effect simulates the variances in pitch and timing that occur naturally when two or more people try to play or sing the same melody at the same time.
	Multi-Tap Delay: click to simulate multiple echoes, reverberation, and other delay-related effects.
	Simple Delay: click to add a delayed copy of the sound signal to a selection. A single delay or decaying multiple delays can be added before or after the sound signal.
	Distortion: click to tailor the gain at all input levels of a signal. You can create effects ranging from dramatic to subtle distortion, simple compression, expansion, and noise gates.
	Graphic Dynamics: click to affect the dynamic range of the selection by applying compression, expansion, and limiting.
	Multi-Band Dynamics: click to apply compression and limiting to up to four different frequency bands.
	Envelope: click to modify the amplitude of a waveform to match a specified envelope shape.
	Flange/Wah-Wah: click to apply flanging, phasing, and wah-wah effects to a sound.
	Gapper/Snipper: click to cut chunks from the sound file or insert silence in the selection periodically at a set frequency.
	Noise Gate: click to remove signals below a set threshold.
	Pitch Bend: click to draw an envelope that increases or decreases the pitch of a selection over time.
	Pitch Shift: click to change the pitch of a sound with or without preserving the duration of the selection.
	Resonant Filter: click to restrict the range of a sound using low-pass, band-pass, or high-pass filtering, and then boost and add oscillation to the resonant frequency.
	Reverb: click to simulate various acoustic spaces. Reverb consists of early reflections which are the first reflections that arrive back to your ear and the reverb itself.— —
	Vibrato: click to apply periodic pitch modulation to a selection.
	Wave Hammer: click to use the Wave Hammer mastering plug-in.
	DeClicker / DeCrackler: click to use the DeClicker/Decrackler audio restoration plug-in.
	DeHisser: click to use the DeHisser audio restoration plug-in.
	Wave Hammer 2.0: click to use the Wave Hammer 2.0 advanced mastering plug-in.
	DeClipper: click to use the DeClipper audio restoration plug-in.

The Tools Toolbar

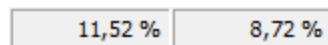
Use the Tools toolbar for quick access to the Sound Forge Pro editing tools.


Button	Description
	Extract Audio From CD: Click to display the Extract Audio from CD dialog.
	Burn Track-at-Once CD: click to display the Burn Track-at-Once CD dialog.
	Burn Disc-at-Once CD: click to display the Burn Disc-at-Once CD dialog.
	Auto Region: click to display the Auto Region dialog.

	Extract Regions: click to display the Extract Regions dialog.
	Clip Detect: click to display the Detect Clipping dialog.
	Find: click to display the Find dialog.
	Repair: Interpolate: click to interpolate a region of sound based on the data at the beginning and end of the region.
	Repair: Replace: click to replace a region of sound with previous sound data.
	Repair: Copy Other Channel: click to replace a selection with data from the other channel in a stereo pair.
	Noise Reduction: click to use the Noise Reduction plug-in to remove noise.
	Click and Crackle Removal: click to use the Click and Crackle Removal plug-in to remove clicks and sharp glitches.
	Clipped Peak Restoration: click to use the Clipped Peak Restoration plug-in to round the tops of clipped peaks and apply peak limiting to the area immediately surrounding the audio clip. Nonclipped audio is not affected.
	Audio Restoration: click to use the Audio Restoration plug-in to clean up recordings.
	Crossfade Loop: click to display the Crossfade Loop dialog.
	Sampler: click to display the Sampler dialog.
	Statistics: click to display the Statistics dialog.
	Loudness Log click to generate a Loudness Log .
	Batch Converter: click to start the Batch Converter.
	Edit in SpectraLayers Pro: click to open the active data window in SpectraLayers Pro . When you're done editing, close SpectraLayers Pro. You'll be prompted to export your changes back to Sound Forge Pro. Click Yes , and the Sound Forge Pro data window is updated to reflect any changes.
	Send to SpectraLayers Pro: click to open the active data window as a layer in SpectraLayers Pro . When you're done editing, you can save your project in SpectraLayers Pro, render the mixed output, or use Process > Send to Sound Forge Pro to save your changes.

The Levels Toolbar


Use the Levels toolbar to display the left- and right-channel levels at the cursor in a variety of different formats.



 If you have a range of data selected, the toolbar will display the level at the active end of the selection; press the Home key to move the cursor to the beginning of the selection or press End to move to the end of the selection.

Right-click the toolbar and choose a format from the shortcut menu to specify a format.

Command Function	
Sample Value	Displays the right- and left-channel levels at the cursor position as an integer. The range is from -8388608 to 8388607 in 24-bit audio, -32768 to 32767 in 16-bit audio and -128 and 127 in 8-bit audio.
Percent	Displays the right- and left-channel levels at the cursor position as a percentage. The range is from -100 to 100 percent.
Decibels (dB)	Displays the right- and left-channel levels at the cursor position in decibels. A value of 0 dB corresponds to maximum absolute amplitude and negative infinity (-Inf.) corresponds to complete silence. In 16-bit audio, -90.3 dB is the lowest possible dB value (sample value of 1).
Peak	Displays the peak sample value in the vicinity of the cursor as a dB value.

 Sound Forge Pro software scans 50 milliseconds by default. To change the scan time, choose **Preferences** from the Options menu. Next, choose the Status tab and edit the value in the **Peak level scan time** box.
















RMS Level Displays the Root Mean Square (RMS) of the sample values in the vicinity of the cursor as a dB value. RMS is a more accurate measurement of loudness than the peak value.

 **Notes:**

- Sound Forge Pro software scans 50 milliseconds by default. To change the scan time, choose **Preferences** from the Options menu. Next, choose the Status tab and edit the value in the **RMS level scan time** box.
- The maximum value of 0 dB is only achieved by a square wave (or DC offset) of maximum amplitude. A maximum amplitude sine wave reaches only -3 dB. Values below -96 dB can be achieved by combination of silence and very low levels, and only complete silence will register negative infinity.

The Transport Toolbar

Use the Transport toolbar to perform playback and recording functions.

Button	Description
	<p>Arm: opens the wave device and loads all recording buffers in order to minimize the amount of time between clicking the Record button  and when recording starts.</p> <p>When Create new window is selected in the Mode drop-down list in the Record Options window, the Arm  and Record  buttons are enabled even when no data windows are open. When Normal or Create regions is selected, the Arm  and Record  buttons are not available until you create a data window or open a file.</p>
	<p>Record: starts and stops recording. For more information, please see one of the following topics:</p> <ul style="list-style-type: none"> • Creating a New Recording • Recording into an Existing Sound File • Recording Audio Automatically
	<p>Loop Playback: Plays the selected data in a continuous mode.</p> <p> If there is no selection, the entire sound file is played in an endless loop.</p>
	<p>Play All: click to play the entire file from beginning to end, regardless of cursor position, selection, or playlist. Playback for musical instrument files behaves slightly differently than playback in a normal data window.</p> <ul style="list-style-type: none"> • If no samples are selected, click Play All to play all samples in the data window. • If you have samples selected, click Play All to play all selected samples in the data window.
	<p>Play: click to play back the file in current playback mode.</p> <p>Playback for musical instrument files behaves slightly differently than playback in a normal data window.</p> <ul style="list-style-type: none"> • If no samples are selected, click Play to play all samples from the cursor position to the end of the data window. • If you have samples selected, click Play to play all selected samples from the cursor position to the end of the data window. <p> Select the Spacebar and F12 Play/Pause instead of Play/Stop check box in the General Preferences tab if you want the F12 and spacebar keyboard shortcuts to toggle between Play and Pause mode. In this mode, the cursor will maintain its position.</p>
	<p>Pause: click to pause playback and leave the cursor at its current position.</p>
	<p>Stop: click to stop playback and return the cursor to its position prior to playback.</p>
	<p>Go to Start: click to move the cursor to the beginning of the current file.</p>



Go to Previous Track: Moves the cursor to the previous [disc-at-once track or index](#). Hold Ctrl while clicking to skip index markers, or hold Shift to extend a selection.

This button is available only if [disc-at-once tracks](#) are present in your data window.



Rewind: click to move the cursor backward through the current file.



Forward: click to move the cursor forward through the current file.



Go to Next Track: Moves the cursor to the next disc-at-once track or index. Hold Ctrl while clicking to skip index markers, or hold Shift to extend a selection.

This button is available only if disc-at-once tracks are present in your data window.



Go to End: click to move the cursor to the end of the current file.

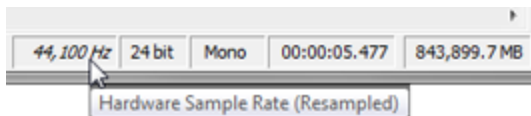
The Status Bar

The Status Bar is displayed across the bottom of the Sound Forge Pro window.

Processing time (Normalize): 1.859 seconds	44,100 Hz	16 bit	Stereo	00:34:07.838	01:10:27.093	843,927.7 MB
	Sample Rate	Bit Depth	Channels	Total Length	CD Time Remaining	Free Storage

Notes:

- The **CD Time Remaining** box is displayed only when [CD tracks](#) exist in the active data window. You can use the [CD Settings](#) tab in the Preferences dialog to specify whether the software should automatically detect CD lengths or to set a default CD length.
- If the active data window's sample rate is not supported by your audio hardware, the output will be resampled to a supported rate for playback when you're using an ASIO [audio device](#). During playback, the **Sample Rate** box in the Status Bar is displayed in italics to indicate that the output has been resampled.



Edit the sample rate, bit depth, or channels

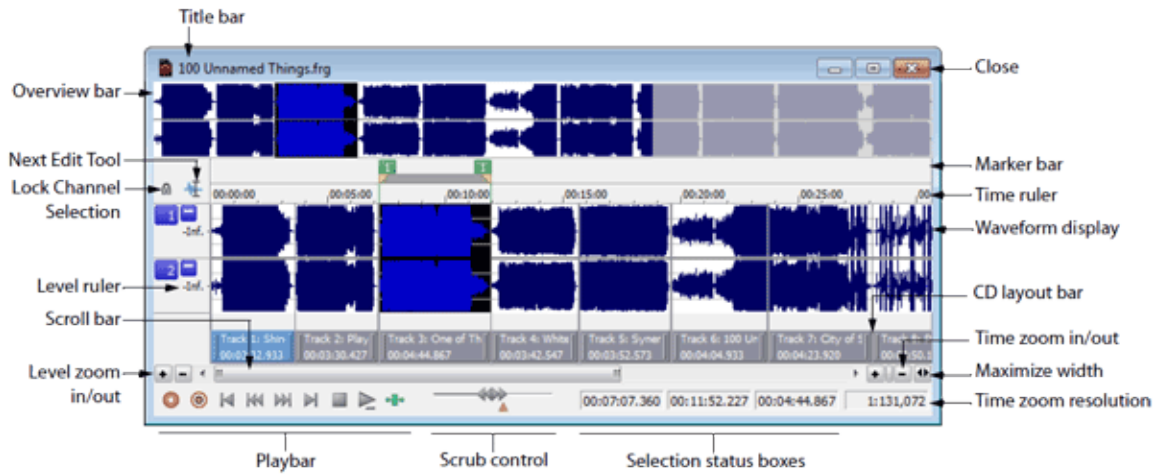
Right-click the **Sample Rate**, **Bit Depth**, or **Channels** box and choose a setting from the shortcut menu, or double-click a box to display an edit box that you can use to type a new value.


Change the status display format

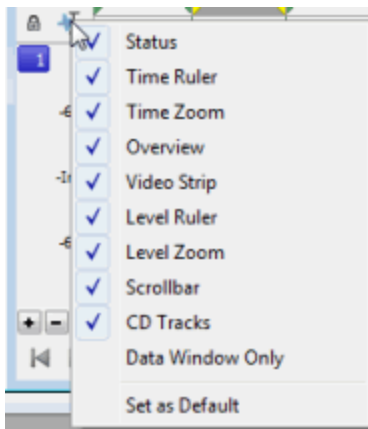
Right click the **Selection Length** box and choose a format from the shortcut menu.

Data Windows

Each sound file is opened in a data window. Each data window shows you a graphical representation of the waveform and other information about the file.



 You can quickly toggle the display of portions of a data window (decorations) by right-clicking the **Next Edit Tool** button and choosing a command from the shortcut menu or choosing **Options > Data Window**:



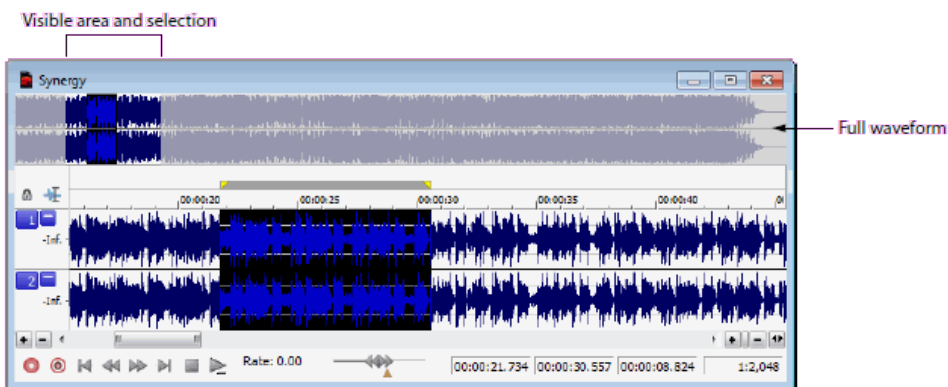
Title bar

Displays the sound file's title. If no title is specified on the [Summary Information](#) window, the file name will be displayed.

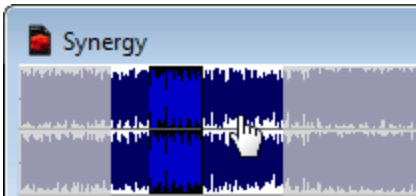
Double-click to maximize and restore the window.

Overview bar

Allows for quick navigation and playback of any part of the file:

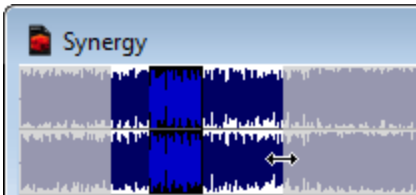


- The full waveform is displayed in the overview bar.
- The unshaded portion of the waveform display represents the portion of the waveform shown in the data window. You can drag this portion to navigate the waveform.
- The current selection is also represented in the overview bar.
- Click in the overview bar to move the cursor.
- Double-click to center the cursor in the waveform display.
- Right-click in the overview bar to toggle playback of the file from the cursor position in the data window.
- To navigate the waveform, you can drag the unshaded portion of the waveform display:



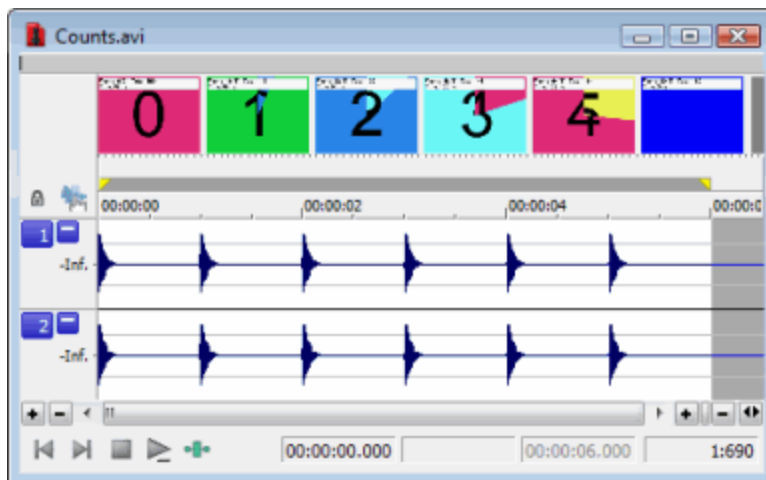
Hold Ctrl and drag the unshaded portion of the waveform display to **scrub** with the audio event locator.

- To zoom horizontally, you can drag the ends of the unshaded portion of the waveform display:



Video strip

When you open a file that contains a video stream, Sound Forge Pro displays a video strip above the audio waveform to help you navigate the file. For more information about the video strip, click [here](#).




Time ruler

Shows the current location in the data window as well as ruler tags.



- Right-click to display the time ruler shortcut menu.
- Drag to scroll the data window.

Next Edit Tool button

Click to toggle through the [Edit](#), [Magnify](#), [Pencil](#), [Event](#), and [Envelope](#) tools.

 The **Pencil** tool is available only at magnification levels below the **Pencil tool maximum zoom ratio** setting on the [Editing](#) tab in the Preferences dialog.

Minimize channel height

Click the **Minimize** button  to reduce the height of individual channels, or click the **Restore** button  to restore their height.

Hold **Shift** while clicking a **Minimize** button  to minimize all channels except for the one you clicked.

Level ruler

Shows the amplitude of the waveform.

- Right-click to display the level ruler shortcut menu, which allows you to change the zoom level and labels.
- Drag to shift the view up or down when zoomed in vertically.

CD layout bar

The CD layout bar displays information about the tracks you've created for a disc-at-once CD. Each CD track shows the track's number and length.

Red indicators are drawn at the right end of the CD layout bar to represent the end of the disc (if the disc length is known).

You can use the CD layout bar to perform many of the track-editing functions from the [Track List window](#).

For more information about using the CD layout bar, please see [The CD Layout Bar](#).

Level zoom





To zoom in and out vertically by small increments, click the **Level Zoom In/Out** buttons, or click and drag the area between the buttons to zoom quickly.





For more information about magnification, please see [Magnification and Zooming](#).

Playbar

Use the playbar transport buttons to control playback:

Button	Description
	Arm: opens the wave device and loads all recording buffers in order to minimize the amount of time between clicking the Record button  and when recording starts.
	When Create new window is selected in the Mode drop-down list in the Record Options window, the Arm  and Record  buttons are enabled even when no data windows are open. When Normal or Create regions is

selected, the **Arm**  and **Record**  buttons are not available until you [create a data window](#) or [open a file](#).



Record: starts and stops recording. For more information, please see one of the following topics:

- [Creating a New Recording](#)
- [Recording into an Existing Sound File](#)
- [Recording Audio Automatically](#)



Go to Start: Moves the cursor to the start of the file.



Go to Previous Track: Moves the cursor to the previous [disc-at-once track or index](#). Hold Ctrl while clicking to skip index markers, or hold Shift to extend a selection.



This button is displayed only if disc-at-once tracks are present in your data window.



Go to Next Track: Moves the cursor to the next disc-at-once track or index. Hold Ctrl while clicking to skip index markers, or hold Shift to extend a selection.



This button is displayed only if disc-at-once tracks are present in your data window.



Go to End: Moves the cursor to the end of the file.




Stop: Stops playback and returns the cursor to its position prior to playback.



Play Normal Plays the file in Normal mode. —

- If there is no selection, playback occurs from the cursor to end of file.
- If there is a selection, playback occurs from the beginning of the selection to the end of the selection.
- Effects from the [Plug-In Chain](#) are previewed in real time when you play back the file.
- To bypass the plug-in chain, bypass the chain in the Plug-In Chain window. For more information, please see "Preview the effects chain" in [Using the Plug-In Chain](#).



Play as Sample Click to set playback to Sample mode. When you click the **Play** button  while in Sample mode, playback will adhere to the following rules:—


- If the file contains loops, the loops will repeat as many times as specified on the [Edit Sample](#) dialog. Use this to listen to a sound file as it would sound when played by a sampler.
- If the file does not contain any loops, the file will be played once from beginning to end.

This button is not displayed unless a [sample loop](#) has been defined in your file.



Play as Cutlist Click to begin playback from the cursor position, skipping any [cutlist](#) regions. —



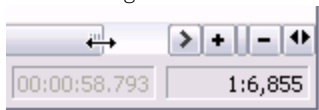
The **Play as Cutlist** button  is not displayed unless you have playlist/cutlist [regions](#) defined and have set your playlist/cutlist to Cutlist mode. To use Cutlist mode, choose **Playlist/Cutlist** from the Edit menu, and then choose **Treat as Cutlist** from the submenu.

Scroll bar

Within the scroll bar, the box represents the portion of the waveform shown in the waveform display. Drag to scroll the sound file forward and backward in time to see parts of the file not currently visible in the waveform display.

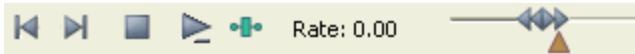


You can drag the end of the scroll box to zoom in or out:



Scrub control

Drag the scrub control () at the bottom of a data window to shuttle forward or backward from the cursor position to find an edit point.

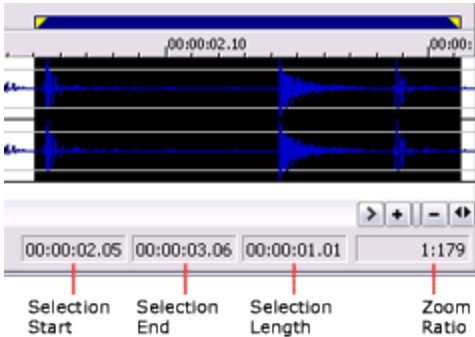


💡 Hover over the scrub control and roll the mouse wheel forward or backward.

You can drag the **Normal Rate** indicator (▲) below the scrub control to adjust playback speed (or double-click the label to type a playback rate).

Selection status bar

Shows the beginning, end, and length of a selection. If no selection has been made, only the cursor position is displayed:



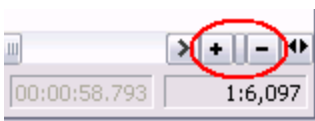
- Double-click the **Selection Start** box to edit the current value. Press Tab or Enter to move the cursor to the new position.
- Double-click the **Selection Start** or **Selection Length** box to edit beginning or ending of the selection. Press Tab or Enter to update the selection.

💡 To update the **Selection Start**, **Selection End**, or **Selection Length** values quickly, you can type + or - and a numeric value. For example, to extend the right end of a selection one second, double-click the **Selection End** box and type +1. To move the left end of a selection one minute to the left, type -1 : 00.

- Right-click to display the Status Format shortcut menu, which allows you to choose a time [format](#).

Time zoom

To zoom in and out horizontally by small increments, click the **Time Zoom In/Out** buttons, or drag the area between the buttons to zoom quickly.



For more information about magnification, please see [Magnification and Zooming](#).

Time zoom resolution

Indicates the number of samples of data represented by each point on the screen horizontally. This determines the length of time shown in the waveform display. With a small resolution value (1:1, 1:2, 1:4, ...), a shorter length of time is displayed.

For more information about magnification, please see [Magnification and Zooming](#).

Maximize width

Click to stretch the width of the data window to fit within the Sound Forge Pro workspace.

💡 Press Ctrl+Enter.

Close data window


Click the **Close** button to close a data window.

 If you have maximized your data windows, click the **Close** button in a data window tab to close that data window.



Choosing a Status Format

From the Options menu, choose **Status Format** and choose a setting from the submenu to specify the format that will be used to display the time ruler, cursor position, and selection. A bullet is displayed next to the selected format.

 Right-click the time ruler and choose a format from the shortcut menu.

Format	Description
Samples	Displays the ruler in samples.
Time	Displays the ruler in hours:minutes:seconds.milliseconds.
Seconds	Displays the ruler in seconds.
Time & Frames	Displays the ruler in hours:minutes:seconds.frames.
Absolute Frames	Displays the ruler with all frames numbered sequentially from the beginning of your project.
Measures and Beats	Displays the ruler in measures.beats.quarter beats. Use the Edit Tempo dialog to specify the tempo of a file.
SMPTE Film Sync (24 fps)	Displays the ruler in hours:minutes:seconds:frames with a frame rate of 24 frames per second. This frame rate matches the standard crystal-sync 16/33 mm film rate of 24 fps.
SMPTE EBU (25 fps, Video)	Displays the ruler in hours:minutes:seconds:frames with a frame rate of 25 frames per second. This is known as SMPTE EBU (European Broadcasting Union) because European television systems run at 25 fps. Use SMPTE 25 EBU format for PAL DV/D1 projects.
SMPTE Non-Drop (29.97 fps, Video)	Displays the ruler in hours:minutes:seconds:frames with a frame rate of 29.97 frames per second, which leads to a discrepancy between real ("wall clock") time and the SMPTE time, because there is no compensation in the counting system as there is in Drop Frame. Use SMPTE Non-Drop format for NTSC D1 projects that will be recorded on master tapes striped with Non-Drop timecode.
SMPTE Drop (29.97 fps, Video)	Displays the ruler in hours:minutes:seconds;frames with a frame rate of 29.97 fps to match the frame rate used by NTSC television systems (North America, Japan). Use SMPTE Drop Frame format for NTSC DV/D1 projects. Both SMPTE Drop and SMPTE Non-Drop run at 29.97 fps. In both formats, the actual frames are not discarded, but they are numbered differently. SMPTE Drop removes certain frame numbers the counting system to keep the SMPTE clock from drifting from real ("wall clock") time. The time is adjusted forward by two frames on every minute boundary except 0, 10, 20, 30, 40, and 50. For example, when SMPTE Drop time increments from 00:00:59.29, the next value will be 00:01:00.02.
SMPTE 30 (30 fps, Audio)	Displays the ruler in hours:minutes:seconds:frames with a frame rate of 30 frames per second. This rate is exactly 30 fps and is commonly used when synchronizing audio applications such as multitrack recorders or MIDI sequencers. This format should not be used when working with video.

Audio CD Time Displays the ruler in hours:minutes:seconds:frames with a frame rate of 75 frames per second for creating **disc-at-once** CDs.

Editing Tempo


From the Options menu, choose **Status Format**, and then choose **Edit Tempo** from the submenu to calculate the musical tempo (in beats per minute) of a file. This tempo is used when you use the Measures & Beats **status format**.

 Use **Time Stretch** to change the tempo of a sound.

Specify the tempo for a file with a known tempo


1. From the Options menu, choose **Status Format**, and then choose **Edit Tempo** from the submenu. The **Edit tempo** dialog is displayed.
2. In the **Tempo in beats per minute** box, enter the tempo of the specified selection. Changing this value will automatically change the **Selection length in beats** control.
3. In the **Number of beats in a measure**, enter the number of beats in a measure.
4. Click the **OK** button.

Calculate the tempo for a file based on a selection

1. Create a selection equal to one measure. If no selection is made, the entire file will be used.
 -  The easiest way to tune a selection to be exactly one measure long is to play the selection looped and change the selection points until a constant downbeat is heard.
2. From the Options menu, choose **Status Format**, and then choose **Edit Tempo** from the submenu. The Edit tempo dialog is displayed.
3. In the **Selection length in beats** box, enter the number of beats in the current selection.
4. In the **Number of beats in a measure**, enter the number of beats in a measure. Sound Forge Pro software calculates the tempo and updates the **Tempo in beats per minute** control.
5. Click the **OK** button.

Arranging Data Windows

You can use the commands on the Window menu to arrange data windows in the Sound Forge Pro workspace.

 Press **Ctrl+Tab** to switch forward through the open windows, or press **Ctrl+Shift+Tab** to switch backward through the open windows.

Command	Description
New Window	Creates a new data window. For more information, see "Creating a New Window" on page 54
Cascade	Arranges all open data windows so they overlap with the title bar of each window remaining visible.
Tile Horizontally	Arranges all open data windows top to bottom with no overlapping. This command affects only nonminimized windows.
Tile Vertically	Arranges all open data windows left to right with no overlapping. This command affects only non-minimized windows.
Arrange Icons	Arranges minimized data windows at the bottom of the workspace. For example, if you had scads of minimized data windows littering the Sound Forge Pro workspace, this command would arrange them neatly at the bottom of the workspace. Mom would be so pleased!
Maximize	Maximizes all open data windows. Tabs for each data window also appear if the Tabs for maximized data

All	windows setting on the Preferences > Display tab is set to Top or Bottom . For more information, see " Display Preferences " on page 250
Minimize All	Minimizes all open data windows.
Restore All	Restores all minimized windows to their previous window size and position.
Close All	Closes all open data windows.
Window List	Displays a list of all open data windows. Choose a window from the menu to switch focus to that data window.

Workspaces

Workspace files (.sfw) allow you to create a snapshot of your Sound Forge Pro desktop so you can return to it at any time. A workspace saves the following information:

- Open files with their magnification, selection, cursor position, data window size, and screen location.
- [Plug-In Chain](#) settings.
- Any [views](#) you have created for each data window.

Open a workspace

Opening a workspace opens all of the files in the workspace and restores their positions on the screen.

1. From the File menu, choose **Workspace**, and then choose **Open** from the submenu to display the Open Workspace dialog.
2. Choose a folder from the **Look in** drop-down list or browse to a folder. All of the files available in the folder are displayed in the space below.
3. Select a file in the browse window or type a name in the **File name** box.
4. Click the **Open** button.

Save a workspace

Saving a workspace saves the names of all open files along with their position, size, and any saved [views](#).

1. From the File menu, choose **Workspace**, and choose **Save As** from the submenu to display the Save Workspace dialog.
2. Choose a folder from the **Save in** drop-down list or browse to a folder. All of the files available in the folder are displayed in the space below.
3. In the **File Name** box, type the name of the file that you want to save.
4. Click the **Save** button.

The Views Toolbar

Use the Views toolbar to store and retrieve data window views. A saved view maintains selection, cursor position, magnification, and position scroll bar placement.



Views are maintained only as long as a data window is open. If you want to save a view after closing a file, save a [workspace](#) file.

Save the current view

1. Click the **Set** button



on the Views toolbar.



If the Views toolbar is not displayed, choose **Toolbars** from the View menu and select the **Views** check box.

- Click the numbered button where you want to store the current view.



Press Ctrl+Shift+ the number you want to store.

Recall a saved view

Click a numbered button on the Views toolbar to recall a view.



Press Ctrl+ the number you want to store.

Saving and Recalling Window Layouts

A window layout stores the sizes and positions of all windows and floating window docks in the Sound Forge Pro workspace.

You can store any number of window layouts on your computer, and up to ten window layouts are available in the View menu (and via keyboard shortcuts) so you can quickly recall frequently used layouts. For example, you could have a layout dedicated to disc-at-once CD creation and another for ADR work.



Window layouts are saved in **C:\Users\[user name]\AppData\Roaming\MAGIX\Sound Forge Pro\12.0**. You can transfer layouts between computers by copying the .ForgeWindowLayout files.

Save a window layout



Press Ctrl+Alt+D, release the keys, and then press a number on your keyboard (not the numeric keypad) to save the layout in that space.

- Arrange the windows and **docked windows** as desired.
- From the View menu, choose **Window Layouts**, and then choose **Save Layout As** from the submenu. The Save Layout As dialog is displayed.

Choose **Save Layout** from the submenu if you want to update the current window layout. A bullet (●) is displayed next to the current layout.

- In the **Name** box, type the name you want to use to identify the layout. This name will be used in the Organize Layouts dialog.
- Choose a setting from the **Shortcut** drop-down list to set the shortcut that will be used to load the layout.

For example, if you choose 4, you could press Alt+Shift+D, release the keys, and then press 4 on your keyboard to load the layout.

- The **Folder** box displays the path to the folder where the layout will be saved.

Window layouts are saved to **C:\Users\[user name]\AppData\Roaming\MAGIX\Sound Forge Pro\11.0** by default.

You can click the **Browse** button to choose a different folder.

- Click **OK** to save the new layout.

Load a saved layout

From the View menu, choose **Window Layouts**, and then choose the window layout you want to use from the submenu.



To load a layout quickly, press Alt+Shift+D, release the keys, and then press a number on your keyboard (not the numeric keypad) to recall the layout saved in that in that space. If no layout is saved in that space, nothing will happen when you press the shortcut.

If you've modified the current window layout, choose **Window Layouts**, and then choose **Reload Selected Layout** from the submenu to reset the window layout to the last-saved version.

Add a layout to the View > Window Layouts submenu

1. From the View menu, choose **Window Layouts**, and then choose **Organize Layouts** from the submenu. The Organize Layouts dialog is displayed.
2. Select a layout in the **Available layouts in current folder** box.

This box lists the .ForgeWindowLayout files in the folder displayed in the **Current layout folder** box. If the layout you want to use is saved in a different folder, you can click the **Browse** button to choose a new folder.

3. Select a layout in the **Current layouts in menu** box.
4. Click the **Assign** (or **Replace**) button—or double-click a layout in the **Available layouts in current folder** box — to add the layout to the View > Window Layouts submenu.

You can click the **Move Up** or **Move Down** buttons to change the order of the layouts in the menu.

5. Click the **Activate** button — or double-click a layout in the **Current layouts in menu** box — to apply the selected layout to the Sound Forge Pro workspace.
6. Click **OK** to close the Organize Layouts dialog and apply your changes.

Remove a layout from the View > Window Layouts submenu

1. From the View menu, choose **Window Layouts**, and then choose **Organize Layouts** from the submenu. The Organize Layouts dialog is displayed.
2. Select a layout in the **Current layouts in menu** box.
3. Click the **Clear** button to remove the selected layout from the View > Window Layouts submenu.

If you want to replace the selected layout, select a layout in the **Available layouts in current folder** box and click the **Replace** button.

4. Click **OK** to close the Organize Layouts dialog and apply your changes.



Removing a layout from the View > Window Layouts submenu does not remove the .ForgeWindowLayout file from your computer.

Delete a layout from your computer

1. From the View menu, choose **Window Layouts**, and then choose **Organize Layouts** from the submenu. The Organize Layouts dialog is displayed.
2. Select a layout in the **Available layouts in current folder** box.
3. Click the **Delete Layout** button to remove the selected layout from your computer.



You cannot delete a layout that is included in the **Current layouts in menu** list. First, select the layout in the **Current layouts in menu** list and click the **Clear** button. Next, select the layout in the **Available layouts in current folder** list and click the **Delete Layout** button.


4. Click **OK** to close the Organize Layouts dialog and apply your changes.

Docking and Undocking Windows

Your workspace can become cluttered quickly if you have several windows and toolbars visible.



You can create multiple window docks to organize your Sound Forge Pro windows. These docks can be anchored to the perimeter of the Sound Forge Pro workspace, or they can float over the workspace or on a secondary monitor.

Tips:

- To dock a window, drag it to a floating dock or to any edge of the Sound Forge Pro workspace.
- To undock a window, click the handle  and drag it out of the docking area or floating dock.
- To prevent a window from docking when you drag it, hold the Ctrl key.



When the **Allow floating windows to dock** check box on the **General** tab of the Preferences dialog is cleared, windows will not dock unless you hold the Ctrl key. When the check box is selected, you can prevent a window from docking by holding the Ctrl key.

- To expand a docked window so it fills the docking area, click the **Maximize** button . Click again to restore the window to its previous size.
- To close a window in the docking area or a floating dock, click the **Close** button .

You can dock several windows in the same area of the screen, and the windows will be layered. Click a window's tab to bring it to the top.

The Explorer Window

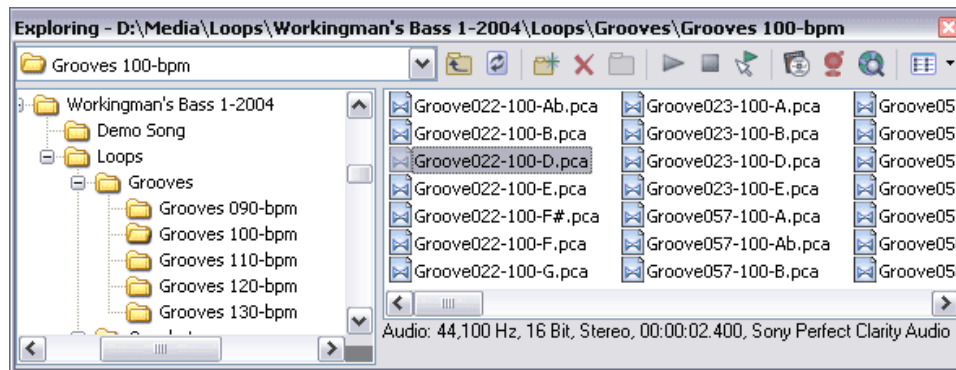
From the View menu, choose **Explorer** to toggle the display of the Explorer window.












You can use the Explorer window to find, preview, and open media files. You can also drag files or regions from the Explorer window to an open data window to **paste** or **mix** the data. Click the right mouse button while dragging to toggle mix and paste drag-and-drop modes.





If the **Always open dropped files in new window** check box on the **General** page of the Preferences dialog is cleared, you can also drag a file (or region) from the Explorer window to a data window to **paste** or **mix** the data. Click the right mouse button while dragging to toggle mix and paste drag-and-drop modes.

Learn more about the Explorer window



Item	Name	Description										
	Address Bar	Displays the current folder. You may also specify a particular file type to display. To specify a file type, make sure that All Files is not selected in the Views button menu and click on the combo box. Type the wildcard followed by the extension. For example, *.wav or ?intro?.avi										
	Tree View	Displays all of the available files and folders where you can find media files.										
	Contents Pane	Displays the folders and media files contained in the active folder.										
	Up	Opens the folder one level above the active folder.										
	Refresh	Refreshes the contents of the active folder. If you insert a new CD (or other removable media), click to refresh the Explorer.										
	New Folder	Creates a new folder within the active folder.										
	Delete	Deletes the selected folder or file.										
	Add to My Favorites	Adds the selected folder to the Favorites folder in the address bar. The Favorites folder contains links to folders that you use most often.										
	Start Preview	Plays the selected media file.										
	Stop Preview	Stops the playback of the selected media file.										
	Auto Preview	Automatically preview media files when you click them in the Explorer window.										
	Views	Allows you to change the way the files are viewed in the list view. <table border="1"> <tbody> <tr> <td>Tree View:</td> <td>Displays all of the available drives and folders that you may choose from to find files.</td> </tr> <tr> <td>Region View:</td> <td>Displays any regions that have been defined in the selected media file.</td> </tr> <tr> <td>Summary View:</td> <td>Displays a short description of the selected media file at the bottom of the Explorer window.</td> </tr> <tr> <td>Details:</td> <td>Displays the file size, date and when the file was last created or last modified.</td> </tr> <tr> <td>All Files:</td> <td>Displays all file types in the active folder.</td> </tr> </tbody> </table>	Tree View:	Displays all of the available drives and folders that you may choose from to find files.	Region View:	Displays any regions that have been defined in the selected media file.	Summary View:	Displays a short description of the selected media file at the bottom of the Explorer window.	Details:	Displays the file size, date and when the file was last created or last modified.	All Files:	Displays all file types in the active folder.
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Preview a file

If the **Auto Preview** button  is selected, you can click a file in the Explorer to audition it. You can stop the preview by clicking the **Stop Preview** button  in the Explorer, or you can turn off the preview feature by deselecting the **Auto Preview** button.

When the **Auto Preview** button is not selected, click the **Start Preview** button  to start preview.


Open files

Double-click a file in the Explorer or drag it to the workspace.

Tips:

- To open multiple files, Ctrl+click (or Shift+click) to select the files and drag them to the workspace.
- To add a track from an audio CD, browse to your CD drive and double-click a .cda file (or drag it to the workspace). Sound Forge Pro will prompt you to enter a name for the file and will extract the CD track.

Use the Favorites folder

Select the Favorites folder  or choose **Favorites** from the Address Bar to view the contents of the Favorites folder. This folder contains shortcuts to folders that you use often.

 Favorites are saved in the following folder: **C:\Users\[user name]\AppData\Roaming\MAGIX\Sound Forge Pro\12\ExplorerFavorites.txt**.

The file is saved whenever you close the Explorer window or exit the application. You can copy the file to different computers or user accounts to migrate Favorites settings.


To see this file, you must have the **Show hidden files and folders** radio button selected on the View tab of the Folder Options Control Panel.

Adding a folder to the Favorites folder

1. Browse to the folder you want to add.
2. Right-click the folder and choose **Add Folder to My Favorites** from the shortcut menu to create a shortcut to the folder.

Removing a folder from the Favorites folder

1. Select the Favorites folder.
2. Right-click the folder you want to delete and choose **Delete** from the shortcut menu.

 Deleting a folder from Favorites deletes only the shortcut to the folder; the target folder is unaffected.

File Properties

From the View menu, choose **File Properties** to view or edit information saved in the active file.

This information is saved with the file and can be displayed by media players when you save your project in a different file format.

Tips:


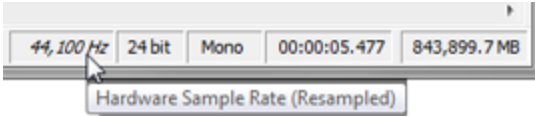


- Double-click the **Sample Rate, Bit Depth, Channels,** or **File Length** box in the **status bar** to edit properties quickly:

Processing time (Normalize): 1.859 seconds	44,100 Hz	16 bit	Stereo	00:34:07.838	01:10:27.093	843,927.7 MB
	Sample Rate	Bit Depth	Channels	Total Length	CD Time Remaining	Free Storage

- If you want to sort the contents of a metadata window, you can click a column heading to sort in ascending or descending order. Hold Ctrl and click a column heading to return to the default sort order.
- If you want to copy metadata to the clipboard, right-click the window and choose **Copy to Clipboard** from the shortcut menu.
- If you want to customize the format for copying metadata to the clipboard, right-click the window and choose **Custom Copy to Clipboard** from the shortcut menu.

The Copy Metadata dialog is displayed to let you choose whether you want to copy the data as formatted text or delimited text, set a delimiter, and choose whether you want to include a header row.

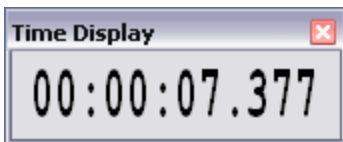
Click **OK** to copy the metadata to the clipboard, and you can then paste the information wherever you need it.

Item	Description
File name	The name of the file saved on disk.
Location	The folder where the file is saved.
File size	The size of the file on disk.
File attributes	Indicates whether file attributes (read-only, hidden, etc.) have been set.
Last saved	The date and time the file was saved.
File type	The file type for the file.
Audio format	The format used to save the audio stream.
Audio sample rate	<p>Click the down arrow ▼ and choose a sample rate from the drop-down list, or choose Custom to type a value in the edit box to set the number of samples per second used to represent the audio.</p> <p> Notes:</p> <ul style="list-style-type: none"> • This setting will not resample the sound file. If the playback rate is different from the originally recorded rate, the pitch will vary unless the file is resampled. • If the active data window's sample rate is not supported by your audio hardware, the output will be resampled to a supported rate for playback when you're using an ASIO audio device. During playback, the Sample Rate box in the Status Bar is displayed in italics to indicate that the output has been resampled. 
Audio bit rate	Displays the bit rate of the audio file.
Audio bit depth	<p>Click the down arrow ▼ and choose a bit depth from the drop-down list to set the number of bits used to represent each sample.</p> <p> Use the Bit-Depth Converter to perform advanced conversion.</p>
Audio channels	<p>Click the down arrow ▼ and choose a setting from the drop-down list to set the number of channels stored in the file.</p> <p> Use the Channel Converter to perform advanced channel mixing.</p>
Audio	The duration (in time and samples) of the audio file.

length	
Video format	Displays the format used to save the video stream.
Video attributes	Displays the frame size, color depth and frame rate of the video stream.
Video length	Displays the length (in time and frames) of the video stream.
Video field order	Displays the field order of the video stream. Click the down arrow ▼ and choose a setting from the drop-down list to change the field order.
Video pixel aspect ratio	<p>Displays the pixel aspect ratio of the video stream. Click the down arrow ▼ and choose a setting from the drop-down list to change the pixel aspect ratio.</p> <p>Computers display pixels as squares, or a ratio of 1.0. Televisions display pixels as rectangles (ratios other than 1.0).</p> <p>Using the incorrect setting can result in distortion or stretching. Consult your capture/video output card's manual for the proper settings.</p>

Time Display

From the View menu, choose **Time Display** to open or close the Time Display window. The Time Display window displays the current cursor or play position.




To change the [display options](#), right-click the Time Display window and choose a command from the shortcut menu, or choose **Time Display** from the Options menu and choose a command from the submenu.

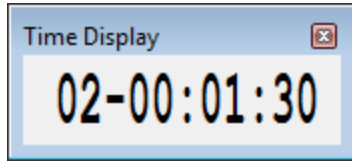
Choosing Time Display Options

From the Options menu, choose **Time Display** and choose an option from the submenu to adjust the [Time Display](#) window settings.

To display the Time Display window, choose **Time Display** from the View menu.

💡 Right-click the Time Display window and choose an option from the shortcut menu.

Option	Description
Position	When selected, the Time Display window shows the position of the edit or play cursor. The format of the display will depend on the Status Format setting.
Sync/Trigger Status	When selected, the Time Display window shows incoming MIDI timecode and trigger signals.  The current MIDI Input port is set on the MIDI/Sync tab of the Preferences dialog.
Playlist Position	When selected, the Time Display window shows the position of the cursor (relative to the beginning of the playlist) during playback from the Playlist window . The format of the display will depend on the Status Format setting.
CD Track Position	When selected, the Time Display window shows disc-at-once CD track numbers. In this mode, the Time Display will show track numbers and the running time for each track. Negative values indicate the pause time before a track:



Record Status

When selected, the Time Display window shows status for **recording**.

The contents of the Time Display window vary depending on the **Method** setting in the Record Options window.

Recording Method	Time Display
Manual	Shows Armed when recording is armed Shows pre-roll time if you're recording with pre-roll. Shows the time recorded while recording. Shows post-roll time if you're recording with post-roll.
Automatic: Threshold	Shows the input level (in dB) when recording is armed. Displays the release time remaining during recording.
Automatic: MIDI Timecode	Shows Waiting... when recording is armed and no MIDI timecode is being received. Shows Armed when recording is armed and MIDI timecode has not started. Shows Armed and counts down to the recording start time when recording is armed and MIDI timecode is being received. Shows Recording and displays the time recorded during recording when no record stop time has been set. Shows Recording and counts down to the recording stop time during recording when a record stop time has been set.
Automatic: Time	Counts down to the recording start time when recording is armed and counts down to the recording stop time during recording.



You can customize the colors used to display the armed, pre- and post-roll, and recording colors on the **Display** tab of the Preferences dialog.

Passive Update

When selected, the Time Display window will only be updated when the processor is idle. Use this when using a slow computer to prevent the audio from glitching. The smallest increments may not be exact, but the major time increments will be accurate.



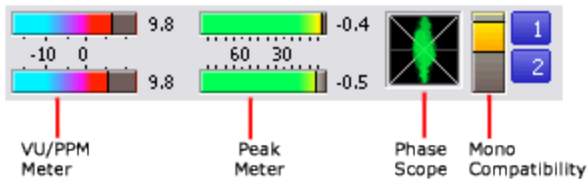
Selecting this option can prevent gapping during playback on slower computers.

Channel Meters

From the View menu, choose **Channel Meters** to open or close the channel meters. By default, Sound Forge Pro software provides peak meters that you can use to monitor your audio levels. You can also choose to display VU/PPM (peak program) meters, a phase scope, and a mono-compatibility meter.

The peak meters display instantaneous levels during playback to help you determine the loudest level in your audio signal and whether the signal is clipping.

To prevent clipping, keep an eye on your peak meters. Peak levels should never exceed 0 dB. You can use the **Status** tab in the Preferences dialog to calibrate the VU/PPM meters to their associated levels on the peak meters and adjust the VU meters' sensitivity.



Show or hide the Channel Meters window

From the View menu, choose **Channel Meters** to open or close the channel meters. You can [dock](#) the Channel Meters window on any edge of the Sound Forge Pro workspace.

Show or hide meters

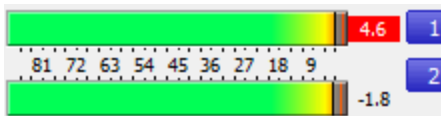
You can display a peak meter, VU/PPM, a phase scope, and mono-compatibility meter for each channel. To toggle the display of each meter, right-click the Channel Meters window and choose a command from the shortcut menu.

A check mark is displayed to indicate which meters are currently visible.

- For more information about using VU/PPM meters, please see [VU and Peak Program Meters](#).
- For more information about using the phase scope, please see [Phase Scope](#).
- For more information about using the mono-compatibility meter, please see [Mono Compatibility Meter](#).

Reset clip indicators

When clipping is detected, the peak meter displays a red clipping indicator.




Do any of the following to reset the indicator:

- From the Options menu, choose **Channel Meters**, and then choose **Reset Clip** from the submenu.
- Right-click the play meter and choose **Reset Clip** from the shortcut menu.
- Click the red clip indicator.

Change the meters' display resolution

The peak meters display levels in dB FS. To change the resolution of the meters, do either of the following:

- From the Options menu, choose **Channel Meters**, choose **Peak Range** from the submenu, and then choose a display range.
- Right-click the channel meter, choose **Peak Range** from the submenu, and then choose a display range.

 Choosing a wide range allows you to see low-level signals at the expense of precision display at high levels.

Change the meters' display options


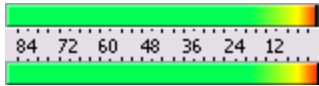
You can choose whether labels, peaks, and valleys are displayed in the meters and whether the meters are displayed on top of other windows when they are not docked.

Do either of the following to change the meters' display options:

- From the Options menu, choose **Channel Meters**, and then choose a command from the submenu.
- Right-click the meters and choose a command from the shortcut menu.

Command	Function
Show Labels	Toggles the meter level labels on and off.
Hold Peaks	When selected, the highest peak levels are represented by a thin line on the meter.
Hold Valleys	When selected, the lowest peak levels are represented by a thin line on the meter.

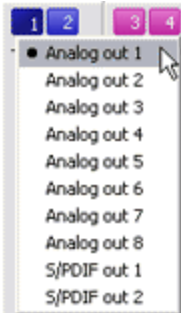
To change the layout of the meters in the Channel Meters window, right click the meters, choose **Layout** from the shortcut menu, and then choose a command from the submenu.

Command	Function
Horizontal/Vertical/Auto	Choose a command to change the orientation of the meters in the Channel Meters window.
Narrow Width	Toggles narrow- or normal-width meters. Using narrow meters can conserve screen space. <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="text-align: center;">  <p>Narrow meter</p> </div> <div style="text-align: center;">  <p>Normal meter</p> </div> </div>
Interleave Peak/VU	Toggles interleaved or stacked display of VU/PPM meters with the corresponding channel meters.

Route channels to hardware outputs

You can change channel assignments from the **Audio tab** in the Preferences dialog or the Channel Meters window. Changing the setting in either location updates your preferences and affects all open data windows.

To change a channel's output device using the Channel Meters window, click the channel number and choose a new output port from the menu:




The Undo/Redo History Window

From the View menu, choose **Undo/Redo History** to open or close the Undo/Redo History window. This window allows you to see all of your edit operations. The most recently performed operations are displayed at the top of each list.



When you perform an edit operation on your sound file, such as cutting data, the operation name appears at the top of the **Undo** list. When you undo the cut, the operation disappears from the Undo list and appears in the **Redo** list.

Preview Undo and Redo operations

You can audition various versions of undos and redos by clicking the **Play** button  next to each entry. However, some **Undo** or **Redo** operations cannot be auditioned.

Undo or Redo operations

To undo or redo an operation, double-click the operation in the Undo or Redo list. If you undo or redo an operation that is not at the top of the list, all operations that were performed after that operation will also be undone (this can take some time when working on large files).

Clear the Undo/Redo History for the current file

From the Edit menu, choose **Clear Undo/Redo History** (or right-click the Undo/Redo History window and choose **Clear** from the shortcut menu) to erase the temporary undo files for the active file.

These files take up disk space, so you might want to clear them periodically when you are sure that you don't want to undo any of your previous changes. This function affects only the current sound file.

Metadata Windows

From the View menu, choose **Metadata**, and then choose a command from the submenu to display metadata windows, where you can view and edit information about the current data window.

💡 Tips:

- If you want to sort the contents of a metadata window, you can click a column heading to sort in ascending or descending order.
- If you want to copy metadata to the clipboard, right-click the window and choose **Copy to Clipboard** from the shortcut menu.
- If you want to customize the format for copying metadata to the clipboard, right-click the window and choose **Custom Copy to Clipboard** from the shortcut menu.

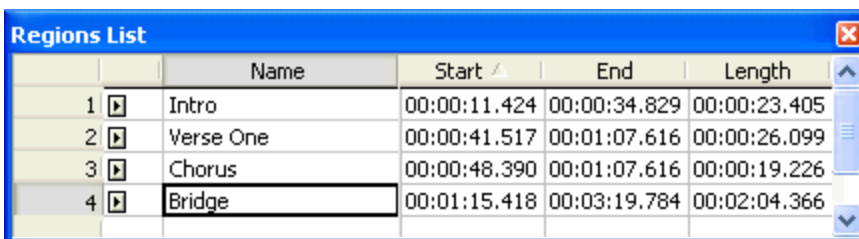
The Copy Metadata dialog is displayed to let you choose whether you want to copy the data as formatted text or delimited text, set a delimiter, and choose whether you want to include a header row.

Click **OK** to copy the metadata to the clipboard, and you can then paste the information wherever you need it.

- If you want to display all metadata windows docked together, choose **View > Metadata > Show All**, and then choose a command from the submenu to indicate where you'd like to display the docked window.


Regions List

From the View menu, choose **Metadata**, and then choose **Regions List** to open or close the Regions List window. The Regions List contains all **regions** and **markers** that exist in the active data window.



	Name	Start	End	Length
1	Intro	00:00:11.424	00:00:34.829	00:00:23.405
2	Verse One	00:00:41.517	00:01:07.616	00:00:26.099
3	Chorus	00:00:48.390	00:01:07.616	00:00:19.226
4	Bridge	00:01:15.418	00:03:19.784	00:02:04.366

💡 Tips:

- To play a region, click the **Play** button  to the left of each region.
- Selecting a marker or region (by clicking the leftmost numbered column) moves the cursor or selection in the data window.
- Click a column heading to sort the results in ascending **Start** or descending **Start** order based on the column's contents.
- You can edit a region by typing new values in the **Name**, **Start**, **End**, or **Length** boxes.

ACID Properties

From the View menu, choose **Metadata**, and then choose **ACID Properties** from the submenu to display the ACID Properties window, where you can view and edit ACID-specific information in a sound file.

💡 Tips:

- If you want to sort the contents of a metadata window, you can click a column heading to sort in ascending or descending order.
- If you want to copy metadata to the clipboard, right-click the window and choose **Copy to Clipboard** from the shortcut menu.
- If you want to customize the format for copying metadata to the clipboard, right-click the window and choose **Custom Copy to Clipboard** from the shortcut menu.

The Copy Metadata dialog is displayed to let you choose whether you want to copy the data as formatted text or delimited text, set a delimiter, and choose whether you want to include a header row.

Click **OK** to copy the metadata to the clipboard, and you can then paste the information wherever you need it.

Item	Description
Time signature	Displays the number of beats in your clip and the note that receives one beat. You can double-click the value to edit it
ACID type	Displays the clip's ACID type. Click the down arrow ▼ and choose a setting from the drop-down list to change the clip type: <ul style="list-style-type: none"> One-Shot Choose One-Shot if you want ACID to treat your file as a one-shot. One-shots are RAM-based audio clips that do not change tempo or pitch with an ACID project and are not designed to loop. Sounds such as cymbal crashes and sound bites could be considered one-shots. Longer files can be treated as one-shots if your computer has sufficient memory. Loop Choose Loop and specify a Number of beats and Root note for transposing if you want ACID to treat your file as a loop. Loops are small audio clips that are designed to create a repeating beat or pattern. Loops are usually one to four measures long and are stored completely in RAM for playback. Loop files change tempo and can pitch shift with an ACID project. <ul style="list-style-type: none"> • Root note for transposing: Click the down arrow ▼ and choose a note from the drop-down list to set the base note for tracks that you want to conform to the project key. If you do not want a track transposed to the project key (a track that contains a drum sample, for example) choose Don't transpose. • Number of beats: Double-click to edit the length of the file. Selecting a value that does not match the actual file will cause ACID to play the loop at a different speed than normal. For example, specifying a length of 8 beats for a 4-beat loop will cause the loop to play at half speed at any given tempo. ACID Beatmapped Choose ACID Beatmapped if you want to add key and tempo information to a long audio file. By default, ACID will start the Beatmapper Wizard for files longer than 30 seconds.

- **Root note for transposing:** Click the down arrow ▼ and choose a note from the drop-down list to set the base note for tracks that you want to conform to the project key.

If you do not want a track transposed to the project key (a track that contains a drum sample, for example) choose **Don't transpose**.

- **Tempo:** Double-click to edit the original tempo of the clip.
- **Downbeat offset (samples):** Double-click to edit the location (in samples) of the track's first downbeat.

Broadcast Wave Information

From the View menu, choose **Metadata**, and then choose **Broadcast Wave** from the submenu to display the Broadcast Wave Information window, where you can view and edit information about a Broadcast Wave Format (BWF) file.

Tips:

- If you want to sort the contents of a metadata window, you can click a column heading to sort in ascending or descending order.
- If you want to sort iXML and BEXT BWF metadata objects, click the **Type** column to sort by metadata type. If you want to delete the iXML chunk select all iXML objects, right-click a selected row, and choose **Delete**.
- For iXML and BEXT metadata objects that support multiline data, press Ctrl+Enter to add a line break.
- If you copy data from a BWF file to a file that does not contain BWF metadata, the source metadata is updated as necessary and added to the destination file.
- If you copy data from a BWF file to a file that contains BWF metadata, the metadata in the destination file is not overwritten. The time stamp and date will be updated if sound data is inserted or removed before other data in the file. You can use the **Autoupdate BWF Origination Time Reference** setting on the [General Preferences](#) tab to choose whether the **OriginationTimeRef** metadata is updated when adding or deleting sound data at the beginning of a Broadcast Wave Format file.
- If you want to copy metadata to the clipboard, right-click the window and choose **Copy to Clipboard** from the shortcut menu.
- If you want to customize the format for copying metadata to the clipboard, right-click the window and choose **Custom Copy to Clipboard** from the shortcut menu.

The Copy Metadata dialog is displayed to let you choose whether you want to copy the data as formatted text or delimited text, set a delimiter, and choose whether you want to include a header row.

Click **OK** to copy the metadata to the clipboard, and you can then paste the information wherever you need it.

Edit metadata

You can double-click values in the Broadcast Wave Information window to edit them.

Autopopulate metadata values

If you want to populate metadata automatically, right-click the Broadcast Wave Information window, choose **Autopopulate** from the shortcut menu, and then choose **BEXT** or **iXML** from the submenu.

Sound Forge Pro will create metadata values based on file properties where possible and will create blank metadata entries for the **Description**, **Originator**, **OriginatorRef**, and **CodingHistory** items.

Verify metadata

If an object's metadata is not valid, the **Value** column is displayed in blue in the Broadcast Wave Information window, and a warning is displayed in the **Description** column:

50	Track Count	-2	iXML	-2 should match the number of audio channels in this file: 1
----	-------------	----	------	--

If you right-click the row in the Broadcast Wave Information window, you can choose a command from the shortcut menu:

- **Set to:** if Sound Forge Pro can suggest a compliant metadata value, you can choose **Set to <suggested value>** to correct the value.
- **Hide Warnings:** hides warnings for all objects. You can right-click again and choose **Show Warnings** to restore warning messages.
- **Hide This Object's Warnings:** hides warnings for the current object. You can right-click again and choose **Show This Object's Warnings** to restore warning messages for the current object, or choose **Stop Hiding of All Object-Specific Warnings** to restore warning messages.

Insert metadata objects

If the data you want to edit is not displayed in the window, you can right-click the window, choose **Insert** from the submenu, and then choose a metadata object from the submenus.

You can choose to add all BWF/BEXT/iXML objects at once, or you can choose commands from the submenus to insert individual objects.

Delete metadata objects

Right-click the window, choose **Delete** from the submenu, and then choose a metadata object from the submenu.

You can choose to delete selected objects, all BWF/BEXT/iXML objects, or you can choose commands from the submenus to delete individual objects.

Change the BWF version for saved metadata

If you want to change the version of BWF metadata that is saved in your file, click the **Value** column in the **BWF Version** row and choose **Version 0**, **Version 1**, or **Version 2** from the menu.

- Version 1 expands on the Version 0 metadata set by adding SMPTE UMID.
- Version 2 expands on the Version 1 metadata set by adding loudness metadata.

CD Information

From the View menu, choose **Metadata**, and then choose **CD Information** from the submenu to display the CD Information metadata window, where you can view and edit information about a **disc-at-once** audio CD.




Tips:

- If you want to sort the contents of a metadata window, you can click a column heading to sort in ascending or descending order.
- If you want to copy metadata to the clipboard, right-click the window and choose **Copy to Clipboard** from the shortcut menu.
- If you want to customize the format for copying metadata to the clipboard, right-click the window and choose **Custom Copy to Clipboard** from the shortcut menu.

The Copy Metadata dialog is displayed to let you choose whether you want to copy the data as formatted text or delimited text, set a delimiter, and choose whether you want to include a header row.

Click **OK** to copy the metadata to the clipboard, and you can then paste the information wherever you need it.

Item	Description
Universal	Universal product codes (UPC) or media catalog numbers (MCN) can be written to a CD as a means of

Product Code/Media Catalog Number	<p>identification. However, not all CD-R drives support this feature. Check your CD-R drive documentation to determine if your drive will write these codes.</p> <p>Type the code in this box, and the codes will be written to the CD with the rest of the project.</p> <p>Universal product codes are administered by GS1 US. For more information, click here.</p>
First track number on disc	<p>Type a number in the box to specify the track number of the first track.</p> <p> Specifying a value other than 1 will produce a valid Red Book CD, but some audio CD players may be unable to play the disc</p>
Name/Title (CD Text)	<p>Type a title for the project.</p> <p>If you select the Write CD Text check box on the Burn Disc-at-Once CD dialog, this data will be written to your disc. In order to display CD Text, your CD player must support CD Text.</p> <p>Notes:</p> <ul style="list-style-type: none"> In order to burn valid CD Text, you must specify a title for the disc and for each track on the disc (artist information is optional). If the Name/Title box in the CD Information or Track List window is left blank, a warning will be displayed before burning so you can choose to write the disc without CD Text or cancel burning and add title information as needed. You can write a maximum of 5000 characters as CD Text.
Artist (CD Text)	<p>Type the name of the artist.</p> <p>If you select the Write CD Text check box on the Burn Disc-at-Once CD dialog, this data will be written to your disc. In order to display CD Text, your CD player must support CD Text.</p>
Engineer	Type the name of the person who mixed or edited the project.
Copyright	Type copyright information for the project.
Comments	Type any comments you want to associate with the project.

Sampler Loops

From the View menu, choose **Metadata**, and then choose **Sampler Loops** from the submenu to display the Sampler Loops window, where you can view and edit information about loops and sampler information saved in the active file.

 **Tips:**

- If you want to sort the contents of a metadata window, you can click a column heading to sort in ascending or descending order.
- If you want to copy metadata to the clipboard, right-click the window and choose **Copy to Clipboard** from the shortcut menu.
- If you want to customize the format for copying metadata to the clipboard, right-click the window and choose **Custom Copy to Clipboard** from the shortcut menu.

The Copy Metadata dialog is displayed to let you choose whether you want to copy the data as formatted text or delimited text, set a delimiter, and choose whether you want to include a header row.

Click **OK** to copy the metadata to the clipboard, and you can then paste the information wherever you need it.

Item	Description
Sample type	Displays the type of sample loop you're creating. Click the down arrow ▼ to choose a new setting.
None	Removes the loop from the file.
One shot	Causes the sound file to play normally with no loops.
Sustaining	Causes the file to repeat the sustaining loop region the specified number of times.
Sustaining with release	Causes the sound file to play the sustaining loop region the number of times you specify, play the region between the sustaining and release loops, and then play the release loop region the number of times you specify.
Sustain start	Displays the beginning of the sustaining loop.

	You can double-click the value to edit it.
Sustain end	Displays the end of the sustaining loop. You can double-click the value to edit it. Editing the end will automatically update the Sustain length value.
Sustain length	Displays the length of the sustaining loop. You can double-click the value to edit it. Editing the length will automatically update the Sustain end value.
Sustain count	Indicates how many times the sustaining loop should be played. Click the down arrow ▼ to choose a new setting. If you choose Custom , you can type a new value.
Release start	Displays the start of the release loop. You can double-click the value to edit it.
Release end	Displays the end of the release loop. You can double-click the value to edit it. Editing the end will automatically update the Release length value.
Release length	Displays the length of the release loop. You can double-click the value to edit it. Editing the length will automatically update the Release end value.
Release count	Indicates how many times the release loop should be played. Click the down arrow ▼ to choose a new setting. If you choose Custom , you can type a new value. For example, if you set the Sustain count to 3 and the Release count to 2, the sustain loop would be played 3 times, and then the release loop would be played twice.
Manufacturer	The MMA manufacturer code for the target device. If the sample is not intended for a specific manufacturer, set the value to 0.
Product	The sampler that created the sample.
Sample period	Click the down arrow ▼ and choose a sample period from the drop-down list, or choose Custom to type a value in the edit box to set the duration of each sample in nanoseconds.
Unity note	Indicates the MIDI note that will cause a sampler to play the sound file at the pitch (sample rate) it was originally recorded. Click the down arrow ▼ to choose a new unity note and octave.
Fine tune	Allows you to pitch shift the unity note up from 0 to 99.999 cents. Sound Forge Pro software does not fine-tune the sound file when fine tuning is used, and not all samplers support the setting. This option is an informational setting that will be transmitted to a sampler via a sample-transfer procedure. A sampler such as the K2000 can use this information to play back the sample. The K2000 should accurately display this information on the Master/Sample/Misc. page as Pitch Adjust.
SMPTE format	Indicates the time format if a SMPTE offset exists for the file. Click the down arrow ▼ to choose a new time format, or choose (No Offset) to remove a SMPTE offset..
SMPTE offset	Indicates whether a SMPTE time offset has been set for the file. Sound Forge Pro software ignores this offset value, and not all samplers can store a SMPTE offset value in the sample.

You can double-click the Start, End, Length or Play Count values to edit them. Editing the Start or End value will recalculate the loop length. Editing the Length value will recalculate the End value.

For more information about working with sample loops, please see [Creating or Editing Sample Information](#).

Summary Information

From the View menu, choose **Metadata**, and then choose Summary Information from the submenu to display the Summary Information window, where you can view and edit information saved in the active file.

Tips:

- If you want to sort the contents of a metadata window, you can click a column heading to sort in ascending or descending order.
- If you want to copy metadata to the clipboard, right-click the window and choose **Copy to Clipboard** from the shortcut menu.
- If you want to customize the format for copying metadata to the clipboard, right-click the window and choose **Custom Copy to Clipboard** from the shortcut menu.

The Copy Metadata dialog is displayed to let you choose whether you want to copy the data as formatted text or delimited text, set a delimiter, and choose whether you want to include a header row.

Click **OK** to copy the metadata to the clipboard, and you can then paste the information wherever you need it.

If the data you want to edit is not displayed in the window, you can right-click the window, choose **Insert** from the submenu, and then choose a metadata field from the submenu.

FourCC Code	Name	Description
IARL	Archival Location	Indicates where the subject of the file is archived.
IART	Artist (CD Text)	The artist of the original subject of the file.
ICMS	Commissioned	The name of the person or organization that commissioned the subject of the file.
ICMT	Comments	General comments about the file or the subject of the file. If the comment is several sentences long, end each sentence with a period. Do not include new-line characters.
ICOP	Copyright	Copyright information for the file. For example, © Copyright 2018 MAGIX Software GmbH If there are multiple copyrights, separate them with a semicolon followed by a space.
ICRD	Creation Date	The date the subject of the file was created. List dates in year-month-day format, padding one-digit months and days with a zero on the left. For example, 1964-03-02 for March 2, 1964.
ICRP	Cropped	Describes whether an image or sound has been cropped and, if so, how it was cropped. For example, Third movement, first through fourth bars.
IDIM	Dimensions	The size of the original subject of the file. For example, 8.5 in h, 11 in w.
IDPI	Dots Per Inch	The dots-per-inch setting of the digitizer used to produce the file.
IENG	Engineer	The name of the engineer who worked on the file. If there are multiple engineers, separate the names by a semicolon and a blank: Engineer, Joe; Mixer, Matt.
IGNR	Genre	Describes the classification of the original work.
IKEY	Keywords	Separate multiple keywords with a semicolon and a blank: Madison; aerial view; scenery.
ILGT	Lightness	Describes the changes in lightness settings on the digitizer required to produce the file. The format of this information depends on hardware used.
IMED	Medium	Describes the format of the original subject of the file.
INAM	Name/Title (CD Text)	The title of the subject of the file, such as Madison From Above.
IPLT	Palette Setting	The number of colors requested when digitizing an image.
IPRD	Product	The name of the title the file was originally intended for, such as Encyclopedia of Midwest Geography.
ISBJ	Subject	Describes the contents of the file, such as Aerial view of Madison.
ISFT	Software	The name of the software package used to create the file.

ISHP	Sharpness	Identifies the changes in sharpness for the digitizer required to produce the file. The format of this information depends on the hardware used.
ISRC	Source	The name of the person or organization who supplied the original subject of the file.
ISRF	Source Form	The original form of the material that was digitized, such as slide, paper, map, and so forth. This is not necessarily the same as IMED.
ITCH	Technician	The technician who digitized the file.
DISP	Sound Scheme Title	Sets the title that is displayed for Microsoft Sound Systems.
TLEN	Text Length (ms)	The length of the file in milliseconds.
TRCK	Track Number	The track number of the media from the original source media.
TURL	URL	The Web address associated with the file.
TVER	Version	Sets the version of the file. You can use versioning information to keep track of multiple mixes.
LOCA	Location	Identifies the location where the file was recorded.
TORG	Organization	Identifies the organization that produced the track.







How Do I . . . ?

This section of the help file answers some commonly asked questions about Sound Forge Pro software.

We also maintain [forums](#) on our Web site where you can share tips and tricks with other Sound Forge Pro users.

Mixing Multiple Files

While Sound Forge Pro is not a multitrack editor check out our [Vegas](#) and [ACID](#) family of products for full multitrack recording and editing you can perform basic mixing from separate audio files.—

1. **Open** the files you want to mix.
2. Click the **New** button  on the toolbar to create a new data window.
 -  This step is optional, but for this example, we're going to perform our mixing in a new data window so we don't change our original sound files.
3. From the Window menu, choose **Tile Horizontally** or **Tile Vertically** so you can see all open data windows.
4. Copy the first file to your new (blank) data window:
 - a. Click the first data window to give it focus, and then press *Ctrl+A* to select all sound data.
 - b. Click the **Copy** button  on the toolbar to copy the data to the clipboard.
 - c. Click the blank data window to give it focus.
 - d. Click the **Paste** button  on the toolbar to paste the data to the new data window.
5. Mix the second file to the new data window:
 - a. Click the second data window to give it focus, and then press *Ctrl+A* to select all sound data.
 - b. Click the **Copy** button  on the toolbar to copy the data to the clipboard.
 - c. Click the blank data window to give it focus.
 - d. Click to position the cursor where you want to mix your audio.
6. Click the **Mix** button  on the toolbar to mix the audio from the clipboard at the cursor position. The Mix dialog is displayed.
7. Use the faders in the Mix dialog to adjust your mix and fade in/out levels. You can click the **Preview** button to audition your mix.

For more information about using the controls in the Mix dialog, please see the [Mix](#) help topic.
8. Click the **OK** button when you're satisfied with your mix.

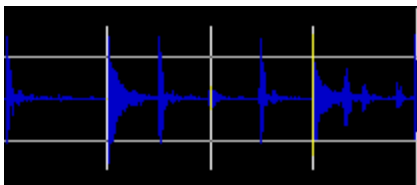
How Do I Create ACID Loops with Sound Forge Pro?


Sound Forge Pro makes it easy to create ACID loops from other audio files. In this example, we'll create a loop from a longer recording, and then we'll edit the loop's [ACID properties](#) so it is properly detected when you add it to an ACID project.




1. **Open** the file you want to use to create your new loop.
2. Create a one-measure **selection**.

From the Options menu, choose **Selection Grid Lines**. Grid lines are displayed over your selection to divide the selection into equal parts.


You can use these grid lines to align your selection with beats:




 To change the number of divisions that will be used, choose **Options > Set Grid Divisions**, and then choose a setting from the submenu.

3. Select the **Loop Playback** button , and then click the **Play** button  to preview your selection. Drag the ends of the selection as necessary until you hear a steady downbeat.
4. Now let's create a new window for our loop so we don't modify the original file:
 - a. Click the **Copy** button  on the main toolbar to copy the selection to the clipboard.
 - b. From the Edit menu, choose **Paste Special**, and then choose **Paste to New**. A new data window is created from your selection.
5. Now we're ready to set the loop's tempo:
 - a. From the Options menu, choose **Status Format**, and then choose **Edit Tempo** from the submenu. The Edit tempo dialog is displayed.
 - b. Use the **Selection length in beats** control to indicate the number of beats in the current selection. If you're creating a loop in 4/4 time, type 4 in this box.
 - c. Use the **Number of beats in a measure** control to indicate the number of beats in a measure. Again, if you're creating a loop in 4/4 time, type 4 in this box.

Sound Forge Pro calculates the tempo of the selection and updates the **Tempo in beats per minute** value.

If the tempo seems too high (200 BPM when you expected 100 BPM, for example), the selection you created in step 2 may have been only half a measure. Repeat from step 2 and use the **Double Selection** button  on the **Navigation toolbar** to extend your selection.

If the tempo seems too low (50 BPM when you expected 100 BPM, for example), the selection you created in step 2 may have been two measures long. Repeat from step 2 and use the **Halve Selection** button  on the **Navigation toolbar** to reduce your selection.

6. Setting the loop's ACID properties will allow the loop to be time-stretched and pitch-shifted correctly when you load it in an ACID project:
 - a. From the View menu, choose **Metadata**, and then choose **ACID Properties** from the submenu to display the **ACID Properties** window.
 - b. Click the down arrow ▼ next to the **ACID type** setting and choose a setting from the drop-down list to indicate whether you want ACID to treat your loop as a one-shot, loop, or an ACID Beatmapped track. For more information about the controls in this dialog, please see [ACID Properties](#).

In this example, imagine we'd created a 4/4 drum loop:

- Type **4/4** in the **Time signature** box.
 - Choose **Loop** from the **ACID type** drop-down list.
 - Choose **Don't transpose** from the **Root note for transposing** drop-down list
 - Type **4** in the **Number of beats** box.
7. **Save** your file, and be sure to select the **Save metadata with file** check box to save the ACID information in the file.

How Do I Create a New File Using Part of Another File?

As you're editing audio, it's often useful to create a new file using part of a larger file. Do you want to create a short preview of your next single? Do you need to extract the perfect drum loop out of a two-hour recording? It's a breeze in Sound Forge Pro.

💡 If you want to create new files from [regions](#) in a sound file, you can use the [Extract Regions](#) command.

💡 If you're editing with a playlist/cutlist, you can [convert](#) the playlist/cutlist to a new file.

1. Start by [selecting](#) the part of the file you want to use to create a new file.
2. Now perform either of the following steps:
3. Drag the selection to an empty area of the Sound Forge Pro workspace to create a new window using the selected data.
4. **Copy** the selection and then choose **Edit > Paste Special > Paste to New**. A new data window is created from your selection.

How Do I Convert Markers to Regions That I Can Use In CD Architect?

CD Architect can create tracks and indices using [markers](#) and [regions](#) in your audio file.

When you choose **Create Tracks from Media Regions** from the Tools menu in CD Architect, tracks are created from regions in the file, and index markers are created from markers in the media file.

If you have a single media file with markers at the positions where you want to create tracks, you can convert those markers to regions before adding the file to your CD Architect project.

1. **Open** the file you want to use to create your CD Architect project.
2. Insert a marker at the points where you want CD tracks to begin.
3. From the Edit menu, choose **Regions List**, and then choose **Markers to Regions** from the submenu. All existing markers will be converted to regions using the data between each consecutive marker as the region boundary.

For example, if your file contains three markers, this command will create two regions; the first region will span the area between the first and second markers, and the second region will span the area between the second and third markers.

4. **Save** your file, and be sure to select the **Save metadata with file** check box.

How Do I Record from an External Source?

This topic provides general guidelines to help you record sound from an external source using Sound Forge Pro software. Your specific hardware may vary. Please refer to your hardware documentation for more information.

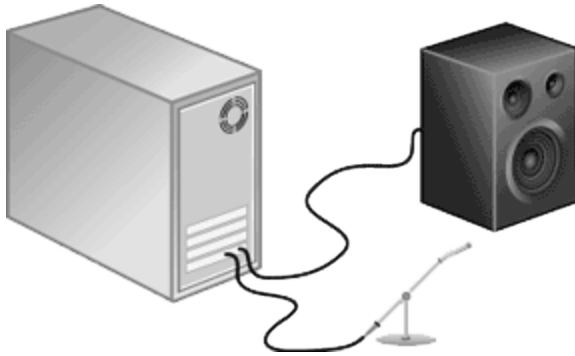


If you're recording from a turntable, use a phono preamplifier between your turntable's output and your sound card's line input. Most turntables' outputs are phono-level (rather than line-level) outputs. Phono-level outputs are quieter than line-level outputs and have special equalization applied. A phono preamplifier will convert the phono-level signal to a line-level signal that you can record.

Connect an audio source to your sound card's input

Basic setup

In this setup, an audio source is connected to an input on your sound card, and your powered speakers are connected to a **Line Out** output. You could connect a computer microphone to your sound card's **Mic In** input, or you can connect line-level outputs from a tape deck or other source to a **Line In** input.

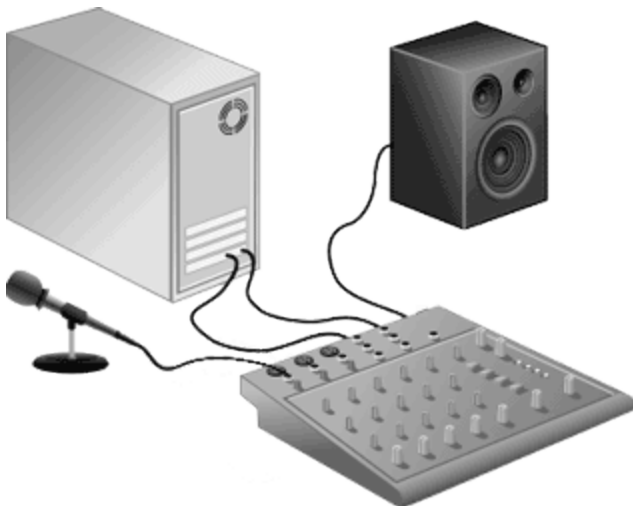


Basic setup with mixer/preamplifier

In this setup, your speakers and audio source are connected to a mixer or preamplifier. The mixer/preamplifier is then connected to **Line In** and **Line Out** connections on your sound card.

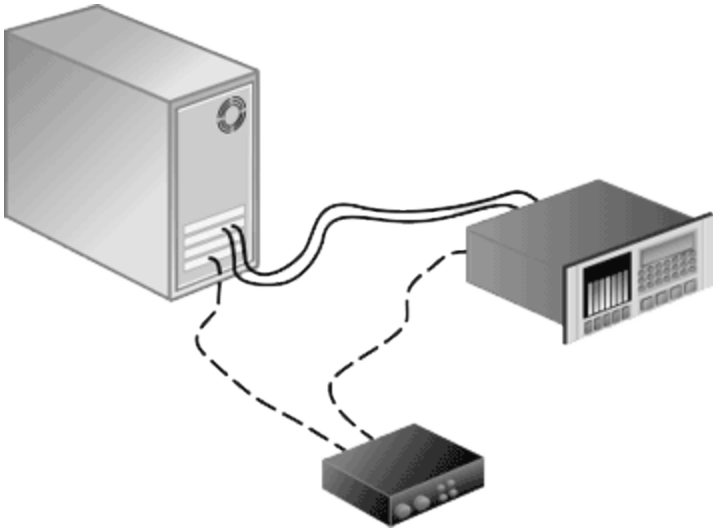


If you're recording from a turntable, use a phono preamplifier between your turntable's output and your sound card's line input. Most turntables' outputs are phono-level (rather than line-level) outputs. Phono-level outputs are quieter than line-level outputs and have special equalization applied. A phono preamplifier will convert the phono-level signal to a line-level signal that you can record.




Digital input/output with MIDI synchronization

In this setup, an audio source with digital input/output is connected to a sound card with digital input and outputs. Dashed lines represent a sync connection from your audio source to a MIDI timecode converter to a MIDI card.

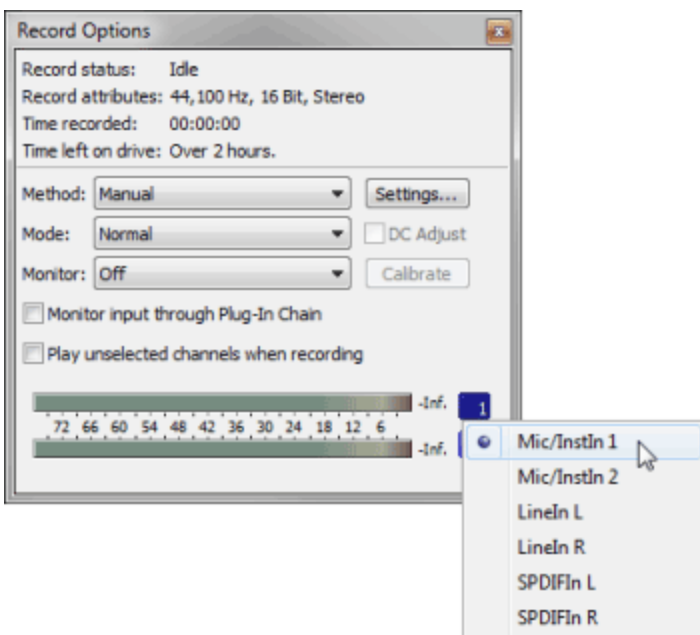




Choose an input device and adjust levels

The Record tab in the [Audio Preferences](#) page allows you to choose the audio inputs from which you want to record. Before recording, you'll need to verify that your sound card's recording inputs are active.

 The maximum number of channels recorded depends on the data window where you're recording. For example, if you enabled six inputs on the Record tab in [Audio Preferences](#), you need to record into a six-channel data window to record all six inputs. If you record to a stereo data window, only two inputs will be recorded.

To choose your recording input, use the [Audio](#) tab in the Preferences dialog or click a channel number in the Record Options window and choose a new input port from the menu.





1. Ensure all cables are connected and that your audio source is generating a signal.
2. Adjust your recording levels:
 - If your audio device provides a console application to adjust levels, open the application and adjust its gain controls while monitoring the peak meters on the Meters tab in the recording dialog. Adjust the gain controls in the console application so Sound Forge Pro receives a strong signal with no clipping.
 -  For more information about using your sound card and its console application, please refer to the manufacturer's documentation.
 - If you're using your Windows sound card, perform the following steps to open the recording controls:
 - a. Double-click the speaker icon  in your system tray to open the Volume Control window.
 - b. From the Options menu, choose **Properties**.
 - c. Click the **Recording** radio button and click **OK**.
 - d. Select (or unmute) the device from which you want to record.
 - e. Adjust the **Volume** faders for the selected device and for the Master Record level while monitoring the recording meters in the Sound Forge Pro Record dialog.

For example, if you want to record from an audio CD in your CD-ROM drive, the CD **Mute** check box should not be selected, and the CD and Master Record **Volume** faders must be adjusted so Sound Forge Pro receives a strong signal with no clipping.

Adjust for DC offset

Sound Forge Pro software can automatically adjust for any **DC offset** produced by your audio hardware during the recording process.

1. Set up your hardware. For more information see [Recording Setup](#).
2. From the View menu, choose **Record Options** to open the Record Options window.
3. Click the **Arm** button  on the main toolbar.
4. Ensure your recording input is quiet.
5. Select the **DC adjust** check box.
6. Click the **Calibrate** button.

 If you change sound cards or are recording from different digital sources or at different sample rates, you should recalibrate the DC offset before recording.

Working with Files

For your editing enjoyment, Sound Forge Pro software can open and save a wide range of audio and video file formats.


Creating a New Window

Each sound file is opened in a separate data window. You can have multiple windows open at once; click anywhere in a data window to make it active.

 Press Ctrl+E to quickly create a new data window using the contents of the clipboard.


1. From the File menu, choose **New** to open a new window.

 Shortcuts:

- Click the **New** button  on the toolbar (or hold the Shift key while choosing **New** from the menu) to skip the New Window dialog and use the previously selected window settings.
- Click and drag a selection box on a blank area of the Sound Forge Pro workspace to create a new window using the previously selected window settings.
- Drag a selection from a data window to an empty area of the Sound Forge Pro workspace to create a new window using the selected data.

2. Use the New Window dialog to specify the parameters for the new window:

- Choose a sample rate from the **Sample rate** drop-down list, or type a custom value in the edit box.
- Choose a setting from the **Bit depth** drop-down list to specify the number of bits that should be used to store each sample.
- Choose a setting from the **Channels** drop-down list (or type a value in the box) to specify the number of **channels** that will be used in the window.

 **Maximum editing time** displays the maximum time currently available on the hard drive for editing a file of the specified type.


Opening a File

Use the **Open** command to open a media file in a new Sound Forge Pro window. You may quickly reopen one of the previously opened files by selecting it from the bottom of the File menu.

Open a file

1. From the File menu, choose **Open**. The Open dialog is displayed.
2. Choose the folder where the file you want to open is stored:
 - Choose a drive and folder from the **Look in** drop-down list.
or—
 - Choose a folder from the **Recent** drop-down list to quickly select a folder from which you have previously opened files.
3. Select a file in the browse window or type a name in the **File name** box. Detailed information about the selected file appears at the bottom of the dialog box.

If you know that the file format is unsupported, choose **Raw File** and click the **Open** button to display the **Raw File Type** dialog, where you can specify format parameters.

 To limit the files displayed in the dialog, choose a file type from the **Files of Type** drop-down list or enter *. and an extension in the **File name** box. For example, enter ***.wav** to display all wave files in the current folder, or enter ***guitar*.wav** to display all wave files that have the word *guitar* in the file name.

4. Click the **Open** button.

Open a file as read-only


On the Open dialog, select the **Open as read-only** check box if you want to open a sound file but do not want to alter the data in the file.

This feature is useful if you only need to play the file or copy sections from the file.

Preview files

On the Open dialog, select the **Auto play** check box if you want to automatically begin playback when a file is selected.

When the **Auto play** check box is not selected, you can click the **Play** button to audition the selected sound file without opening it. During playback, the button changes to a **Stop** button; click again to stop playback.

 If playing a file from a slow network or CD-ROM, some skipping might occur.

Merge two mono files into a single stereo file

In the Open dialog, select the **Merge L/R to stereo** check box and hold the Ctrl button while selecting two mono files in the browse window. The two mono files will be merged to the left and right channels of a new stereo file.

The first file you select will be placed in the left channel, and the second file will be placed in the right channel.


Compressed files are not supported for merging.

Open a file as a CD track

In the Open dialog, select the **Open as CD tracks** check box if you want to create a [disc-at-once CD track](#) when opening a file.


If you have multiple files selected, you can select the **Append to current data window** check box to add the selected files to the end of the current data window and create a disc-at-once CD track for each file.

When the check box is not selected, multiple files will be opened to separate data windows.

 Disc-at-once CD tracks must be at least four seconds long. If you select a file that is less than four seconds long, silence will be added as needed.

Append files to the current data window

If you have multiple files selected, you can select the **Append to current data window** check box to add the selected files to the end of the current data window. If no data windows are open, the selected files will be opened in a new window.

 When appending files to a data window, be sure to use files with matching formats, or perform any required [sample rate](#) or [bit-depth](#) conversion before appending the files. If the formats of the selected files do not match, they will play back at the target format without any conversion. If the sample rates do not match, for example, pitch will not be preserved.

When the check box is not selected, multiple files will be opened to separate data windows.

Display more information about the selected file

In the Open dialog, click the **More** button to display the [File Properties](#) window.






Change file reader settings for VOX, IVC, and RAW files

When you choose **Dialogic VOX ADPCM (*.vox)**, **Intervoice (*.ivc)**, or **RAW File (*.raw)** from the **Files of type** drop-down list, you can click the **Custom** button to display the Custom Template dialog, where you can set options for reading files of the selected type.

Select the **Remember my preference and apply it in the future** check box in the Custom Template dialog if you want to use your settings each time you open a file of the selected type.

Opening a Raw Data File

The Raw File Type dialog is displayed when you select **Raw File** from **Files of Type** list in the Open dialog to open a file. Use this function to open a file that is not stored in one of the standard sound file formats supported by Sound Forge Pro software. The options on this dialog are explained below.

1. From the File menu, choose **Open** or click the **Open** button  on the toolbar. The Open dialog is displayed.
 -  Press Ctrl+O, Ctrl+F12, or Ctrl+Alt+F2.
2. Choose the folder where the file you want to open is stored:
 - Choose a drive and folder from the **Look in** drop-down list or
 - Choose a folder from the **Recent** drop-down list to quickly select a folder from which you have previously opened files.
3. Select a file in the browse window or type a name in the **File name** box. Detailed information about the selected file appears at the bottom of the dialog box.
4. Choose **Raw File** from the **Files of Type** drop-down list.
5. Click the **Open** button. The Raw File Type dialog is displayed.
6. Specify format parameters for your file:
 - a. Choose the sample rate used in your file from the **Sample Rate** drop-down list or enter a number in the edit box. This setting specifies the sample playback rate that will be used when playing the file.
 - b. In the **Sample Type** box, click the radio button that corresponds to the format used to store each sample value.
 - c. In the **Format** box, click the radio button that corresponds to the sample format of data storage. Sound files on the PC are most often saved using the **Signed** format.
 - d. Click the **Little endian** or **Big endian** radio button to specify the order in which the high and low bytes of a 16-bit sample are stored. Little Endian is used by Intel microprocessors, while Big Endian is used by Motorola microprocessors.
 - e. Choose a setting from the **Channels** drop-down list to specify the number of channels stored in the file.
 - f. In the **Header** box, specify the number of bytes stored in the file before the sound data.
 - g. In the **Trailer** box, specify the number of bytes stored in the file after the sound data.
 -  The settings you choose for opening the file with the exception of the sample rate will be used when you click **Save**  or save the file using the **Default Template** setting in the Save As dialog as long as the number of channels in the source file matches the number of channels in the file you're saving. The sample rate will be determined from the source file.—
 -  If you do not always use the same settings for reading raw files, make sure the **Keep media files locked** check box is selected on the **General** tab of the Preferences dialog. Otherwise, the individual settings will be lost if you have multiple raw files open and switch away from the Sound Forge Pro window.
7. Click the **OK** button.

Closing a File

From the File menu, choose **Close** to close the current sound file. If the data has been modified, you will be prompted to save your changes:

- Click **No** if you want to close the file without saving it.
- Click **Yes** to save your changes.
- Click **Cancel** to return to your current project.

Saving a File

1. Click anywhere in the data window to select it.
2. From the File menu, choose **Save** to save the current sound data.



If the active window contains new data that was not retrieved from a previous file or was loaded from a format that is not supported for saving, you will be prompted with the [Save As dialog](#).

Save As/Render As

From the File menu, choose **Save As** to save the current sound data in a different file and/or file format.

If you're working with a [Sound Forge Pro project](#) file, choose **Render As** from the File menu to commit your edits to a media file.

1. Click anywhere in the data window to select it.
2. From the File menu, choose **Save As** to display the Save As dialog.

If you're working with a Sound Forge Pro project file, you can use the **Save As** dialog to save your project to a different name or location. Choose **Render As** to save your project as a media file.

3. Select the folder where you want to save the file:
 - Choose a drive and folder from the **Save in** drop-down list or
 - Choose a folder from the **Recent** drop-down list to quickly select a folder where you have previously saved files.
4. Type a name in the **File name** box, or select a file in the browse window to replace an existing file.
5. Choose a file type from the **Save as type** drop-down list.

If you know that the file format is unsupported, choose **Raw File** and click the **Custom** button to display the [Custom Template](#) dialog, where you'll be able to specify format parameters.

Choose a setting from the **Template** drop-down list to choose the attributes that will be used to save your file, or click the **Custom** button to create a new [template](#).

Notes:

- When you convert from mono to stereo, the data will be stored in both channels. When converting from stereo to mono, the data from both channels will be mixed to a single channel.
 - When determining bit rates, 1K=1024.
6. Select the **Save metadata with file** check box if you want to preserve [metadata](#) (such as embedded data from other applications, regions, markers, disc-at-once CD tracks, commands, playlist, and [sampler information](#)) in your file. If the check box is cleared, the data will be ignored.



If the selected file type doesn't support all the metadata in your file, you will be prompted to save the metadata to an external file with an .sfl extension (using the same base name as your media file). Metadata can be saved internally for the following file formats:

- MP3
- PCA
- SFA
- WAV
- WAV64
- Windows Media Format (WMA and WMV)

7. Select the **Stretch video to fill output frame (do not letterbox)** check box if you are saving to a format with a different aspect ratio than your source media settings. When this check box is cleared, black bars may appear at the top and bottom (letterboxing) or sides (pillarboxing) of the frame to preserve the aspect ratio.
8. Clear the **Fast video resizing** check box if you see unacceptable video artifacts in the rendered video (these artifacts are most obvious with MPEG and streaming formats). Turning this option off can correct the artifacts, but your rendering times will increase significantly.
9. Select the **Save project as path reference in rendered media** check box if you want to save the path to your Sound Forge Pro project in the rendered file. Saving the project path allows you to easily return to the source project if you use your rendered file in another project.



The check box will be unavailable if you haven't saved your project or if you're rendering using a third-party file-format plug-in

10. Select the **Generate Loudness Log** check box if you want Sound Forge Pro to analyze the loudness of your file and create a log file that summarizes its loudness values.

The loudness log is created using the same folder and base name as your sound file with **_Loud.txt** appended to the name. The log will record the file name, format, loudness metering mode, and loudness values throughout the file.



Loudness logging is performed after the plug-in chain, but before any codec is applied to your rendered file. Because audio compression may affect audio levels, choose **Tools > Generate Loudness Log** to create a log after saving to a compressed format.

11. Select the **Enable surround processing for files with 6 channels** check box on the **Status** tab of the Preferences dialog if you want to treat audio with six channels as surround audio when measuring loudness (a gain of -1.5 dB is applied to the left and right surround channels). When the check box is cleared, all channels contribute equally to the loudness measurement.
12. Click the **Save** button.

Custom File Templates

If the selected file type supports it, the **Save As/Render As** dialog allows you to enter custom settings and create templates for saving files.

Create or edit a template

1. Use the **Save As** dialog to specify a location and name for the file you want to save.
2. Click the **Custom** button to open the Custom Template dialog.
3. Choose a template from the **Template** drop-down list, or enter a new name in the edit box.




Notes:

- Built-in presets cannot be edited.
- When determining bit rates, 1K=1024.

4. Use the Custom Template dialog to set the template's properties.




For information about specific controls in each file type's Custom Template settings, click the **Help** button .

5. Click the **Save Template** button .
6. Click **OK** to return to the Save As dialog.

Delete a template

1. Use the **Save As** dialog to specify a location and name for the file you want to save.
2. Click the **Custom** button to open the Custom Template dialog.

3. Choose a template from the **Template** drop-down list.
4. Click the **Delete Template** button .
-  Built-in presets cannot be deleted.
5. Click **OK** to return to the Save As dialog.

Copy rendering templates between computers or user accounts

You can make your customized rendering templates available on another computer or user account by copying .sft2 files to the appropriate location in the new account or computer.

Rendering templates are stored in the following folder: **C:\Users\.**

 The AppData folder is not visible unless the **Show hidden files and folders** radio button is selected on the View tab of the Windows Folder Options control panel.

 You can find a plug-in's name by clicking the **About** button in the Save As/Render As dialog.

To make a template available on another computer or user account, copy the .sft2 file to the same location in another account.

For example, to make JSmith's custom wave template available for the AJones user account, copy the appropriate .sft2 file from this folder:

C:\Users\JSmith\AppData\Roaming\MAGIX\Render Templates\wave

to this folder:

C:\Users\AJones\AppData\Roaming\MAGIX\Render Templates\wave

If you're copying templates from an older MAGIX application, templates are saved as .sft files in the following folder:

C:\Documents and Settings\.

Working with Projects

Projects are a relatively new concept to Sound Forge Pro software, but if you've used ACID or Vegas software, they'll be familiar territory to you. Sound Forge Pro projects function somewhat differently than ACID and Vegas projects.

When you save a project file (.frg), Sound Forge Pro software creates a .frg file and creates a subfolder that contains your media file and all temporary files created by your editing operations.

 Deleting a project's **[filename]_frg** folder will break the project.

A project file is not a multimedia file. It contains pointers to the original source files, so you can edit your project nondestructively you can be creative without worrying about corrupting your source files. When you edit a Sound Forge Pro project, you can **undo** edit operations even past your last save.—

When you're ready to commit your edits to a media file, choose **Render As** from the File menu.

1. Click anywhere in the data window to select it.
2. From the File menu, choose **Save As** to display the Save As dialog.
3. Select the folder where you want to save the file:
 - Choose a drive and folder from the **Save in** drop-down list or
 - Choose a folder from the **Recent** drop-down list to quickly select a folder where you have previously saved files.
4. Type a name in the **File name** box, or select a file in the browse window to replace an existing file.

5. From the **Save as type** drop-down list, choose **Sound Forge Pro Project File (*.frg)**.

Sound Forge Pro software creates an .frg file in the folder you specified and creates a subfolder to store your sound and temporary files. For example, if you saved My_Masterpiece.frg to your D:\ drive, the software will create D:\My_Masterpiece.frg and a D:\My_Masterpiece_frg folder.

Because a Sound Forge Pro project contains your original sound data plus all uncompressed PCM temporary files, they can take some time to create.

Project References in Rendered Files

When a media file is **rendered** with an embedded project path reference, you can easily open the source project in the associated application if you need to edit the media later. ACID 5.0, Sound Forge Pro 8.0, and Vegas 6.0 or later allow you to save the project path reference when you render files.

For example, imagine that you have an audio file open that was rendered from an ACID project. In previewing your Sound Forge Pro data window, you discover that you'd accidentally rendered your ACID project with a critical track muted. You could simply right-click the waveform in the Sound Forge Pro data window, choose **Edit Source Project** from the shortcut menu to reopen your ACID project, unmute the track, and then rerender it.



The project information in the rendered file is a reference to a project file only. If you modify the project file after rendering, the project data will no longer match the rendered file. To edit a project using a path reference, the project file and all media must be available on your computer.

Save the project path in the rendered file

1. **Save** your Sound Forge Pro project. The project must be saved before you can embed the project reference in the rendered file.
2. Perform the procedure described in the [Rendering Files](#) topic to choose the file type and location for rendering your files, and then select the **Save project as path reference in rendered media** check box.



The check box will be unavailable if you haven't saved your project or if you're rendering using a third-party file-format plug-in.

Edit a referenced project

1. Right-click the waveform in a data window or Right-click a media file in the Explorer window.
2. From the shortcut menu, choose **Edit Source Project**. An ACID, Vegas, or Sound Forge Pro window will open with the source project.



To edit a source project using a computer other than the computer where the project was created, the editing computer must meet the following requirements:

- The software that was used to create the project must be installed and the project file extension (.acd, .acd-zip, .veg, or .frg) must be registered on the editing computer.
- The editing computer must have the same version (or later) of the software that was used to create the project.
- The project file must exist on the editing computer using the same file path as on the computer where the project was created.
- The project's source media must exist on the editing computer. If the media files do not use the same file path as on the computer where the project was created, you will be prompted to choose a new folder or replacement files.


3. Edit the project as necessary.
4. Render the edited project using the same name as the original media file and close the editing application.

Your project will automatically be updated to use the latest rendered media file.

Saving all Open Files


From the File menu, choose **Save All** to save all open files. You will be prompted for each unsaved file.


- Click **Yes** to save your changes.
- Click **No** if you want to skip the file without saving changes.
- Click **Cancel** to return to the Sound Forge Pro window. All files remain open without saving changes.

 If you hold the Shift key when selecting this command, no prompts will be displayed.

Extracting Audio from CDs

From the File menu, choose **Extract Audio from CD** to extract tracks from a CD and open them as tracks in the Sound Forge Pro workspace.

 Double-click a .cda file in the Explorer window (or drag it to the workspace) to extract a CD track without opening the Extract Audio from CD dialog. You can also extract audio from the [Open dialog](#) by choosing CD Audio (*.cda) from the **Files of type** drop-down list in the Open dialog.

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1. From the File menu, choose **Extract Audio from CD**.
2. Choose a setting from the **Action** drop-down list to indicate how you want to extract audio:

Item	Description
Read by track	Choose to extract individual CD tracks. Select the tracks you want to extract in the Tracks to extract list. Each track is extracted to a new track in your project.
Read entire disc	Choose to extract the current CD to a single file. The disc is extracted to a new track in your project.
Read by range	Choose to extract a time range. You can specify a starting time and ending time (or a starting time and length). The time range is extracted to a new track in your project.

3. If you choose **Read by track** or **Read by range** from the **Action** drop-down list, select the tracks or time range you want to extract.

 Click **Play** to preview your selection. During playback, the button changes to a **Stop** button.

4. Select the **Create regions for each track** check box if you want to create regions in the extracted audio file to indicate each track.
5. Select the **Create markers for each index change** check box if you want to create markers in the extracted audio file to indicate each index change.
6. Select the **Create CD tracks from full subcode scan** check box if you want to create a [disc-at-once CD track](#) for each extracted track.

 When you select the **Create tracks from full subcode scan** check box, the software will create a [disc-at-once track list](#) based on the PQ data on the disc.

ISRC data is added to each track if the data exists on the disc. Universal product code/media catalog number information is updated on the [CD Information window](#).

7. From the **Drive** drop-down list, choose the CD drive that contains the CD from which you want to extract audio.
8. From the **Speed** drop-down list, choose the rate at which you want to extract audio. If you experience gapping or glitching, decrease the speed or click **Configure** and adjust the **Audio extract optimization** slider.
9. Click **OK** to start extracting audio.

Creating Track-at-Once (TAO) CDs

From the Tools menu, choose **Burn Track-at-Once Audio CD** to save your project as a track on an audio CD. Before you can use a TAO disc in an audio CD player, however, you must close the session.

1. From the Tools menu, choose **Burn Track-at-Once Audio CD**. The Burn Track-at-Once CD dialog is displayed.
2. Choose a setting from the **Action** drop-down list:

Item	Description
Burn audio	Begins recording audio to your CD when you click the Start button. You will need to close the disc before it can be played in an audio CD player.
Test, then burn audio	Performs a test to determine whether your files can be written to the CD recorder without encountering buffer underruns. Recording begins after the test if it is successful.
Test only	Performs a test to determine whether your files can be written to the CD without encountering buffer underruns. No audio is recorded to the CD.
Close disc	Closes your disc without adding any audio when you click the Start button. Closing a disc allows your files to be played on an audio CD player.
Erase RW disc	If you're using a rewritable CD, the disc will be erased when you click the Start button.

3. Select your burning options:

Item	Description
Buffer underrun protection	Select this check box if your CD recorder supports buffer underrun protection. Buffer underrun protection allows a CD recorder to stop and resume burning.
Erase RW disc before burn	If you're using a rewritable CD, select this check box to erase the CD before you begin burning.
Close disc when done burning	Select this check box to close the CD after burning. Closing a disc allows your files to be played on an audio CD player.
Eject disc when done	Select this check box to eject the CD automatically when burning has completed.
Burn selection only	Select this check box to burn only the selected audio. When the check box is cleared, the entire sound file is burned to CD.

4. From the **Drive** drop-down list, choose the CD drive that you want to use to burn your CD.
5. From the **Speed** drop-down list, choose the speed at which you want to burn. **Max** will use your drive's fastest possible speed; decrease the setting if you have difficulty burning.
6. Click the **Start** button.



Clicking the **Cancel** button after the disc-writing process has begun will render your disc unusable (though it will still make a fine coaster for your favorite beverage).

Creating Disc-at-Once (DAO) CDs

From the Tools menu, choose **Burn Disc-at-Once Audio CD** to burn a disc-at-once CD using the current CD layout.

Use DAO CDs when you need to create a master disc for mass replication.

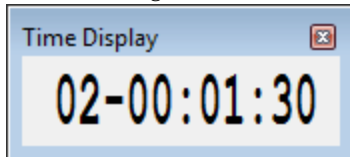


When creating DAO CDs, right-click the **ruler** or **Time Display** window and choose **Audio CD Time** from the shortcut menu. In Audio CD Time format, the ruler will display hh:mm:ss:ff (hours:minutes:seconds:frames). Audio CD time uses a frame rate of 75 fps.

Next, choose **Quantize to Frames** from the Options menu to ensure that any edits you make will occur on frame boundaries.

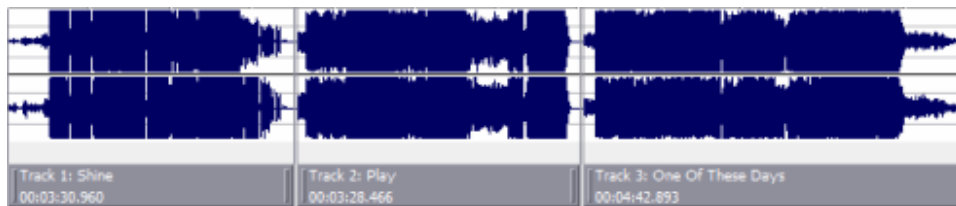
If your first track region begins before 00:00:02:00, a timeline offset is automatically added so the first track begins at exactly two seconds. This offset is added for burning only and is not reflected in the data window.

If you want to display track numbers in the Time Display window, right-click the Time Display window and choose **CD Track Position** from the shortcut menu. In this mode, the Time Display will show track numbers and the running time for each track. Negative values indicate the pause time before a track:



Creating and Editing Tracks for a Disc-at-Once CD

A disc-at-once CD requires that you define a track list before burning.



From the Insert menu, choose **CD Track** to add a CD track using the current selection as the track length.



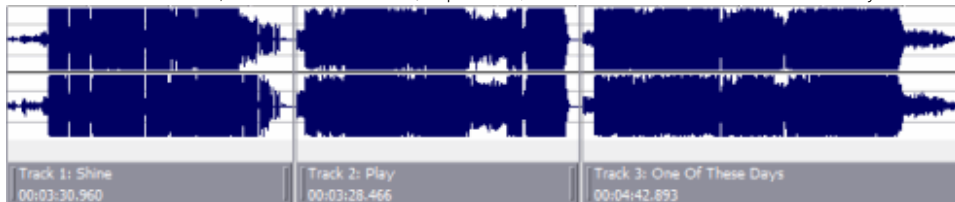
Tips:

- To preserve events in a file after saving, use a [Sound Forge Pro project file](#) for editing. You can then edit the tracks' events over multiple editing sessions.
- You can use [event envelopes](#) to adjust track volume.

Add CD tracks and indexes to a sound file

Creating CD tracks

1. **Select** the time range (or **event**) that you want to use to create a track. A track must be at least four seconds long.
2. From the Insert menu, choose **CD Track** (or press N). A CD track is added to the CD layout bar in the data window:



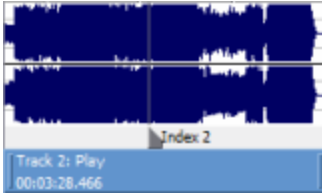
You can drag CD tracks to rearrange them, drag either end of a track to change its length, or use the [Track List window](#) to edit the track's position or name.

Creating CD index markers

You can use index markers to subdivide a track. For example, in a track that contains an orchestral composition, index markers could allow navigation to each movement.

Each track on a Red Book audio CD can contain up to 99 index markers.

1. Click to position the cursor where you want to add an index marker.
2. From the Insert menu, choose **CD Index** (or press Shift+N). A CD index marker is added to the CD layout bar in the data window:




Create CD tracks from events in a data window

If you're working with a data window that contains multiple [events](#), you can create CD tracks automatically using the events.

1. Create events on the timeline to lay out your CD.
2. From the Edit menu, choose **Track List**, and then choose **Create CD Tracks from Events** from the submenu. Each event is marked with a CD track.

 Tracks are not created for events less than four seconds long.

You can drag CD tracks to rearrange them, drag either end of a track to change its length, or use the [Track List window](#) to edit the track's position or name.

 When space exists between events, Sound Forge Pro creates separate tracks for each event. If you want to create a track that spans multiple events, you can abut or overlap the events to create a single track.

Create CD tracks from regions in a file

If you have a live recording that uses regions to indicate the sections of the recording, you can use this feature to create tracks without having to scan through the audio and create tracks manually.


1. Add [regions](#) as necessary to indicate the tracks in your recording.
2. From the Edit menu, choose **Track List**, and then choose **Create Tracks from Regions**. Each region is marked with a CD track.

You can drag CD tracks to rearrange them, drag either end of a track to change its length, or use the [Track List window](#) to edit the track's position or name.

Combine open data windows in a new CD layout

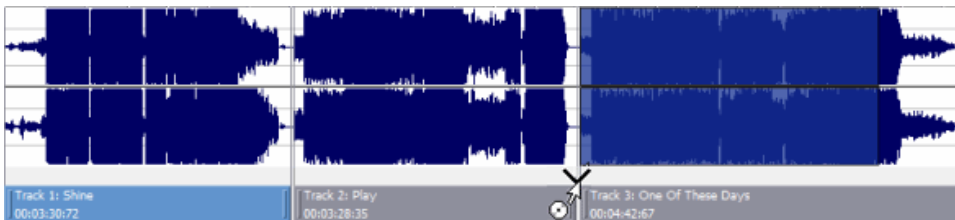
If you have multiple data windows open, you can easily combine them into a single CD layout.

1. **Open** the sound file you want to use for each track.
2. Create a **new** data window. We'll use this new window to arrange tracks.
3. Copy your tracks to the new data window:
 - a. Switch to the data window that contains the audio you want to use for your first track.
 - b. From the Edit menu, choose **Select All**.
 - c. Drag the selected data to the new data window.

While you're dragging, click the right mouse button toggle CD Track drag-and-drop editing mode. In this mode, the cursor is displayed as a  to show you where the track will be added.

4. Repeat step 3 for each track.

When you drag a file to the CD layout bar at the bottom of a data window. An indicator is displayed to show you where the track will be added when you release the mouse. When you drop the file, a track is created, and **pause time** is added before the new track.



 If you want to add a CD track without pause time, drag the file to the waveform display above the CD layout bar.

5. Save the new data window as a **Sound Forge Pro project file**.

When you save a project file (.frg), Sound Forge Pro software creates a .frg file and creates a subfolder that contains your media file and all temporary files created by your editing operations.

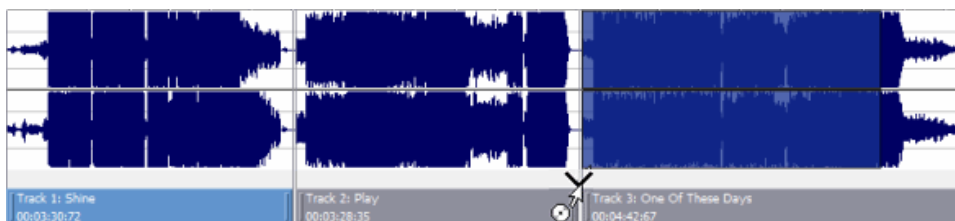
6. When you're finished editing tracks, you can **burn** your disc-at-once CD.



Add files to a data window and create tracks

 When you create a track using a media file that includes title and artist metadata, this information will be added to the **Track List window** as CD Text.

Dragging files to the CD layout bar

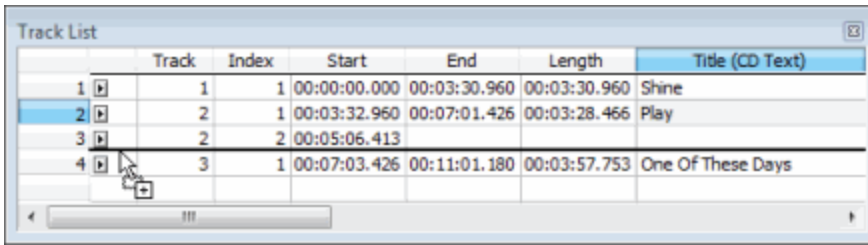
Drag a file to the CD layout bar at the bottom of a data window. An indicator is displayed to show you where the track will be added when you release the mouse. When you drop the file, a track is created, and **pause time** is added before the new track.



 If you want to add a CD track without pause time, drag the file to the waveform display above the CD layout bar. If **Options > Drag-and-Drop Editing > CD Track** isn't selected, click the right mouse button while dragging until the cursor is displayed as a  to show you where the track will be added.


Dragging files to the Track List window

Drag a file to the Track List window. An indicator is displayed to show you where the track will be added when you release the mouse. When you drop the file, a track is created, and pause time is added before the new track.




	Track	Index	Start	End	Length	Title (CD Text)
1	1	1	00:00:00.000	00:03:30.960	00:03:30.960	Shine
2	2	1	00:03:32.960	00:07:01.426	00:03:28.466	Play
3	2	2	00:05:06.413			
4	3	1	00:07:03.426	00:11:01.180	00:03:57.753	One Of These Days

Dragging files from the Explorer window

From the Options menu, choose **Drag-and-Drop Editing**, and choose **CD Track** from the submenu if you want to create disc-at-once tracks by dragging files from the [Explorer window](#) or Windows Explorer to a data window. Choosing this command has the same effect as toggle-clicking the right mouse button while dragging until the cursor is displayed as a  to show you where the track will be added.


When you drop the file, the audio in the data window will be replaced, and no pause time will be added.

 You can use the **Default time between CD tracks** control on the [CD Settings](#) tab of the Preferences dialog to adjust the default pause time.

Open multiple files as CD tracks

In the Open dialog, hold Ctrl or Shift to select the files you want to open as CD tracks and then select the **Open as CD tracks** and **Append to current data window** check boxes.

The files will be added to the end of the current data window and a CD track will be created for each file.

 You can use the **Default time between CD tracks** control on the [CD Settings](#) tab of the Preferences dialog to adjust the default pause time.

Create a new data window using audio files on your computer

If no audio files are open in the Sound Forge Pro workspace, a new data window will be created when you drop files on the Track List window.

1. Close all open data windows.
2. In the Windows Explorer or Explorer window, select the files that you want to include in your CD. You can hold Shift or Ctrl to select multiple files.
3. Drag the files to the Track List window.

When you drop the files, a track is created for each file, and **pause time** is added before each track.

 Tips:

- When you create tracks using media files that include title and artist metadata, this information will be added to the [Track List window](#) as CD Text.
- You can use the **Default time between CD tracks** control on the [CD Settings](#) tab of the Preferences dialog to adjust the default pause time.

Use the Track List window to create tracks

The Track List window is essentially a text representation of the markers on the CD layout bar.

You can use the Track List window to view track and index markers, edit track position and length, edit track names, adjust pause time, toggle protection and emphasis flags, and edit ISRC data.

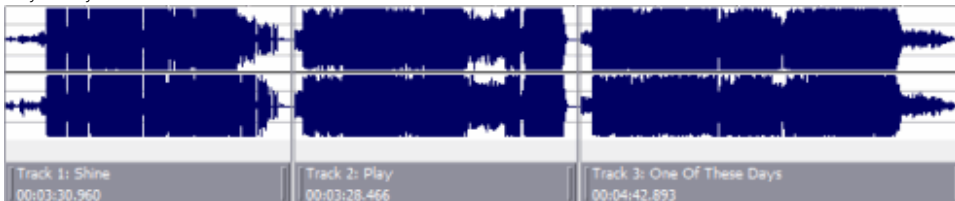
For more information about using the Track List window, please see [The Track List Window](#).

Add a bonus track at the end of a CD

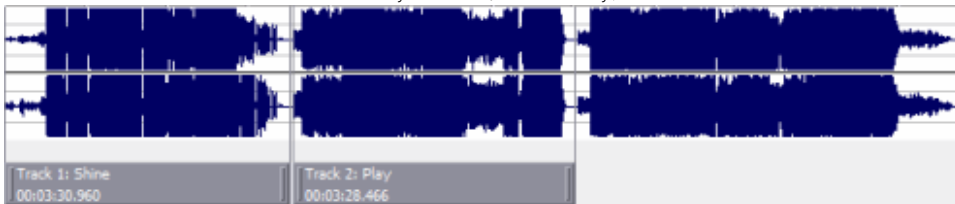
You can hide a track at the end of a CD by adding silence at the end of the last track and adding the new track after the silence. Drag the end of the final track marker to the new end of the CD.

Because both events exist within a single track, they will be treated as one track by an audio CD player.

1. Lay out your audio and CD tracks.



2. [Insert silence](#) before the bonus track if desired.
3. Delete the last CD track from the CD layout bar (if necessary).




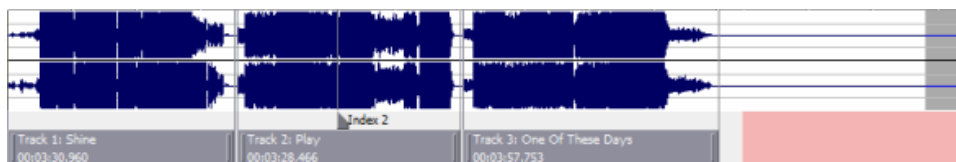
4. Drag the end of the final track marker to the new end of the CD.



Moving Tracks on the CD Layout Bar

The CD layout bar displays information about the [tracks](#) you've created for your disc-at-once CD project. Each CD track shows the track's number, active take name, and length.

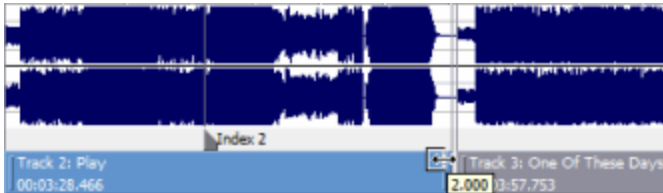
 A red indicator is drawn at the end of the CD layout bar to represent the end of the disc (if the disc length is known). You can use the **Automatically detect CD length** and **Default CD length** controls on the [CD Settings](#) tab of the Preferences dialog to set CD length.



You can use the CD layout bar to perform many of the track-editing functions from the [Track List](#) window.

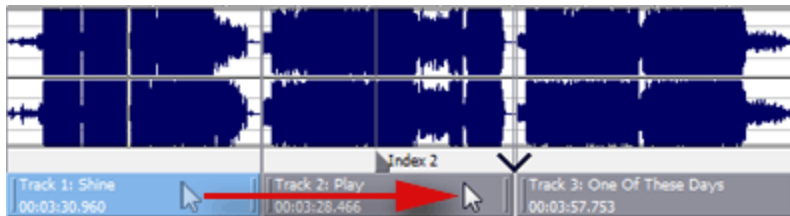
Change a track's starting or ending point

Drag either end of the track to adjust the track's starting or ending position. The [pause time](#) between tracks is displayed:



Reorder tracks

Drag a CD track to move the track, its associated media, and the pause time before the track. An indicator is displayed to show you where the event will be moved:



If you drag a track in a project where a single event spans more than one track, Sound Forge Pro will split the event as necessary.

💡 Tips:

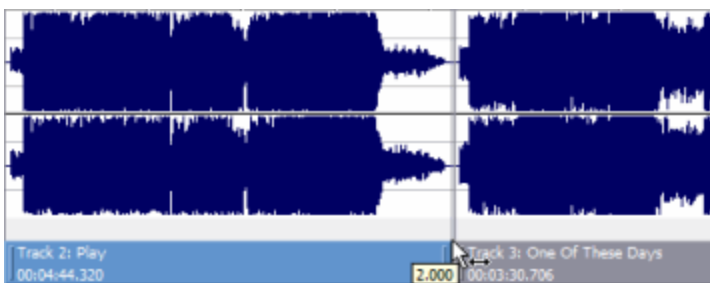
- Hold Shift while clicking CD tracks to select a range of tracks.
- From the Options menu, choose **Lock to Selection**, and then choose **Audio and CD Tracks** if you want to drag CD tracks when moving audio in the data window.
- Regions, markers, and envelope points are moved with a CD track. To turn this feature off, turn off the **Lock to Selection > Markers/Regions** and **Envelope Points** commands on the Options menu.

Editing Pause Time for a Disc-at-Once CD

Pause time is the space between CD tracks. This space may contain silence — as in a standard commercially produced CD — or can contain audio — as in a live performance captured on CD.

The Red Book standard calls for two seconds of pause time, but you can edit the default pause time on the [CD Settings](#) tab of the Preferences dialog.

When you hover in the pause time between two tracks, Sound Forge Pro displays the pause time.



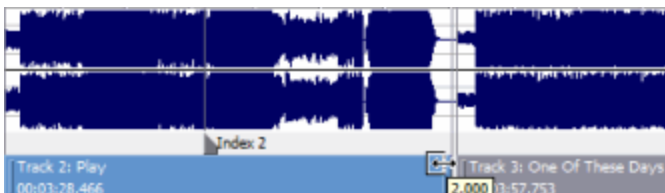
You can edit the pause time in several ways:

- Hover your mouse between two tracks in the CD Layout bar. The pause time is displayed in a Tooltip. Double-click the Tooltip, and the display changes to an edit box where you can type a new value.
- Right-click between two tracks and choose a command from the shortcut menu:

Command	Description
Select Pause Time	Creates a time selection equal to the pause time between tracks.
Set to Default Pause	Moves all tracks upstream so the default pause time exists between the tracks where you

Time	clicked.
Edit Pause Time	Changes the pause time display to an edit box where you can type a new value.

- Drag either end of the track to adjust the track's starting or ending position. The pause time between tracks is displayed in a ToolTip:



- The **Pause** column in the [Track List window](#) allows you to edit the pause time between tracks. Type a new value in the box, and tracks will move accordingly in the timeline.

The Track List Window

From the View menu, choose **Metadata**, and then choose **Track List** to toggle the display of the Track List window.

The Track List window is essentially a text representation of the events on the [CD layout bar](#) for a disc-at-once CD. You can use the Track List window to view track and index markers, edit track position and length, edit track names, adjust pause time, toggle protection and emphasis flags, and edit ISRC data.

You can also copy, save, and print the contents of the Track List window if you need to provide a track list to a CD duplicator.

Rearrange tracks

1. Click in the numbered column to select a row.
2. Drag the row to a new position.

	Track	Index	Start	End	Length	Title (CD Text)
1	1	1	00:00:00.000	00:03:27.293	00:03:27.293	Shine
2	2	1	00:03:29.293	00:08:08.533	00:04:39.240	Play
3	3	1	00:08:10.533	00:10:23.333	00:02:12.800	One Of These Days

The track is moved to the position where you drop it, and the timeline is updated.

Edit track position and length

Double-click the **Start**, **End**, and **Length** boxes and type a new value in the box to edit a CD track's starting or ending point or length.

Typing a new value in the boxes has the same effect as moving or resizing the CD track on the [CD layout bar](#):

- Editing the **Start** or **End** value moves the track forward or backward in time while preserving its length.
- Editing only the **Length** value changes the track's ending time while preserving its start time.

Edit track title and artist information

Double-click the **Title (CD Text)** and **Artist (CD Text)** boxes to edit their contents.

Notes:

- In order to burn valid CD Text, you must specify a title for the disc and for each track on the disc (artist information is optional). If the **Name/Title** box on the **CD Information** window or Track List window is left blank, a warning will be displayed before burning so you can choose to write the disc without CD Text or cancel burning and add title information as needed.
- You can write a maximum of 5000 characters as CD Text.

If you select the **Write CD Text** check box on the **Burn Disc-at-Once CD dialog**, this data will be written to your disc. In order to display CD Text, your CD player must support CD Text.

Adjust pause time

Double-click the **Pause** box to edit the **pause time** between tracks. Type a new value in the box, and tracks will move accordingly in the timeline.

Toggle protection and emphasis flags

Select the **Prot** check box to add a flag to the **Q subcode** to prevent digital copying of your CD.

In order to use copy protection, the CD player must support the copy-protection flag.

Select the **Emph** check box to add a pre-emphasis flag to the Q subcode.

Pre-emphasis is a basic noise-reduction process that is implemented by a CD player. Emphasis involves boosting high frequencies during CD writing and cutting those frequencies during playback. The emphasis process reduces high-frequency noise without disrupting the natural frequency of the source material.

Selecting the **Emph** check box does not impart the pre-emphasis boost on a track; it can only set the flag. In order for pre-emphasis to occur, the CD recorder and player must support the flag. Check your CD drive documentation to determine whether your drive supports pre-emphasis flags.

Edit ISRC codes

The Track List window allows you to specify an ISRC (International Standard Recording Code) that will be used to identify the tracks on your disc.

For more information about ISRC codes, click [here](#).

1. Double-click the **ISRC** box in a track row.
2. Type the appropriate code for the track.
3. Press Enter.

Industry Standard Recording Codes (ISRC) were designed to identify CD tracks. The ISRC code is a 12-character alphanumeric sequence in the following format:

Field	A	B	C	D	E
Sample ISRC	SE	T38	86	302	12

Field	Description
A	Country — Represents the recording's country of origin.
B	First Owner — Assigned ID for the producer of the project. Each country has a board that assigns these codes.
C	Year of Recording — Represents the year the recording was made.
D	Recording — Represents the recording's serial number made by the same producer in that year: <ul style="list-style-type: none"> • This value will use three digits (300-999) when the CD has 10 or more tracks. • This value will use four digits (0001-2999) when the CD has 9 or fewer tracks.
E	Recording Item (1 or 2 digits) — Identifies tracks on a CD (each track can have a different ISRC code).

Create a track list (PQ list or cue sheet)

You can right-click the Track List window and choose **Copy Track List to Clipboard**, **Export Track List**, or **Print Track List** to share your track list information with another application or with a CD-replication house.

For more information about creating track lists, click [here](#).

Creating a Track List for a Disc-at-Once CD

If you need to share your track list information with another application or with a CD replication house, you can copy the track list information to the clipboard, save it to a text file, or print a hard copy.

Copy the track list to the clipboard

1. From the Edit menu, choose **Track List**, and then choose **Copy Track List to Clipboard** from the submenu.

The Copy Track List to Clipboard dialog is displayed.



Right-click the Track List window and choose **Copy Track List to Clipboard** from the shortcut menu.

2. Choose the format you want to apply to your track list information:
 - **Cue sheet for replication** — the track list is formatted so track times are listed relative to the beginning of the CD. This is the preferred format for CD replication houses.
 - **CD liner notes** — the track list is formatted so track times are listed relative to the first track on the disc.
3. Select the **Include summary information with track list output** check box if you want to include UPC/MCN, title, engineer, and comment information with the track list.
4. Click **OK** to send the track list information to the clipboard. You can then paste the information into a text editor or e-mail message.

Export the track list as a text file

1. From the Edit menu, choose **Track List**, and then choose **Export Track List** from the submenu.

The Export Track List dialog is displayed.



Right-click the Track List window and choose **Export Track List** from the shortcut menu.

2. Choose the format you want to apply to your track list information:
3. **Cue sheet for replication** — the track list is formatted so track times are listed relative to the beginning of the CD. This is the preferred format for CD replication houses.
4. **CD liner notes** — the track list is formatted so track times are listed relative to the first track on the disc.
3. Choose the format you want to apply to your track list information:
4. **Export as formatted text** — track information is formatted in a table. Select the **Include summary information with track list output** check box if you want to include UPC/MCN, title, engineer, and comment information with the track list.
5. **Export as delimited text** — you can choose the character that will separate columns of text and choose whether to include a header row to identify the columns.
4. Click **OK** to save your file.

Print the track list

1. From the Edit menu, choose **Track List**, and then choose **Print Track List** from the submenu.

The Print Track List dialog is displayed.



Right-click the Track List window and choose **Print Track List** from the shortcut menu.

2. Choose the format you want to apply to your track list information:
3. **Cue sheet for replication** — the track list is formatted so track times are listed relative to the beginning of the CD. This is the preferred format for CD replication houses.
4. **CD liner notes** — the track list is formatted so track times are listed relative to the first track on the disc.
3. Select the **Include summary information with track list output** check box if you want to include UPC/MCN, title, engineer, and comment information with the track list.
4. Click **OK** to send the track list information to your printer.

Adding CD Text to a Disc-at-Once CD

When you add CD Text to your disc, title and artist information will be displayed when your CD is played on a CD player that supports CD Text.



Notes:

- When you create a track using a media file that includes title and artist metadata, this information will be added to the [Track List window](#) as CD Text.
- In order to burn valid CD Text, you must specify a title for the disc and for each track on the disc (artist information is optional). If the **Title** box in the CD Information or Track List window is left blank, a warning will be displayed before burning so you can choose to write the disc without CD Text or cancel burning and add title information as needed.
- You can write a maximum of 5000 characters as CD Text.


1. Add title and artist information for your CD:
 - a. From the View menu, choose **Metadata**, and then choose **CD Information** from the submenu to display the [CD Information window](#).
 - b. In the **Name/Title** box, type the name of the CD.
 - c. In the **Artist** box, type the name of the artist who performed the material on the disc.
2. Add title and artist information for each track on your CD:
 - a. From the View menu, choose **Metadata**, and then choose **Track List** to display the [Track List window](#).
 - b. Double-click the **Title (CD Text)** box and type the name of the track.
 - c. Double-click the **Artist (CD Text)** box and type the name of the artist who performed the track.
3. Burn your disc. Select the **Write CD Text** check box in the [Burn Disc-at-Once Audio CD](#) dialog to write CD Text while burning.

When the check box is cleared, CD Text entries from the CD Information and Track List windows will be ignored.

Burning a Disc-at-Once CD

After you've created [tracks](#) in a disc-at-once CD project, you're ready to burn your disc. If you want to burn multiple copies, the application will prompt you to burn another copy after each disc is completed.


1. From the Tools menu, choose **Burn Disc-at-Once Audio CD**. The Burn Disc-at-Once Audio CD dialog is displayed.
2. From the **Drive** drop-down list, choose the CD drive that you want to use to burn your CD.
3. From the **Speed** drop-down list, choose the speed at which you want to burn. **Max** will use your drive's fastest possible speed; decrease the setting to prevent the possibility of buffer underruns.
4. Select the **Buffer underrun protection** check box if your CD recorder supports buffer underrun protection. Buffer underrun protection allows a CD recorder to stop and resume burning.

 Buffer underrun protection can create a disc that can be played in CD players but may contain a bit error where burning stopped and restarted. Consider clearing this check box when creating a premaster disc.

5. Choose a radio button in the **Burn mode** box:

Item	Description
Burn CDs	Begins recording audio to your CD immediately.
Test first, then burn CDs	Performs a test to determine whether your files can be written to the CD recorder without encountering buffer underruns. No audio is recorded to the CD during the test, and recording begins after the test if it is successful.
Test only (do not burn CDs)	Performs a test to determine whether your files can be written to the CD recorder without encountering buffer underruns. No audio is recorded to the CD.

6. Select the **Render temporary image before burning** check box if you want to render your CD project to a temporary file before recording. Prerendering can prevent buffer underruns if you have a complex project that cannot be rendered and burned in real time.

 The rendered temporary file will remain until you modify your project or exit the application. If an image file exists when you open the Burn Disc-at-Once Audio CD dialog, the check box is displayed as **Use existing rendered temporary image**.

7. Select the **Automatically erase rewritable discs** check box if you're burning to rewritable media and want to erase the disc before burning.
8. Select the **Eject when done** check box if you want to eject the CD automatically when burning has completed.
9. Select the **Write CD Text** check box if you want to write **CD Text** data to your CD. In order to display CD Text, your CD player must support CD Text. The following information will be written:

Item	Source
Disc Title	Name/Title box in the CD Information window.
Disc Artist	Artist box in the CD Information window.
Track Title	Title column in the Track List window.
Track Artist	Artist column in the Track List window.

 **Notes:**

- In order to burn valid CD Text, you must specify a title for the disc and for each track on the disc (artist information is optional). If the **Name/Title** box in the **CD Information** or **Track List window** is left blank, a warning will be displayed before burning so you can choose to write the disc without CD Text or cancel burning and add title information as needed.
- You can write a maximum of 5000 characters as CD Text.

10. Click **OK** to start burning.

File Properties

From the View menu, choose **File Properties** to view or edit information saved in the active file.

This information is saved with the file and can be displayed by media players when you save your project in a different file format.

 **Tips:**


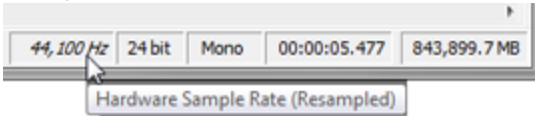


- Double-click the **Sample Rate, Bit Depth, Channels,** or **File Length** box in the **status bar** to edit properties quickly:

Processing time (Normalize): 1.859 seconds	44,100 Hz	16 bit	Stereo	00:34:07.838	01:10:27.093	843,927.7 MB
	Sample Rate	Bit Depth	Channels	Total Length	CD Time Remaining	Free Storage

- If you want to sort the contents of a metadata window, you can click a column heading to sort in ascending or descending order. Hold Ctrl and click a column heading to return to the default sort order.
- If you want to copy metadata to the clipboard, right-click the window and choose **Copy to Clipboard** from the shortcut menu.
- If you want to customize the format for copying metadata to the clipboard, right-click the window and choose **Custom Copy to Clipboard** from the shortcut menu.

The Copy Metadata dialog is displayed to let you choose whether you want to copy the data as formatted text or delimited text, set a delimiter, and choose whether you want to include a header row.

Click **OK** to copy the metadata to the clipboard, and you can then paste the information wherever you need it.



Item	Description
File name	The name of the file saved on disk.
Location	The folder where the file is saved.
File size	The size of the file on disk.
File attributes	Indicates whether file attributes (read-only, hidden, etc.) have been set.
Last saved	The date and time the file was saved.
File type	The file type for the file.
Audio format	The format used to save the audio stream.
Audio sample rate	<p>Click the down arrow ▼ and choose a sample rate from the drop-down list, or choose Custom to type a value in the edit box to set the number of samples per second used to represent the audio.</p> <p> Notes:</p> <ul style="list-style-type: none"> • This setting will not resample the sound file. If the playback rate is different from the originally recorded rate, the pitch will vary unless the file is resampled. • If the active data window's sample rate is not supported by your audio hardware, the output will be resampled to a supported rate for playback when you're using an ASIO audio device. During playback, the Sample Rate box in the Status Bar is displayed in italics to indicate that the output has been resampled. 
Audio bit rate	Displays the bit rate of the audio file.
Audio bit depth	<p>Click the down arrow ▼ and choose a bit depth from the drop-down list to set the number of bits used to represent each sample.</p> <p> Use the Bit-Depth Converter to perform advanced conversion.</p>
Audio channels	<p>Click the down arrow ▼ and choose a setting from the drop-down list to set the number of channels stored in the file.</p> <p> Use the Channel Converter to perform advanced channel mixing.</p>

Audio length	The duration (in time and samples) of the audio file.
Video format	Displays the format used to save the video stream.
Video attributes	Displays the frame size, color depth and frame rate of the video stream.
Video length	Displays the length (in time and frames) of the video stream.
Video field order	Displays the field order of the video stream. Click the down arrow ▼ and choose a setting from the drop-down list to change the field order.
Video pixel aspect ratio	<p>Displays the pixel aspect ratio of the video stream. Click the down arrow ▼ and choose a setting from the drop-down list to change the pixel aspect ratio.</p> <p>Computers display pixels as squares, or a ratio of 1.0. Televisions display pixels as rectangles (ratios other than 1.0).</p> <p>Using the incorrect setting can result in distortion or stretching. Consult your capture/video output card's manual for the proper settings.</p>

Viewing File Statistics

The Statistics dialog displays information about the selected sound file region. To display the dialog, choose **Statistics** from the Tools menu.

Item	Description						
Ruler Format	Choose a setting from the drop-down list to choose the format that will be used to display the Cursor position , Minimum sample position , and Maximum sample position values.						
Level Format	<p>Choose a setting from the drop-down list to choose the format that will be used to display the Sample value at cursor, Minimum sample value, Maximum sample value, RMS level, and Average value values.</p> <table border="0"> <tr> <td style="padding-right: 20px;">Sample value</td> <td> <p>Displays audio levels as integers.</p> <ul style="list-style-type: none"> ↳ 32-bit (IEEE float) audio, these values range from -1.0000000 to 1.0000000. ↳ 24-bit audio, they range from -8388608 to 8388607. ↳ 16-bit audio, they range from -32768 to 32767. ↳ 8-bit audio, they range from -128 to 127. </td> </tr> <tr> <td>Percent</td> <td>Displays audio levels as percentages of the maximum allowed sample value. The range is from -100 to 100 percent.</td> </tr> <tr> <td>Decibels (dB)</td> <td>Displays audio levels in decibels. A value of 0 dB corresponds to maximum absolute amplitude and negative infinity (-Inf.) corresponds to complete silence. In 16-bit audio, -90.3 dB is the lowest possible dB value (sample value of 1).</td> </tr> </table>	Sample value	<p>Displays audio levels as integers.</p> <ul style="list-style-type: none"> ↳ 32-bit (IEEE float) audio, these values range from -1.0000000 to 1.0000000. ↳ 24-bit audio, they range from -8388608 to 8388607. ↳ 16-bit audio, they range from -32768 to 32767. ↳ 8-bit audio, they range from -128 to 127. 	Percent	Displays audio levels as percentages of the maximum allowed sample value. The range is from -100 to 100 percent.	Decibels (dB)	Displays audio levels in decibels. A value of 0 dB corresponds to maximum absolute amplitude and negative infinity (-Inf.) corresponds to complete silence. In 16-bit audio, -90.3 dB is the lowest possible dB value (sample value of 1).
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Percent	Displays audio levels as percentages of the maximum allowed sample value. The range is from -100 to 100 percent.						
Decibels (dB)	Displays audio levels in decibels. A value of 0 dB corresponds to maximum absolute amplitude and negative infinity (-Inf.) corresponds to complete silence. In 16-bit audio, -90.3 dB is the lowest possible dB value (sample value of 1).						
Cursor position	The cursor position from the start of the sound file.						
Sample value at cursor	The number stored by a single sample at the cursor position.						
Minimum/Maximum sample position and sample value	<p>The maximum and minimum sample values and the locations where they occur.</p> <p>These values can help you determine if any clipping occurs in the sound file. It can also be used to determine the noise level of a signal for use with the Noise Gate effect. For example, to find the noise amplitude, run the Statistics function on a region of noisy silence.</p>						
RMS level	<p>The Root Mean Square of the sample values relative to the RMS value of a maximum-amplitude square wave (the loudest possible recording).</p> <p>When used on short intervals, this value relates to the volume level of the sound file. However, if used</p>						

	on a large selection with large volume variation, this value becomes less meaningful. For another way to measure loudness, use the Scan Levels button in the Normalize dialog.
Average value	The sum of all sample values in the selected region divided by the number of samples. An average value that does not equal zero (-inf dB) can indicate a DC offset .
Zero crossings	The number of times per second that the waveform changes from a negative value to a positive value. This value can be used as a rough estimate of the frequency of the sound data for very simple waveforms.
Maximum true peak sample value and position	The maximum true peak sample value and the location where it occurs. This value displays the peak level in dB FS. Please note that true peaks are calculated using a higher sample rate than the Maximum sample position and Maximum sample value items for increased accuracy.
Maximum filtered true peak sample value and position	The maximum filtered true peak sample value and the location where it occurs. This value displays the peak level in dB FS. Peak levels may be miscalculated if audio signals are asymmetrical or if a DC offset is present. Filtered true peaks are calculated as the maximum of the filtered and unfiltered signals.
Loudness	Displays loudness statistics about an audio file's momentary loudness, short-term loudness, integrated (overall) loudness, and loudness range. You can use these values when mastering for broadcast to ensure compliance with loudness standards (such as the CALM Act). The following values are calculated: <ul style="list-style-type: none"> • The Integrated value represents the integrated loudness — in loudness units full scale (LUFS) — across all audio channels over the duration of the program. • The Loudness Range value represents the loudness range — in loudness units (LU) — of the momentary and short-term levels. The Loudness Range measurement provides a standardized method of determining the dynamic range of the signal. • The Maximum Short-Term value represents the maximum short-term loudness — in loudness units full scale — across all audio channels based on 3-second integration windows. • The Maximum Momentary value represents the maximum momentary loudness — in loudness units full scale — across all audio channels based on 400-millisecond integration windows.  Select the Enable surround processing for files with 6 channels check box on the Status tab of the Preferences dialog if you want to treat audio with six channels as surround audio when measuring loudness (a gain of -1.5 dB is applied to the left and right surround channels). When the check box is cleared, all channels contribute equally to the loudness measurement.
Copy to Clipboard	Copies the contents of the window to the clipboard especially handy if you want to compare statistics from multiple files in a spreadsheet.  If you want to copy only the data in the table (or specific data cells), select the cells you want to copy and press Ctrl+C.

Crash Recovery

When a file is modified, changes and undo information are saved in temporary files until the file is **saved**. If Sound Forge Pro software terminates improperly, these temporary files remain on your hard drive. The software can use these temporary files to restore the changes and the undo history for the file.

When you start the application after a crash, the Crash Recovery dialog is displayed if temporary files are detected in the temporary file folder specified on the **General** tab of the Preferences dialog:

- Click the **Recover** button to restore the changes and undo history for the files listed in the **Files that can be recovered** list.
- Click the **Cancel** button to discard your edits and undo history. The original media files will remain unchanged.

Working with Video Files

Although Sound Forge Pro software is not a video editor, you can **open** and **save** video files just as you would any other supported file type, allowing you to edit the audio track with familiar Sound Forge Pro tools.

Attaching or Detaching a Video Stream

You can create new media files by attaching video to an existing audio file or removing the video stream from a video file.

Attaching video to an audio file

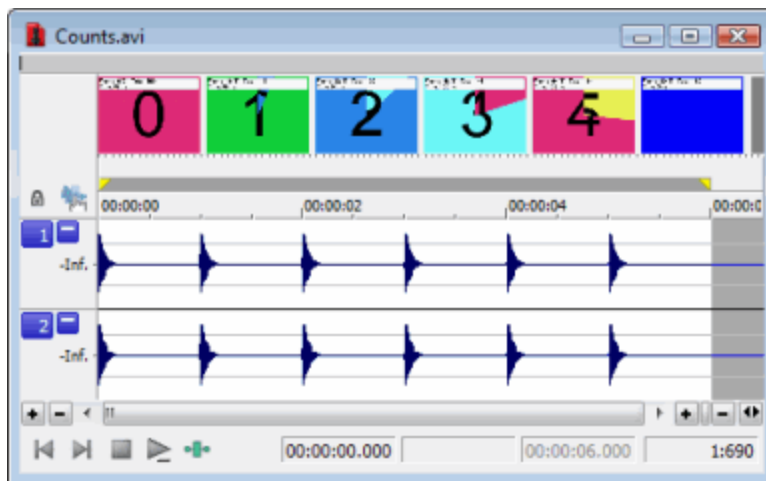
1. Open the audio file you want to use. For more information, see ["Opening a File" on page 54](#)
2. From the File menu, choose **Attach Video**. The Open dialog is displayed.
3. Browse to the file that contains the video stream you want to use and click **Open**.
4. Save your file in a video format. For more information, see ["Saving a File" on page 57](#)

Detaching video from a file

1. Open the video file you want to use. For more information, see ["Opening a File" on page 54](#)
2. From the File menu, choose **Detach Video** to remove the video stream.
3. Save your file in an audio format. For more information, see ["Saving a File" on page 57](#)

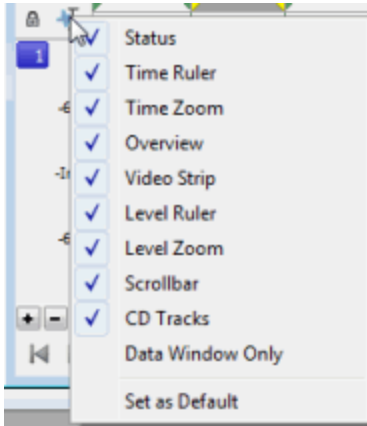
The Video Strip

When you open a file that contains a video stream, a video strip is displayed above the audio waveform to help you navigate the file.



Show or hide the video strip

To toggle the display of the video strip, choose **Options > Data Window > Video Strip** or right-click the edit tool selector and choose **Video Strip** from the shortcut menu:



💡 You can adjust the height of the video strip by dragging the separator between the video strip and time ruler.

Turn animation on or off

When you play back a video file, the video strip can display animated or still frames.

Right-click the video strip and choose **Animate** from the shortcut menu to toggle frame animation. A check mark is displayed next to the command when the feature is turned on. When the video strip is animated, the video strip always displays the frame that corresponds to the cursor position. Press Alt+Right or Left Arrow to move the cursor one frame.

When frame animation is turned off, the video strip always shows the frame that corresponds to the left edge of each image in the video strip.

💡 If you experience slow or stuttering video preview, turn off animated video to reduce the load on your CPU.

Display frame numbers

You can choose to number the frames in the video strip to help you navigate a file. Turning on frame animation will ensure that the displayed frame number matches the cursor position.


Right-click the video strip and choose **Number Frames** from the shortcut menu to toggle frame numbering. As you zoom in, each thumbnail will eventually represent one frame.

💡 To choose the numbering format, choose a setting from the **Frame numbering on thumbnails** drop-down list on the [Video](#) tab of the Preferences dialog.

Video Preview


From the View menu, choose **Video Preview** to open or close the Video Preview window. This window shows the video frame at the current cursor or play position.

Copy the current frame to the clipboard

Click the **Copy Frame to Clipboard** button  to copy the current frame to the Windows clipboard.

💡 If the button is not visible, right-click the Video Preview window and choose **Show Toolbar** from the shortcut menu.

Preview on an external monitor

Click the **External Monitor** button  to send your video output to the OHCI-compliant, IEEE-1394 device specified on the [Video](#) tab of the Preferences dialog.

If you have not specified a device, the Video tab will be displayed when you click the **External Monitor** button.

For more information about using an external monitor, please see [Configuring an External Video Monitor](#).

💡 If the button is not visible, right-click the Video Preview window and choose **Show Toolbar** from the shortcut menu.

Change Video Preview window settings

Right-click within the Video Preview window to display a shortcut menu.

Command	Description
Copy Frame	Copies the current frame to the clipboard.
Default Background	Sets the background color of the Video Preview window to the default texture.
White Background	Sets the background color of the Video Preview window to white.
Black Background	Sets the background color of the Video Preview window to black.
Integral Stretch	When selected, the Video Preview frame will only be stretched by integral amounts. Turning this setting on usually provides faster drawing.
Simulate Device Aspect Ratio	Compensates for any spatial distortion due to nonsquare pixel aspect ratios when viewed on a computer monitor.
External Monitor	Sends your video output to the IEEE-1394 interface specified on the Video tab of the Preferences dialog.
Passive Update	Reduces the overhead needed to update the Video Display window. The Video Display is updated when the processor is idle.
Show Toolbar	Displays the Video Preview window toolbar. The toolbar includes buttons to copy the current frame to the clipboard and send your preview to an external monitor.
Show Status Bar	Displays the Video Preview window status bar. The status bar provides you with information about media and preview frame size and frame rate, as well as the Video Preview window frame number.

Configuring an External Video Monitor

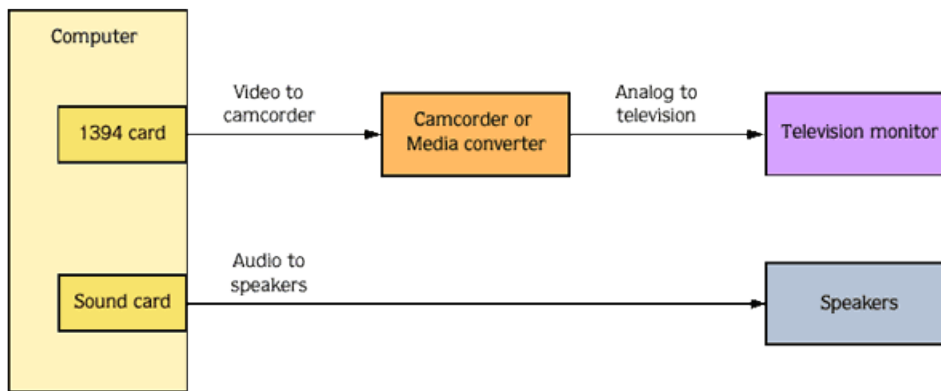
You can feed video from the [Video Preview](#) window to a television monitor. With this feature, you can make your final editing decisions on a broadcast monitor (which differs significantly from a computer monitor). To use an external monitor, you must have the following hardware:


- OHCI-compliant IEEE-1394 DV interface
- DV camcorder or DV-to-analog converter


 Sound Forge Pro software automatically adds **pull-down** when you preview 24p video on an external monitor.

Set up an external monitor

1. Connect your monitor:



2. From the Options menu, choose **Preferences**, and then select the **Video** tab.
3. From the **External monitor device** drop-down list, choose the IEEE-1394 interface to which your DV device is connected. You can click the **Properties** button to view and adjust settings for the selected device.
4. When you click the **External Monitor** button  on the Video Preview window, Sound Forge Pro software conforms the video to DV format and feeds it through the 1394 interface to the DV device (camcorder or DV-to-analog media converter). The DV device then sends analog output to the television monitor.

 The DV device must support pass-through connections in order to use an external monitor.

Preview audio

When previewing on an external monitor, no audio is sent through the 1394 interface. As shown in the illustration above, Sound Forge Pro routes the audio to the sound card and then on to the mixer (if present) and speakers. This allows you to mix your audio on better speakers than are typically found in television monitors.

Before printing your final project to tape, you may wish to preview the audio through the television monitor speakers to ensure a good "r;TV mix."

Multichannel Audio - Overview

With Sound Forge Pro, you can edit multichannel audio files in the same way you've always worked with mono or stereo files.

Sound Forge Pro supports multichannel files in the following formats:

- Wave (.wav) and Wave64 (.w64)
- Video For Windows (.avi) – specifically DV, SDI
- Material Exchange Format (.mxf)



MXF files require a video stream. If you want to save an audio-only file to MXF format, you must first [attach a video stream](#).

When working with MXF files, the number of channels in your source media must match the number of output channels specified by the rendering template. If necessary, use the [Channel Converter](#) before rendering.

Render Format	Number of channels
DV MXF	Always contains 4 audio channels. You can use the Channels drop-down list on the Audio tab of the Custom Template dialog to choose how many channels will be filled with audio. For example, if you choose 2 from the Channels drop-down list, the rendered file will contain 4 audio channels: two channels will contain audio, and two channels will contain silence.
IMX MXF	Always contains 8 audio channels. You can use the Channels drop-down list on the Audio tab of the Custom Template dialog to choose how many channels will be filled with audio. For example, if you choose 2 from the Channels drop-down list, the rendered file will contain 8 audio channels: two channels will contain audio, and six channels will contain silence.
HD MXF	Can contain 2 or 4 audio channels. You can use the Channels drop-down list on the Audio tab of the Custom Template dialog to choose how many channels will be rendered. For example, if you choose 2 from the Channels drop-down list, the rendered file will contain only 2 audio channels.

- Dolby AC-3 (.ac3) (AC-3 is available as a render format only)
- Windows Media Audio/Video (.wma or .wmv)
- ATRAC (.oma)
- Sony AVC
- Raw Audio (.raw)

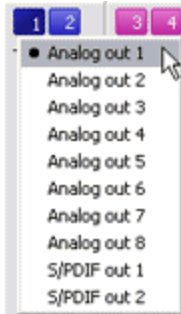
Routing Channels to Hardware Outputs

If you're working with multichannel files and have a sound card with multiple outputs, Sound Forge Pro provides you with a great deal of flexibility in routing the channels to the outputs on your sound card: you can route each channel to a separate output, or you can route all the stereo pairs to a single set of outputs to simulate a stereo downmix.

The [Hardware Meters window](#) displays a meter and gain fader for each enabled output port.

You can change channel assignments from the [Audio tab](#) in the Preferences dialog or the [Channel Meters window](#). Changing the setting in either location updates your preferences and affects all open data windows.

- For information about using the Audio tab of the Preferences dialog to enable and map channels, please see the [Preferences - Audio Tab](#) help topic.
- To change a channel's output device using the Channel Meters window, click the channel number and choose a new output port from the menu:

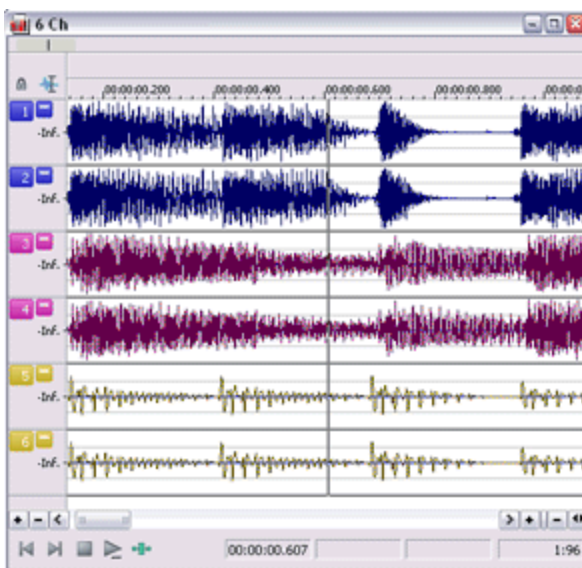


Opening and Editing Multichannel Audio Files




If you've used Sound Forge Pro to edit stereo files before, you already know everything you need to know to edit multichannel files.

You can [open](#) multichannel audio files just like any other supported media type.

When you open the file, you'll notice that the data window displays the channels as stereo pairs:



You can then [edit](#) the file just as you would any mono or stereo file.

Click the **Minimize** button  to reduce the height of individual channels, or click the **Restore** button  to restore a channel's height. Hold **Shift** while clicking a **Minimize** button  to minimize all channels except the one you clicked.

 You can use the [Display](#) tab in the Preferences dialog to change the colors used to represent each channel.

Stereo-to-Mono (or Mono-to-Stereo) Conversion

To perform quick channel conversion without specifying the mix, use the **Audio channels** control on the [Properties](#) dialog or right-click the **Stereo/Mono** box in the [status bar](#) and choose **Stereo** or **Mono** from the shortcut menu.



You can use mono files in the [Pan/Expand dialog](#) if you choose **Pan (preserve stereo separation)** or **Pan (mix channels before panning)** from the **Process mode** drop-down list. When you click **OK** to apply your changes, the file will be converted to stereo and your panning settings will be applied.

Convert a mono file to stereo

1. Perform either of the following actions to display the Mono to Stereo dialog:
 - Right-click the **Mono** box in the [status bar](#) and choose **Stereo** from the shortcut menu.
 - Click the down arrow ▼ for the **Audio channels** control on the [Properties](#) dialog and choose **Stereo** from the menu.
2. Specify the channel where you want to put the sound data:
3. Click the **Left Channel** radio button to place the mono data in the left channel and set the right channel to silence.
4. Click the **Right Channel** radio button to place the mono data in the right channel and set the left channel to silence.
5. Click the **Both Channels** radio button to place the mono data in the right and left channels.
3. Click the **OK** button.

Convert a stereo file to mono

1. Perform either of the following actions to display the Stereo to Mono dialog:
2. Right-click the **Stereo** box in the [status bar](#) and choose **Mono** from the shortcut menu.
3. Click the down arrow ▼ for the **Audio channels** control on the [Properties](#) dialog and choose **Mono** from the menu.
2. Specify which channel you want to use in the resulting mono file:
3. Click the **Left Channel** radio button to preserve only the data in the left channel.
4. Click the **Right Channel** radio button to preserve only the data in the right channel.
5. Click the **Mix Channels** radio button to place the mono data in the right and left channels.
3. Click the **OK** button.

Customize the mix

The [Channel Converter](#) allows independent level settings for each channel and can be used to inter-mix the left and right channels of a stereo file to create interesting pan effects. For simple conversions, use the included presets.

Recording Multichannel Audio

If you have an audio device that supports multiple inputs, you can use Sound Forge Pro to perform multichannel recording.



Tips:

- Sound Forge Pro is not a multitrack editor check out our [Vegas](#) and [ACID](#) family of products for full multitrack recording and editing. You can use multichannel recording to create surround audio or capture field recordings.—
- If you experience gapping or glitching when recording multichannel audio, try increasing your buffer size. You can increase the **Record buffering** setting on the [Audio](#) tab of the Preferences dialog or click the **Advanced** button on the Audio tab of the Preferences dialog to increase your device's buffers.

1. Connect your audio sources to your sound card's inputs. For more information, please see [Recording Setup](#).
2. Enable your recording inputs:
 - a. From the Options menu, choose **Preferences**, and click the Audio tab.
 - b. Choose your recording device from the **Audio device type** drop-down list.
 - c. Click the Record tab.
 - d. Select the **Enable** check box for each input you want to enable for recording, and then select a radio button to assign the input to an audio channel.

In the following example, the signal from Analog in 1 is recorded to channel 1, Analog In 2 is recorded to channel 2.

Channel	Device
Channel 1	▶ Analog In 1
Channel 2	▶ Analog In 2

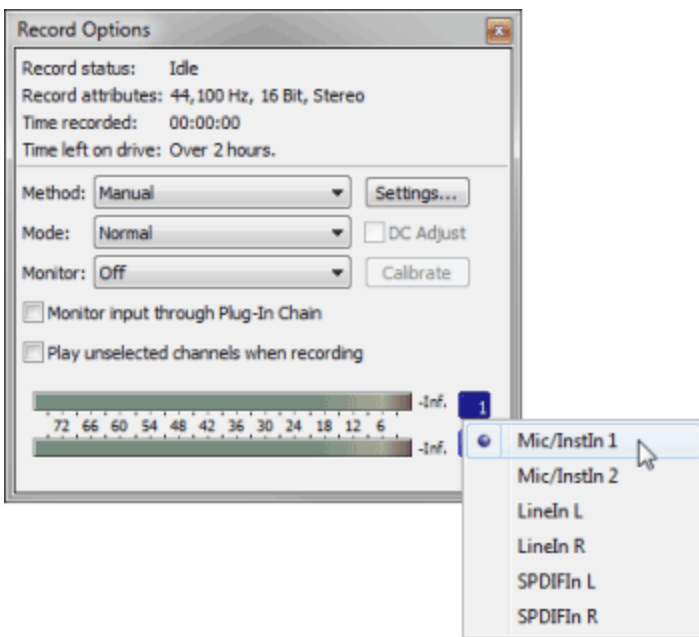
- e. Click **OK** to close the Preferences dialog and save your changes.
3. Verify that your recording mode is set to **Manual**.
 - a. From the View menu, choose **Record Options**. The Record Options window is displayed.
 - b. From the **Method** drop-down list, choose **Manual**.
 - c. If you want to set up pre-roll, post-roll, or a prerecord buffer, click the **Settings** button. For more information about other recording modes and methods, please see [Recording Options](#).

4. Create a data window for your recording:
 - a. From the File menu, choose **New**.
 - b. Choose a sample rate from the **Sample rate** drop-down list.
 - c. Choose a setting from the **Bit depth** drop-down list to specify the number of bits that should be used to store each sample.
 - d. Choose a setting from the **Channels** drop-down list to specify the number of channels that will be used in the window.
 - e. Click **OK**. A new, untitled sound file is created.



The maximum number of channels recorded depends on the data window where you're recording. For example, if you enabled six inputs on the Record tab in [Audio Preferences](#), you need to record into a six-channel data window to record all six inputs. If you record to a stereo data window, only two inputs will be recorded.

To choose your recording input, use the [Audio](#) tab in the Preferences dialog or click a channel number in the Record Options window and choose a new input port from the menu.



5. [Select](#) the sound data you want to replace, or click to position the cursor where you want to begin recording.




If you want to check your input levels before or during recording, you can use the meters.

The peak meters represent the volume of the recording input. For best results, the peak level should be somewhere in the yellow range with an occasional red segment: you want your input to be as loud as possible without clipping.

6. Click the **Arm** button  if you want to begin recording as soon as possible after clicking the **Record** button .



The **Arm** button is optional, but can allow for more accurate takes. When you click **Arm**, the wave device is opened and all recording buffers are loaded in order to minimize the amount of time between clicking the **Record** button and when recording starts.


7. Click the **Record** button  (or press Ctrl+R). Recording begins, and the [Time Display](#) window and the data window's selection status bar will show the current record position.



During recording, playback commands, the Preferences dialog, and commands that affect the recording data window are unavailable.

- Recording will stop automatically at the end of the selection.

If you're recording without a selection, existing data is overwritten during recording, and you can click the **Record**  or **Stop** button  to end recording.


Clicking **Pause**  suspends recording, clearing the selection and moving the cursor to the end of the recorded data. When you pause recording, the recording device remains armed.

Hardware Meters Window

From the View menu, choose **Hardware Meters** to toggle the display of the Hardware Meters window. You can use this window to adjust the levels of your audio device's hardware outputs for monitoring and to view a peak meter, VU/PPM meter, phase scope, and mono-compatibility meter.


Adjust output levels


The Hardware Meters window displays a gain fader for each output that is enabled on the [Audio](#) tab of the Preferences dialog. You can use these faders to adjust preview levels.

 The faders in the Hardware Meters window are used to control preview volume only. If you want to mix channel levels, use the [Volume](#) or [Envelope](#) plug-in.

Drag the fader to adjust the volume of the channel. Double-click the center of the thumb to reset the fader to 0.0 dB.

If the right and left channels are set differently, you can double-click either thumb to force the other channel to match it.

Click the **Lock/Unlock Fader Channels** button  to lock (gang) the faders so the left and right channels will always move together. Click again to unlock the faders.

 Hold Shift while dragging a fader to temporarily override the current state of the **Lock/Unlock Fader Channels** button: if the button is turned off, you can hold Shift to drag the faders in locked mode; if the button is selected, hold Shift to drag the faders independently.

Show or hide meters

You can display a peak meter, VU/PPM, a phase scope, and mono-compatibility meter for each hardware output. To toggle the display of each meter, right-click the Hardware Meters window and choose a command from the shortcut menu.


A check mark is displayed to indicate which meters are currently visible.

- For more information about using peak meters, please see [Channel Meters](#).
- For more information about using VU/PPM meters, please see [VU and Peak Program Meters](#).
- For more information about using the phase scope, please see [Phase Scope](#).
- For more information about using the mono-compatibility meter, please see [Mono Compatibility Meter](#).

Previewing a File

Previewing a file allows you to witness the results of your meticulous editing. You can preview an audio file from the main Sound Forge Pro window or using the playbar in each data window. Additionally the Video Preview window allows you to preview video files natively or send them to an external monitor.

Choosing a Playback Mode

The **Play** button  on the Transport toolbar behaves differently depending on the current playback mode. You can change the current mode by performing any of the following actions:

- Choosing **Transport** from the Options menu and then choosing a playback mode from the submenu.
- Clicking a play mode button in a data window's playbar (the selected play mode button is underlined).
- Pressing X to toggle through the available playback modes.


The current mode is indicated by a horizontal line under the active mode button in the playbar.



When Options > **Seek Cursor on Playback** is selected, playback will restart when you position the cursor. If you do not want to interrupt playback when positioning the cursor, clear this command.

Play Normal mode

From the Options menu, choose **Transport**, and then choose **Play Normal Mode** from the submenu to set playback to Normal mode.

When you click the **Play** button  while in Normal mode, playback will adhere to the following rules:

- If there is no selection, playback occurs from the cursor to end of file.
- If there is a selection, playback occurs from the beginning of the selection to the end of the selection.
- Effects from the **Plug-In Chain**, are previewed in real time when you play back the file.
- To bypass the plug-in chain, bypass the chain in the Plug-In Chain window. For more information, please see "Preview the effects chain" in [Using the Plug-In Chain](#).

Play as Sample mode

From the Options menu, choose **Transport** and choose **Play as Sample Mode** from the submenu to set playback to Sample mode.




This button is not displayed unless a **sample loop** has been defined in your file.

When you click the **Play** button  while in Sample mode, playback will adhere to the following rules:

- If the file contains loops, the loops will repeat as many times as specified on the **Edit Sample** dialog. Use this to listen to a sound file as it would sound when played by a sampler.
- If the file does not contain any loops, the file will be played once from beginning to end.

Play as Cutlist mode

From the Options menu, choose **Transport**, and then choose **Play as Cutlist Mode** from the submenu to begin playback from the cursor position, skipping any **cutlist** regions.

The **Play as Cutlist** button  is not displayed unless you have playlist/cutlist [regions](#) defined and have set your playlist/cutlist to Cutlist mode. To use Cutlist mode, choose **Playlist/Cutlist** from the Edit menu, and then choose **Treat as Cutlist** from the submenu.

Data Window Scrolling

From the **Options** menu, choose **Scroll Playback** (or press F6) to enable automatic data window scrolling during playback. When the cursor moves off of the current window, it will quickly scroll to show another full window of data.

To enable smooth scrolling, choose **Scroll Smoothly** from the Options menu (or press Shift+F6). When this option is selected, the cursor will slowly move back to the center of the display, and the wave data will scroll past it. This allows you to view upcoming data while the file is being played.

Preview Cut/Cursor

Press Ctrl+K to play the data before and after the current selection or cursor position. This command lets you preview the result of a [Cut](#) or [Clear](#) operation without altering the file.

Notes:

- To set the amount of pre- and post-roll that will be played when you preview a cut, choose **Preferences** from the Options menu and choose the [Previews](#) tab. Type values in the **Pre-roll** and **Post-roll** boxes in the Cut preview configuration section of the dialog.
- If there is no selection, the playback will pre- and post-roll around the cursor position.
- Choose **Preview Cut/Cursor** from the Transport menu to preview a cut or the cursor position.

 Hold the Ctrl key and click the **Play Normal** button  in the data window's playbar.

Pre-Roll to Cursor

Press Ctrl+Shift+K to play the data before the cursor position for the default pre-roll length.

Notes:

- To set the amount of pre- and post-roll that will be played when you preview a cut, choose **Preferences** from the Options menu and choose the [Previews](#) tab. Type values in the **Pre-roll** and **Post-roll** boxes in the Cut preview configuration section of the dialog.
- If a selection is made the pre-roll will occur for whichever end of the selection is active. To toggle between ends of the selection, use the Home and End keys.
- Choose **Pre-Roll to Cursor** to play the data before the cursor position for the default pre-roll length.


 Hold the Shift and Ctrl keys and click the **Play Normal** button  in the data window's playbar..

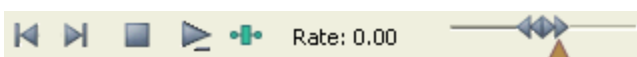
Scrubbing

You can use scrubbing to scroll playback of your project at varying speeds.


Choose a setting from the **JKL / shuttle speed** drop-down list on the [Editing](#) tab of the Preferences dialog to control the scrub speed and range when you scrub with the JKL keys.

Use the scrub control in the data window

Drag the scrub control () at the bottom of a data window to shuttle forward or backward from the cursor position to find an edit point.



 Hover over the scrub control and roll the mouse wheel forward or backward.

You can drag the **Normal Rate** indicator () below the scrub control to adjust playback speed (or double-click the label to type a playback rate).


Scrub using the keyboard

 Press and hold K while pressing K or L to emulate a shuttle knob mode. Press K+J to turn the knob to the left or K+L to turn the knob to the right.

Press the J, K, or L keys to use the keyboard as a scrub control. The scrub control at the bottom of the active data window will reflect the current rate and direction of playback.

Item	Description
J	Scrub reverse mode. Press again to accelerate the playback rate.
K	Pause.
L	Scrub forward mode. Press again to accelerate the playback rate.


Scrub by dragging the cursor

1. Hover over the cursor and press Ctrl. The mouse pointer is displayed as a  when you click.
2. Drag left or right to scrub playback.

 The **Allow Ctrl+drag cursor style scrub in data windows** check box on the [General](#) tab of the Preferences dialog must be selected to scrub by dragging the cursor.

Scrub with the audio event locator

Holding Ctrl and dragging the mouse within the overview bar initiates playback of small audio loops adjacent to the cursor position. This is not technically a scrub function, but it serves a similar purpose. It allows you to audition brief audio segments and quickly locate specific events within a file. Playback stops when the mouse button is released.

 You can set the amount of pre-roll and the loop duration for the audio event locator on the [Previews](#) tab of the Preferences dialog.

Monitoring Levels in Digital Audio

The Sound Forge Pro [channel meters](#) display peak levels during playback. Use the meters to monitor levels and ensure no clipping occurs in your file.

Decibels

The standard method for digital metering is to use the maximum possible [sample value](#) as a reference point. This value is referred to as 0 dB. Decibels are used to represent fractions logarithmically. In this case, the fraction is: sample amplitude divided by the maximum possible amplitude. The actual equation used to convert to decibels is: $\text{dB} = 20 \log (\text{amplitude}/32,768)$

To illustrate this, consider a sine wave with a peak amplitude of 50% of full scale. Inserting the values in the appropriate places yields $20 \log (0.50) = -6.0 \text{ dB}$. Each time a signal's amplitude is divided by two, its dB value is decreased by 6 dB. Likewise, doubling the amplitude of a signal increases its dB value by 6 dB. Dividing the sine wave until its peak amplitude is equal to 1 produces lowest peak dB possible, -90.3 dB.

Why are dBs used when talking about audio? Decibels are typically used when dealing with sound pressure levels because of the vast range of sound (about 120 dB) that the human ear can perceive. It's also easier to say -90 dB than 0.000030 (1/32,768).

Digital versus analog levels

When recording to an analog medium such as magnetic tape, recording engineers typically try to keep VU (volume unit) meters as close to zero as possible. This ensures a high signal-to-noise ratio while preserving adequate headroom to keep the tape from saturating and distorting. In addition, occasional peaks above 0 do not cause problems because the tape saturation point is not an absolute.

However, this is not true in the digital realm, where amplitudes are stored as discrete numbers instead of continuous variables. The flexible recording ceiling of analog is replaced by the absolute maximum [sample values](#) of digital audio. Stored signals must never have a value above these maximums, as the wave peaks are literally clipped. This clipping adds audible distortion and though it can go unnoticed, it can also ruin an entire project. Therefore, sample with the understanding that digital audio has absolutely no headroom. The following image shows a simple sine wave that has been clipped to 0 dB:



Setting digital audio levels

Because digital audio has no headroom, setting the sampling level becomes critical. If the loudest section of the audio is identified in advance, the recording level should be set so that the peak is as close to 0 dB as possible to maximize the dynamic range of the digital medium. If the loudest section of audio is unknown, allow 3 to 6 dB of headroom for unexpected peaks.

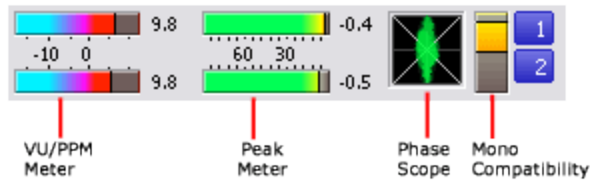
💡 From the Tools menu, choose **Find** and use the [Find](#) dialog to identify the largest peak in your file.

Channel Meters

From the View menu, choose **Channel Meters** to open or close the channel meters. By default, Sound Forge Pro software provides peak meters that you can use to monitor your audio levels. You can also choose to display VU/PPM (peak program) meters, a phase scope, and a mono-compatibility meter.

The peak meters display instantaneous levels during playback to help you determine the loudest level in your audio signal and whether the signal is clipping.

To prevent clipping, keep an eye on your peak meters. Peak levels should never exceed 0 dB. You can use the **Status** tab in the Preferences dialog to calibrate the VU/PPM meters to their associated levels on the peak meters and adjust the VU meters' sensitivity.



Show or hide the Channel Meters window

From the View menu, choose **Channel Meters** to open or close the channel meters. You can **dock** the Channel Meters window on any edge of the Sound Forge Pro workspace.

Show or hide meters

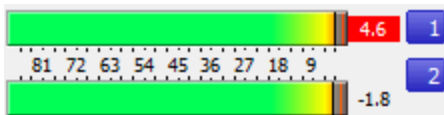
You can display a peak meter, VU/PPM, a phase scope, and mono-compatibility meter for each channel. To toggle the display of each meter, right-click the Channel Meters window and choose a command from the shortcut menu.

A check mark is displayed to indicate which meters are currently visible.

- For more information about using VU/PPM meters, please see [VU and Peak Program Meters](#).
- For more information about using the phase scope, please see [Phase Scope](#).
- For more information about using the mono-compatibility meter, please see [Mono Compatibility Meter](#).

Reset clip indicators

When clipping is detected, the peak meter displays a red clipping indicator.




Do any of the following to reset the indicator:

- From the Options menu, choose **Channel Meters**, and then choose **Reset Clip** from the submenu.
- Right-click the play meter and choose **Reset Clip** from the shortcut menu.
- Click the red clip indicator.

Change the meters' display resolution

The peak meters display levels in dB FS. To change the resolution of the meters, do either of the following:

- From the Options menu, choose **Channel Meters**, choose **Peak Range** from the submenu, and then choose a display range.
- Right-click the channel meter, choose **Peak Range** from the submenu, and then choose a display range.

 Choosing a wide range allows you to see low-level signals at the expense of precision display at high levels.

Change the meters' display options


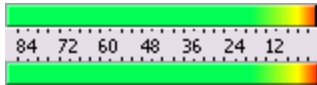
You can choose whether labels, peaks, and valleys are displayed in the meters and whether the meters are displayed on top of other windows when they are not docked.

Do either of the following to change the meters' display options:

- From the Options menu, choose **Channel Meters**, and then choose a command from the submenu.
- Right-click the meters and choose a command from the shortcut menu.

Command	Function
Show Labels	Toggles the meter level labels on and off.
Hold Peaks	When selected, the highest peak levels are represented by a thin line on the meter.
Hold Valleys	When selected, the lowest peak levels are represented by a thin line on the meter.

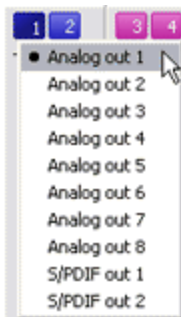
To change the layout of the meters in the Channel Meters window, right click the meters, choose **Layout** from the shortcut menu, and then choose a command from the submenu.

Command	Function
Horizontal/Vertical/Auto	Choose a command to change the orientation of the meters in the Channel Meters window.
Narrow Width	Toggles narrow- or normal-width meters. Using narrow meters can conserve screen space. <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="text-align: center;">  <p>Narrow meter</p> </div> <div style="text-align: center;">  <p>Normal meter</p> </div> </div>
Interleave Peak/VU	Toggles interleaved or stacked display of VU/PPM meters with the corresponding channel meters.

Route channels to hardware outputs

You can change channel assignments from the **Audio tab** in the Preferences dialog or the Channel Meters window. Changing the setting in either location updates your preferences and affects all open data windows.

To change a channel's output device using the Channel Meters window, click the channel number and choose a new output port from the menu:



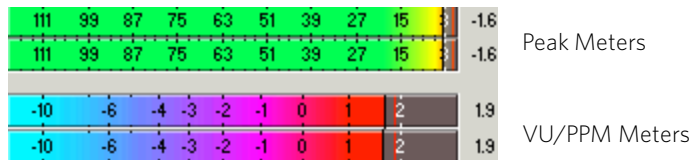
VU and Peak Program Meters

You can display volume unit (VU) and peak program (PPM) meters in the **Channel Meters** window, **Hardware Meters** window, and **Record** dialog to help you determine the perceived loudness of your audio signal (peak program meters provide faster response times to volume increases than VU meters).

VU/PPM meters are especially helpful when you're mastering: comparing two audio files' VU/PPM readings will help take the guesswork out of matching levels.

Right-click the Channel Meters or Hardware Meters window and choose **Show VU/PPM** from the shortcut menu to toggle the display of the VU/PPM meters.

VU/PPM readings should fall near the 0 (or reference) mark. 0 VU is merely a reference level, and your signal may exceed 0 VU. To prevent clipping, keep an eye on your peak meters. Peak levels should never exceed 0 dB. You can use the [Status](#) tab in the Preferences dialog to calibrate the VU/PPM meters to their associated levels on the peak meters and adjust the VU meters' sensitivity.



Choose a VU or PPM scale

To change the scale of the meter, choose **Channel Meters** from the Options menu, choose **VU/PPM Scale**, and then choose a setting from the submenu (you can also right-click the meter to set its options).

VU and PPM scales are most useful for displaying the average volume of the signal: the meter represents the **RMS average** level during playback, and their attack and decay are not as sensitive as the peak meter.

PPM scales are useful for monitoring peak levels. The meters use a fixed integration time (5 or 10 ms) that is sensitive to increases in volume, but the meters are less sensitive to decreases in volume than the VU scales, which produces less meter activity and decreased eyestrain.

Item	Description																
Traditional VU	The traditional VU meter is displayed with a scale of -10 dB to +2 dB. 0 dB on the VU meter equals 4 dBu.																
Extended VU	The extended VU meter is displayed with a scale of -30 dB to +8 dB. 0 dB on the VU meter equals 4 dBu.																
Logarithmic VU	Displays the meters in a logarithmic scale (like the Sound Forge Pro peak meters) instead of the linear scales traditionally associated with VU meters.																
UK PPM	The UK peak program meter (also known as a BBC meter) is a Type II meter and is displayed with a scale of 1 to 7, which corresponds to a range of -12 to 12 dBu: <table border="1"> <thead> <tr> <th>UK Marks</th> <th>dBu</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>12</td> </tr> <tr> <td>6</td> <td>8</td> </tr> <tr> <td>5</td> <td>4</td> </tr> <tr> <td>4</td> <td>0</td> </tr> <tr> <td>3</td> <td>4</td> </tr> <tr> <td>2</td> <td>8</td> </tr> <tr> <td>1</td> <td>-12</td> </tr> </tbody> </table>	UK Marks	dBu	7	12	6	8	5	4	4	0	3	4	2	8	1	-12
UK Marks	dBu																
7	12																
6	8																
5	4																
4	0																
3	4																
2	8																
1	-12																
EBU PPM	The EBU peak program meter is a Type II meter and is displayed with a scale of -12 to +12, which corresponds to -12 dBu to 12 dBu. 0 on the EBU PPM equals 0 dBu. The EBU PPM and UK PPM respond identically to increases in volume, but the EBU PPM decays more slowly.																
DIN PPM	The DIN peak program meter is a Type I meter and is displayed with a scale of -50 dB to +5 dB, which corresponds to -44 dBu to 11 dBu. 0 dB on the DIN PPM equals 6 dBu.																

Nordic PPM	The Nordic peak program meter is a Type I meter and is displayed with a scale of -42 dB to +12 dB, which corresponds to -42 dBu to 12 dBu. 0 dB on the Nordic PPM equals 0 dBu.
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Adjust the VU meters' sensitivity

Unlike peak meters which read instantaneous changes in your audio signal the VU/PPM meters read a portion of the signal and calculate the average level. The size of the signal that the meters read is determined by the meters' integration time.—

To set the amount of data surrounding the cursor that will be used to calculate levels in the VU meters, specify a value in the **VU meter integration time** box on the **Status** tab of the Preferences dialog.

The PPM scales use a fixed integration time:

Scale	Integration Time
UK PPM	10 ms
EBU PPM	10 ms
DIN PPM	5 ms
Nordic PPM	5 ms

Change the meters' display resolution

The VU/PPM meters display levels in dB VU. To change the resolution of the meters, perform either of the following steps:

- From the Options menu, choose **Channel Meters**, choose **VU/PPM Scale** from the submenu, and then choose a display range.
- Right-click the meter, choose **VU/PPM Scale** from the submenu, and then choose a display range.

 Choosing a wide range allows you to see low-level signals at the expense of precision display at high levels.

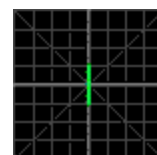
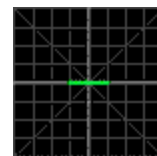
Phase Scope

You can display a phase scope in the **Channel Meters** window, **Hardware Meters** window, and **Record** dialog to find phase cancellation among the channels in an audio file.

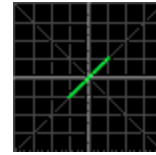
Right-click the meters and choose **Show Phase Scope** from the shortcut menu to toggle the display of the phase scope.

To change the display, right-click the meters, choose **Phase Scope Style** from the shortcut menu, and then choose a setting from the submenu:

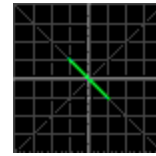
Style	Description
Lissajous - XY Plot	Displays the right and left channels plotted along the X and Y axes of the graph. For these sample images, a stereo file with simple sine waves was used to provide a crisp line. When viewing typical audio, the lines will be more diffused.
	Right channel only.
	Left channel only.



Right and left channels.
The "forward-slash" display indicates that no phase cancellation exists.



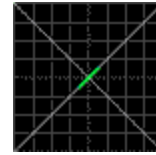
Right and left channels after inverting the left channel.
The "backslash" display indicates that phase cancellation exists.



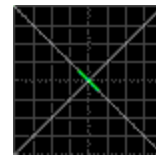
Lissajous - Rotated Displays the right and left channels plotted along the X and Y axes of the graph. This setting is identical to the **Lissajous - XY Plot** setting, but the graph is rotated 45 degrees.

For these sample images, a stereo file with simple sine waves was used to provide a crisp line. When viewing typical audio, the lines will be more diffused.

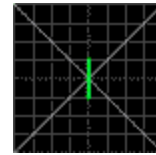
Right channel only.



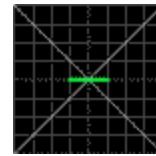
Left channel only.



Right and left channels.
The vertical line indicates that no phase cancellation exists.



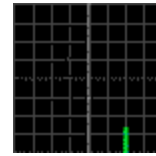
Right and left channels after inverting the left channel.
The horizontal line indicates that phase cancellation exists.



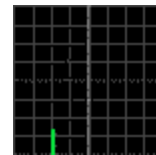
Polar - Linear Plot Displays the right and left channels plotted vertically on the graph.

For these sample images, a stereo file with simple sine waves was used to provide a crisp line. When viewing typical audio, the lines will be more diffused.

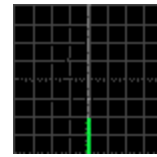
Right channel only.



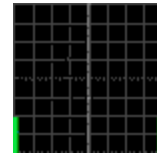
Left channel only.



Right and left channels.
The centered line indicates that no phase cancellation exists.



Right and left channels after inverting the left channel.
The separate left and right vertical lines indicate that phase cancellation exists.



Polar - Circular Plot

Displays the right and left channels plotted on a circular graph.

For these sample images, a stereo file with simple sine waves was used to provide a crisp line. When viewing typical audio, the lines will be more diffused.

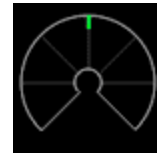
Right channel only.



Left channel only.



Right and left channels.
The centered line indicates that no phase cancellation exists.



Right and left channels after inverting the left channel.
The separate left and right horizontal lines indicate that phase cancellation exists.

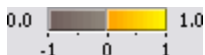


Mono-Compatibility Meter

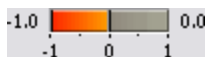
You can display a mono-compatibility meter in the [Channel Meters](#) window, [Hardware Meters](#) window, and [Record](#) dialog to detect correlations or differences between the channels of a file that can cause phase cancellation when downmixing to mono.

Right-click the meters and choose **Show Mono-Compatibility Meter** from the shortcut menu to toggle the display of the mono-compatibility meter.

- When the channels are similar, the right (or top) half of the meter is illuminated:

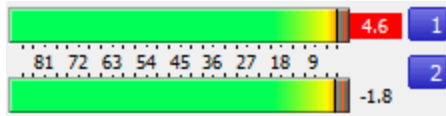


- When the channels exhibit phase cancellations, the left (or bottom) half of the meter is illuminated:




Detecting and Marking Clipping

The clip indicators in the [channel meters](#) help you determine whether clipping occurs in your file, and you can use the **Find** command to find audio that matches levels you specify. For more control, however, you can use the detect clipping tool.



From the Tools menu, choose **Detect Clipping** to scan a selection of audio for clipping and add markers where clipping occurs.

Markers can be quickly selected from the list in the [Go To](#) dialog. Also, markers are displayed in the [Regions List](#) for quick playback.

1. Select the audio you want to scan.
2. From the Tools menu, choose **Detect Clipping**. The Detect Clipping dialog is displayed.
3. Choose a setting from the **Preset** drop-down list or adjust the controls as necessary.
 - a. Drag the **Threshold** fader to determine the sound level you want to find.
 - b. Set a value in the **Clip Length** box to specify how many sequential samples must meet the **Threshold** setting to constitute clipping.
 - c. Select the **Use True Peaks** check box if you want to detect clipping of true peaks in dB FS for [loudness](#) measurements.
 -  Please note that true peaks are calculated using a higher sample rate than peaks in the [Channel Meters](#) for increased accuracy.
4. When the **Use True Peaks** check box is selected, select the **Enable DC Blocking Filter** check box if you want to filter the true peak sample value to compensate for asymmetrical audio signals or DC offset. Filtered true peaks are calculated as the maximum of the filtered and unfiltered signals.
5. Click the **OK** button.

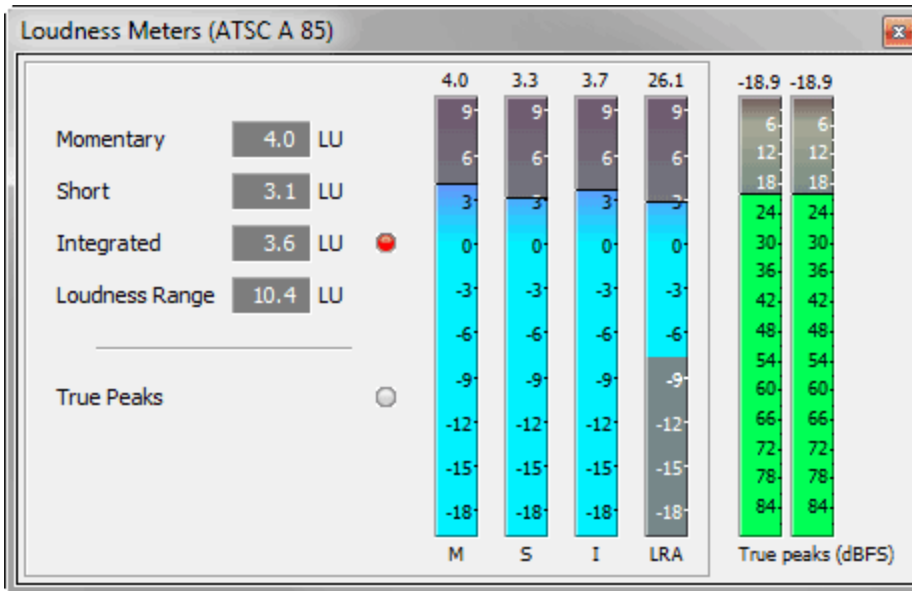
The selection is scanned, and markers are added whenever the software finds a number of sequential samples (determined by the **Clip Length** setting) with the same value above the **Threshold** setting.

-  Use the **Detect all clip-related plateaus** preset to detect clipped peaks that may exist in your file after decreasing the levels in the file. You can then use the [Pencil](#) tool or the [DeClipper](#) plug-in to restore the clipped peaks.

Loudness Meters

From the View menu, choose **Loudness Meters** to display the Loudness Meters window.

The Loudness Meters tool provides data about an audio file's momentary loudness, short-term loudness, integrated (overall) loudness, and loudness range. You can use these values when mastering for broadcast to ensure compliance with loudness standards (such as the CALM Act).



The meters display real-time values for each of the following measurements:

- The **M** meter represents the momentary loudness — in loudness units (LU) — across all audio channels based on 400-millisecond integration windows. The **Momentary** box displays a numeric representation of the momentary loudness.
- The **S** meter represents the short-term loudness — in loudness units — across all audio channels based on 3-second integration windows. The **Short** box displays a numeric representation of the short-term loudness.
- The **I** meter represents the integrated loudness — in loudness units — across all audio channels over the duration of the program. The **Integrated** box displays a numeric representation of the integrated loudness and includes an over-target indicator.
- The **LRA** meter represents the loudness range — in loudness units — of the momentary and short-term levels. The **Loudness Range** measurement provides a standardized method of determining the dynamic range of the signal.
- The **True peaks** meter represents the peak levels in dB FS. True peaks are calculated using a higher sample rate than peaks in the [Channel Meters](#) window for increased accuracy.

The **True Peaks** indicator shows you whether the target loudness has been exceeded. The indicator is reset when you restart playback, or you can right-click the Loudness Meters window and choose **Reset Clip** from the shortcut menu.

The statistics on the left side of the window display the last-calculated values and are reset when you restart playback. You can reset the values by right-clicking the Loudness Meters window and choosing **Reset Metering Engine** from the shortcut menu.

Tips:

- Loudness is recalculated whenever you start, stop, seek, or change playback direction. If you want to force a recalculation, right-click the window and choose **Reset Metering Engine** from the shortcut menu.
- Select the **Enable surround processing for files with 6 channels** check box on the [Status](#) tab of the Preferences dialog if you want to treat audio with six channels as surround audio when measuring loudness (a gain of -1.5 dB is applied to the left and right surround channels). When the check box is cleared, all channels contribute equally to the loudness measurement.

Choose a metering mode

To change the mode of the meters, choose **Loudness Meters** from the Options menu, and then choose **EBU R 128 Mode** or **ATSC A 85 Mode** from the submenu (you can also right-click the meter to set its options).


- When using **EBU R 128 Mode**, the target value of the **Integrated** meter is -23 LUFS, and the maximum **True peak** value is -1.0 dB FS. Use this mode when you're mastering to European Broadcasting Union (EBU) standards.
- When using **ATSC A 85 Mode**, the target value of the **Integrated** meter is -24 LUFS, and the maximum **True peak** value is -2.0 dB FS. Use this mode when you're mastering to North American Advanced Television Systems Committee (ATSC) standards.

The over-target indicators will be triggered if the target values for **Integrated** and **True peak** meters are exceeded.

Choose a loudness scale

To change the scale of the meter, choose **Loudness Meters** from the Options menu, choose **Loudness Scale**, and then choose **EBU +9** or **EBU +18** from the submenu (you can also right-click the meter to set its options).


- When using **EBU +9**, the meters are displayed with a range of -18 to +9 LU.
- When using **EBU +18**, the meters are displayed with a range of -36 to +18 LU.

 Choosing a wide range allows you to see low-level signals at the expense of precision display at high levels.

Select **Absolute (-23 LUFS)** if you want to display loudness values as Loudness Units Full Scale (LUFS). When **Absolute (-23 LUFS)** is not selected, all values are expressed as Loudness Units (LU) relative to the selected mode (**EBU R 128 Mode** or **ATSC A 85 Mode**).

Configure peak meters

To toggle the True Peaks meters in the Loudness Meters window, choose **Loudness Meters** from the Options menu, and then choose **Show True Peak Meter** from the submenu (you can also right-click the meter to set its options).

 Please note that true peaks are calculated using a higher sample rate than peaks in the **Channel Meters** for increased accuracy.

Peak levels may be miscalculated if audio signals are asymmetrical or if a DC offset is present. To enable filtering, choose **Loudness Meters** from the Options menu, and then choose **True Peak Blocking Filter** from the submenu (you can also right-click the meter to set its options). When **True Peak Blocking Filter** is selected, peaks are calculated as the maximum of the filtered and unfiltered signals.

The True Peaks meters display levels in dB FS. To change the resolution of the meters, do either of the following:

- From the Options menu, choose **Loudness Meters**, choose **True Peak Range** from the submenu, and then choose a display range.
- Right-click the Loudness meter, choose **True Peak Range** from the submenu, and then choose a display range.

 Choosing a wide range allows you to see low-level signals at the expense of precision display at high levels.

Generate a loudness log


A loudness log is a report of the loudness of an audio file and it allows you to provide documentation that your files adhere to loudness standards.

Generating a loudness log when saving a file

1. Use the **Save As** dialog to save your file.
2. Select the **Generate Loudness Log** check box if you want Sound Forge Pro to analyze the loudness of your file and create a log file that summarizes its loudness values.

The loudness log is created using the same folder and base name as your sound file with **_Loud.txt** appended to the name.


The log will record the file name, format, loudness metering mode, and loudness values throughout the file.

 Loudness logging is performed after the plug-in chain, but before any codec is applied to your rendered file. Because audio compression may affect audio levels, choose **Tools > Generate Loudness Log** to create a log after saving to a compressed format.

Select the **Enable surround processing for files with 6 channels** check box on the **Status** tab of the Preferences dialog if you want to treat audio with six channels as surround audio when measuring loudness (a gain of -1.5 dB is applied to the left and right surround channels). When the check box is cleared, all channels contribute equally to the loudness measurement.

Generating a loudness log for a data window

1. **Select** the data you want to analyze.


 If no data is selected, the entire file is analyzed.

2. Choose **Tools > Generate Loudness Log**.

The loudness log is created using the same folder and base name as your sound file with **_Loud.txt** appended to the name.

The log will record the file name, format, loudness metering mode, and loudness values throughout the selection or file.

If the **Open editor when new loudness log is generated** check box is selected on the **Status** tab in the Preferences dialog, the log will be automatically opened in your default text editor.

 Select the **Enable surround processing for files with 6 channels** check box on the **Status** tab of the Preferences dialog if you want to treat audio with six channels as surround audio when measuring loudness (a gain of -1.5 dB is applied to the left and right surround channels). When the check box is cleared, all channels contribute equally to the loudness measurement.



Recording

Sound Forge Pro can record audio into multiple audio channels while simultaneously playing back existing audio tracks. You are limited only by the performance of your computer system and audio hardware.

💡 You can use the [Stereo Recording window layout](#) to optimize the Sound Forge Pro interface for recording.

Creating a New Recording

After you've connected an audio source and verified your [recording setup](#), you're ready to start recording audio.

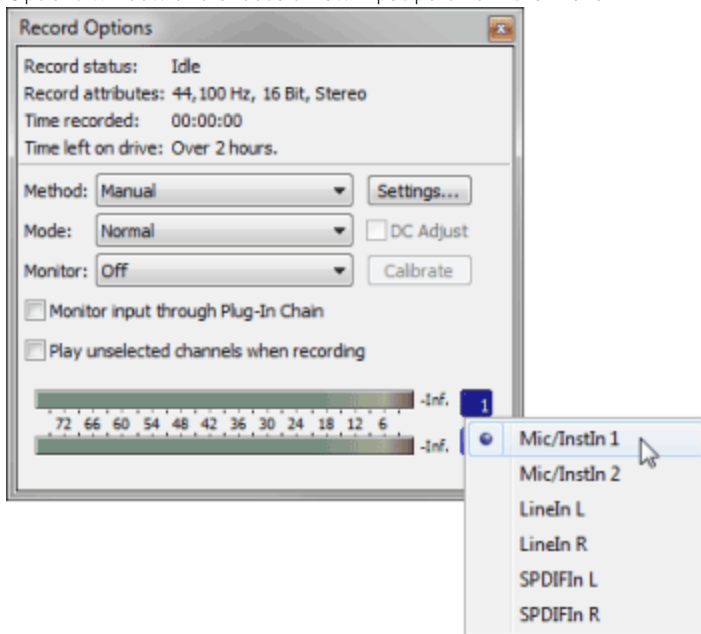
When you click the **Arm**  or **Record**  button when no data windows are open, Sound Forge Pro creates a new window automatically using the last-used new window settings. When **Create new windows** is selected in the **Mode** drop-down list in the [Record Options window](#), a new window is each time you start recording.

If you want to record into an existing sound file, please see [Recording into an Existing Sound File](#).

💡 You can use the [Stereo Recording window layout](#) to optimize the Sound Forge Pro interface for recording.




📄 The maximum number of channels recorded depends on the data window where you're recording. For example, if you enabled six inputs on the Record tab in [Audio Preferences](#), you need to record into a six-channel data window to record all six inputs. If you record to a stereo data window, only two inputs will be recorded.





To choose your recording input, use the [Audio](#) tab in the Preferences dialog or click a channel number in the Record Options window and choose a new input port from the menu.



Create a recording

1. Verify that your recording method is set to **Manual**.
2. From the View menu, choose **Record Options**. The Record Options window is displayed.
3. From the **Method** drop-down list, choose **Manual**.
4. If you want to set up pre-roll, post-roll, or a prerecord buffer, click the **Settings** button. For more information, see "Set up pre- and post-roll" or "Set a prerecord buffer" in this help topic.


5. Use one of the following methods to create a new window:
 - Choose **File > New**.
 - When you click the **Arm**  or **Record**  button when no data windows are open, Sound Forge Pro creates a new window automatically using the last-used new window settings.
 - When **Create new windows** is selected in the **Mode** drop-down list in the **Record Options window**, a new window is each time you start recording.
6. Click the **Record**  or **Stop** button to start recording. During recording, the **Time Display** window and the data window's selection status bar will show the current record position.

 During recording, playback commands, the Preferences dialog, and commands that affect the recording data window are unavailable.
7. Click the **Record**  or **Stop** button  to end recording, or click the **Pause** button  to suspend recording and leave the recording device armed.

Set up pre- and post-roll


Using pre- and post-roll can help you when recording voiceovers or overdubs:


- When you're performing punch-and-roll recording from the cursor, pre-roll allows you to hear the material before the cursor position.
 - When you're recording into a selection, pre- and post-roll allow you to hear the material before and after the selection.
1. From the **View** menu, choose **Record Options**. The Record Options window is displayed.
 2. From the **Method** drop-down list, choose **Manual**.
 3. Click the **Settings** button in the Record Options window.
 4. Select the **Pre-roll** check box and type a value in the edit box to set the amount of time before the cursor (or selection) that you want to play when recording.
 5. Select the **Post-roll** check box and type a value in the edit box to set the amount of time after the selection that you want to play when recording into a selection.
 6. Click the **OK** button.

When performing punch-in recording, recording occurs underneath the pre- and post-roll. If your subject starts early, for example, you can adjust the event to uncover the recording. You can use the Event Tool  to slip or trim the edges of the recorded event to expose the recorded pre- and post-roll. For more information, please see [Slipping and Trimming Events](#).

During recording, the **Record status** value in the Record Options window indicates that recording is armed, in pre-roll, recording, or in post-roll. The meters in the Record Options dialog monitor the level from your recording input.



Set a prerecord buffer

A prerecording buffer helps to ensure you won't miss a perfect take when you're recording. When the prerecording buffer is enabled, sound data is written continuously to the buffer after you click the **Arm** button . When you start recording, the sound data in the buffer is committed to disk.

After you finish recording, the buffer is not displayed in the window, but you can use the Event Tool  to slip or trim the left edge of the recorded event to expose the buffer. For more information, please see [Slipping and Trimming Events](#).

1. From the View menu, choose **Record Options**. The Record Options window is displayed.
2. From the **Method** drop-down list, choose **Manual**.
3. Click the **Settings** button in the Record Options window.
4. Select the **Prerecord buffer** check box and type a value in the edit box to set the duration of the buffer.
5. Click the **OK** button.

Review recorded takes

Click the **Play** button  to review your recording. Click the **Stop** button  to end playback.


Recording into an Existing Sound File

After you've connected an audio source and verified your [recording setup](#), you're ready to start recording audio.

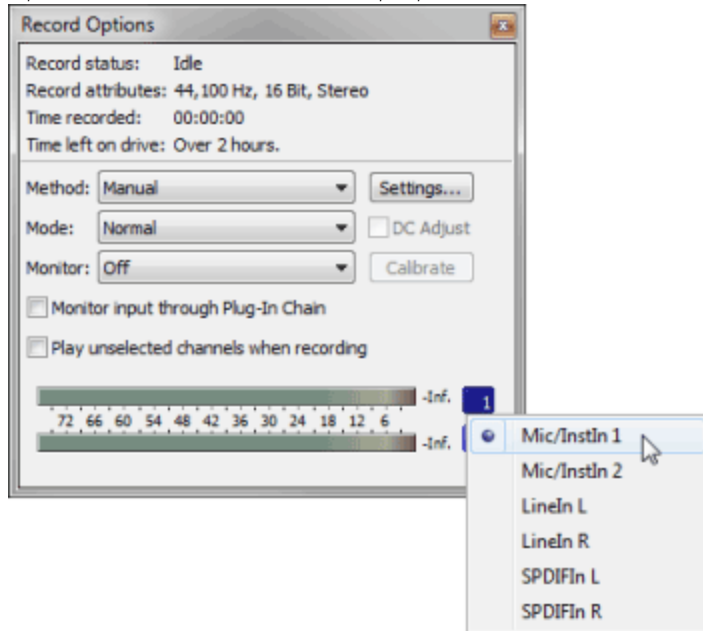
Click the **Record** button  (or choose **Transport > Record**) to record into an existing sound file (also called punch-in recording).

If you want to record to a new file, please see [Creating a New Recording](#).

 You can use the [Stereo Recording window layout](#) to optimize the Sound Forge Pro interface for recording.

 The maximum number of channels recorded depends on the data window where you're recording. For example, if you enabled six inputs on the Record tab in [Audio Preferences](#), you need to record into a six-channel data window to record all six inputs. If you record to a stereo data window, only two inputs will be recorded.

To choose your recording input, use the [Audio](#) tab in the Preferences dialog or click a channel number in the Record Options window and choose a new input port from the menu.



Record at the current cursor position or into a selection

1. Verify that your recording method is set to **Manual**.

- a. From the View menu, choose **Record Options**. The Record Options window is displayed.
 - b. From the **Method** drop-down list, choose **Manual**.
 - a. If you want to set up pre-roll, post-roll, or a prerecord buffer, click the **Settings** button. For more information, see "Set up pre- and post-roll" or "Set a prerecord buffer" in this help topic.
 - b. From the **Mode** drop-down list, ensure **Normal** or **Create new regions** is selected.
2. **Select** the sound data you want to replace, or click to position the cursor where you want to begin recording.




If you want to check your input levels before or during recording, you can use the meters.

The peak meters represent the volume of the recording input. For best results, the peak level should be somewhere in the yellow range with an occasional red segment: you want your input to be as loud as possible without clipping.

3. Click the **Arm** button  if you want to begin recording as soon as possible after clicking the **Record** button .



The **Arm** button is optional, but can allow for more accurate takes. When you click **Arm**, the wave device is opened and all recording buffers are loaded in order to minimize the amount of time between clicking the **Record** button and when recording starts.


4. Click the **Record** button  (or press Ctrl+R). Recording begins, and the **Time Display** window and the data window's selection status bar will show the current record position.



During recording, playback commands, the Preferences dialog, and commands that affect the recording data window are unavailable.

5. Recording will stop automatically at the end of the selection.

If you're recording without a selection, existing data is overwritten during recording, and you can click the **Record**  or **Stop** button  to end recording.

Clicking **Pause**  suspends recording, clearing the selection and moving the cursor to the end of the recorded data. When you pause recording, the recording device remains armed.

Record multiple takes into a selection


1. Verify that your recording method is set to **Manual**.
 - a. From the View menu, choose **Record Options**. The Record Options window is displayed.
 - b. From the **Method** drop-down list, choose **Manual**.
 - a. If you want to set up pre-roll, post-roll, or a prerecord buffer, click the **Settings** button. For more information, see "Set up pre- and post-roll" or "Set a prerecord buffer" in this help topic.
 - a. From the **Mode** drop-down list, ensure **Normal** or **Create new regions** is selected.
2. **Select** the sound data you want to replace, or click to position the cursor where you want to begin recording.




If you want to check your input levels before or during recording, you can use the meters.


The peak meters represent the volume of the recording input. For best results, the peak level should be somewhere in the yellow range with an occasional red segment: you want your input to be as loud as possible without clipping.

3. Select the **Loop Playback** button .

- Click the **Arm** button  if you want to begin recording as soon as possible after clicking the **Record** button .


The **Arm** button is optional, but can allow for more accurate takes. When you click **Arm**, the wave device is opened and all recording buffers are loaded in order to minimize the amount of time between clicking the **Record** button and when recording starts.


- Click the **Record** button  (or press Ctrl+R). Recording begins, and the **Time Display** window and the data window's selection status bar will show the current record position.

 During recording, playback commands, the Preferences dialog, and commands that affect the recording data window are unavailable.

- When recording reaches the end of the time selection, the cursor returns to the beginning of the selection, and a new take is recorded. Each take is added to the **Undo/Redo History window**.

- Click the **Record** button  or **Stop** button  to end recording.

Clicking **Pause**  suspends recording, clearing the selection and moving the cursor to the end of the recorded data. When you pause recording, the recording device remains armed.


- You can click the **Play** button  in the Undo/Redo History window to preview individual takes, or you can use the **Undo** and **Redo** commands to cycle through your recorded takes while previewing in the data window.

Set up pre- and post-roll

Using pre- and post-roll can help you when recording voiceovers or overdubs:


- When you're performing punch-and-roll recording from the cursor, pre-roll allows you to hear the material before the cursor position.
- When you're recording into a selection, pre- and post-roll allow you to hear the material before and after the selection.


- From the View menu, choose **Record Options**. The Record Options window is displayed.
- From the **Method** drop-down list, choose **Manual**.
- Click the **Settings** button in the Record Options window.
- Select the **Pre-roll** check box and type a value in the edit box to set the amount of time before the cursor (or selection) that you want to play when recording.
- Select the **Post-roll** check box and type a value in the edit box to set the amount of time after the selection that you want to play when recording into a selection.
- Click the **OK** button.

When performing punch-in recording, recording occurs underneath the pre- and post-roll. If your subject starts early, for example, you can adjust the event to uncover the recording. You can use the Event Tool  to slip or trim the edges of the recorded event to expose the recorded pre- and post-roll. For more information, please see [Slipping and Trimming Events](#).

During recording, the **Record status** value in the Record Options window indicates that recording is armed, in pre-roll, recording, or in post-roll. The meters in the Record Options dialog monitor the level from your recording input.


Set a prerecord buffer


A prerecording buffer helps to ensure you won't miss a perfect take when you're recording. When the prerecording buffer is enabled, sound data is written continuously to the buffer after you click the **Arm** button . When you start recording, the sound data in the buffer is committed to disk.

After you finish recording, the buffer is not displayed in the window, but you can use the Event Tool  to slip or trim the left edge of the recorded event to expose the buffer. For more information, please see [Slipping and Trimming Events](#).

1. From the View menu, choose **Record Options**. The Record Options window is displayed.
2. From the **Method** drop-down list, choose **Manual**.
3. Click the **Settings** button in the Record Options window.
4. Select the **Prerecord buffer** check box and type a value in the edit box to set the duration of the buffer.
5. Click the **OK** button.

Review recorded takes


Click the **Play** button  to review your recording. Click the **Stop** button  to end playback.

If you've recorded multiple takes, you can click the **Play** button  in the Undo/Redo History window to preview individual takes, or you can use the **Undo** and **Redo** commands to cycle through your recorded takes while previewing in the data window.

Recording Audio Automatically

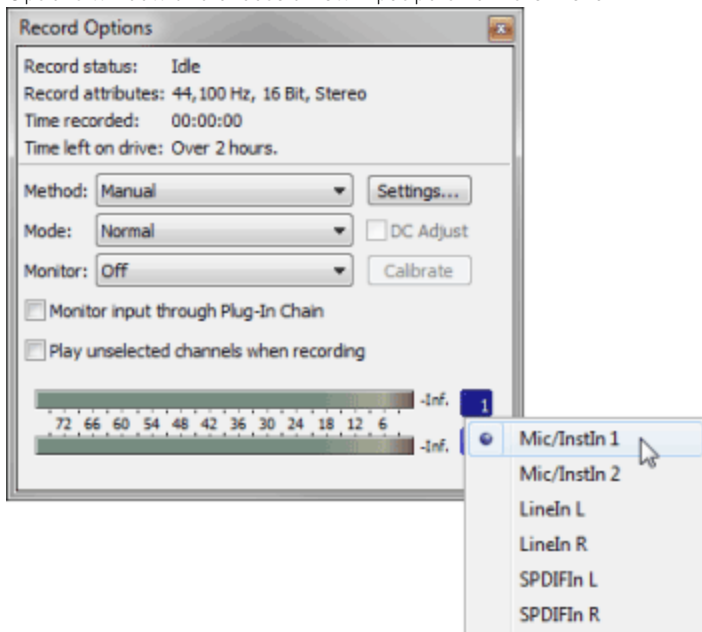
You can set up recording to begin automatically from the selected **input device** using a timer, by detecting when audio exceeds a set threshold, or when MIDI timecode is detected.

When you're using threshold-triggered recording, you can choose to record continuously: set a buffer size, and the recorded audio will fill the buffer, discarding the oldest data as new data is recorded. If you want to save data from the buffer, you can save it to disk.


When recording automatically, you can use the **Record** button  to manually begin recording. Automatic recording settings will then be used to determine when recording ends.


The maximum number of channels recorded depends on the data window where you're recording. For example, if you enabled six inputs on the Record tab in [Audio Preferences](#), you need to record into a six-channel data window to record all six inputs. If you record to a stereo data window, only two inputs will be recorded.

To choose your recording input, use the [Audio](#) tab in the Preferences dialog or click a channel number in the Record Options window and choose a new input port from the menu.




Record audio over a set threshold

1. From the View menu, choose **Record Options**. The Record Options window is displayed.
2. Use the Record Options window to set the audio levels at which recording will start and stop:
 - a. From the **Method** drop-down list, choose **Automatic: Threshold**.
 - b. Choose a setting from the **Mode** drop-down list to choose whether to create regions or record to a new window when recording is suspended and resumed. For more information, please see [Recording Options](#).
 - c. Click the **Settings** button. The Threshold Settings tab in the Record Settings dialog is displayed.
 - d. Drag the **Threshold** fader to set the audio level at which recording will begin.
 - e. Drag the **Release** slider to set the amount of time the audio level should be below the **Threshold** setting before recording will stop.
 - f. Select the **Automatically rearm after record** check box if you want to continue monitoring audio levels and recording until you click the **Stop** button .
 - g. Click **OK** to close the Record Settings dialog.



3. Click the **Arm** button  in the data window where you want to record. The **Record status** value in the Record Options window indicates that recording is armed, and the meters in the Record Options window monitor the level from your recording input.

Recording will begin when the audio signal meets the threshold level and will stop after the level falls below the threshold for the specified release time. recording begins at the cursor position, and the [Time Display](#) window and the data window's selection status bar will show the current record position.

If the destination window contains a selection that is shorter than the timer duration, recording will stop at the end of the selection. If the destination window contains a selection that is longer than the timer duration, recording will stop at the end of the timer duration.


 During recording, playback commands, the Preferences dialog, and commands that affect the recording data window are unavailable.

Record using MIDI timecode

1. From the Options menu, choose **MIDI In/Out**, and then choose **Trigger from MIDI Timecode** from the submenu.
2. From the View menu, choose **Record Options**. The Record Options window is displayed.
3. Use the Record Options window to set the MIDI timecode interval you want to record:
 - a. From the **Method** drop-down list, choose **Automatic: MIDI Timecode**.
 - b. Choose a setting from the **Mode** drop-down list to choose whether to create regions or record to a new window when recording is suspended and resumed. For more information, please see [Recording Options](#).
 - c. Click the **Settings** button. The MIDI Timecode Settings tab in the Record Settings dialog is displayed.
 - d. From the **Input** drop-down list, choose the trigger device. Changing the setting here will also update the Input setting on the [MIDI/Sync](#) tab in the Preferences dialog.
 - e. Select the **Timecode start** check box and type a value in the edit box to indicate the timecode location when recording will begin.
 - f. Select the **Timecode stop** check box and type a value in the edit box to indicate the timecode location when recording will end. If you don't indicate a stop time, recording will continue until you click the **Stop** button .
 - g. Select the **Bound record length on timecode loss** check box if you want to prevent recording beyond the specified end time. This ensures that your record length is exact regardless of any inaccurate timecode.
 - h. Click **OK** to close the Record Settings dialog.
4. Click the **Arm** button  in the data window where you want to record. The **Record status** value in the Record Options window indicates the timecode when recording will begin, and the meters in the Record Options window monitor the level from your recording input.






Recording will begin when Sound Forge Pro detects the specified **Timecode start** value and will stop at the specified **Timecode stop** value. Recording begins at the cursor position, and the [Time Display](#) window and the data window's selection status bar will show the current record position.

If the destination window contains a selection that is shorter than the specified timecode range, recording will stop at the end of the selection. If the destination window contains a selection that is longer than the timecode duration, recording will stop at the **Timecode stop** value.

 During recording, playback commands, the Preferences dialog, and commands that affect the recording data window are unavailable.


Record using a timer

1. From the View menu, choose **Record Options**. The Record Options window is displayed.

2. Use the Record Options window to specify when you want to record:
 - a. From the **Method** drop-down list, choose **Automatic: Time**.
 - b. Choose a setting from the **Mode** drop-down list to choose whether to create regions or record to a new window when recording is suspended and resumed. For more information, please see [Recording Options](#).
 - c. Click the **Settings** button. The Time Settings tab in the Record Settings dialog is displayed.
 - d. Click the **Add** button  to create a timer setting (or click the **Edit** button  to edit an existing setting). The Record Timer Event dialog is displayed.
 - 💡 **Tips:**
 - If you want to remove a timer setting, select it and click the **Delete** button .
 - If you want to remove all past timer settings, click the **Remove All Past Events from List** button .
 - e. Type a name in the **Name** box to create a name to identify the preset.
 - f. Choose a setting from the **Recurrence** drop-down list to indicate whether you want to record one time only or repeat the timed recording at a regular interval.
 - g. Use the **Start date, Start time, and Duration** boxes to indicate when you want to start and stop recording.
 - h. Click **OK** to close the **Record Timer Event** dialog.
 - i. Click **OK** to close the **Record Options** dialog.
3. Click the **Arm** button  in the data window where you want to record. The **Record status** value in the Record Options window will display a countdown to show you when recording will begin.


When the timer is activated, recording begins at the cursor position, and the [Time Display](#) window and the data window's selection status bar will show the current record position.

If the destination window contains a selection that is shorter than the timer duration, recording will stop at the end of the selection. If the destination window contains a selection that is longer than the timer duration, recording will stop at the end of the timer duration.

 During recording, playback commands, the Preferences dialog, and commands that affect the recording data window are unavailable.

Record Options

From the View menu, choose **Record Options** to open the Record Options window. You can use this window to configure various options for recording in Sound Forge Pro.

 The top of the Record Options window displays the current record status, attributes, time recorded, and time left on your hard drive. You can also display the record status in the [Time Display window](#) by right-clicking the Time Display window and choosing **Record Status** from the shortcut menu.

Choose a recording method

Choose a setting from the **Method** drop-down list to choose what happens when you start recording:




- **Manual:** Recording starts at the cursor position or selection. Use this mode for general-purpose recording, punch-in recording, or voiceover work. For more information, please see [Creating a New Recording](#) or [Recording into an Existing Sound File](#).
- **Automatic: Threshold:** Recording starts when the audio reaches a specified level and stops when the audio falls below that level for a specified duration. For more information, please see [Recording Audio Automatically](#).
- **Automatic: MIDI Timecode:** Recording starts when the specified timecode is received from the MIDI input device and

ends at the specified timecode. For more information, please see [Recording Audio Automatically](#).

- **Automatic: Time:** Recording starts at the date and time you specify and stops after the specified duration. For more information, please see [Recording Audio Automatically](#).





Choose a recording mode

Choose a setting from the **Mode** drop-down list to choose what happens after you stop (or pause) and restart recording:

- **Normal:** Click the **Record**  or **Stop** button  to end recording, or click the **Pause** button  to suspend recording and leave the recording device armed.
- **Create regions:** A new region is created each time you restart or resume recording. If you're recording into a time selection with **Loop Playback** enabled, Sound Forge Pro does not create a new region for each loop.
- **Create new windows:** A new window is created each time you restart or resume recording.



Notes:

- When **Create new window** is selected, the **Arm**  and **Record**  buttons on the main toolbar are enabled even when no data windows are open. When **Normal** or **Create regions** is selected, the **Arm**  and **Record**  buttons are not available until you [create a data window](#) or [open a file](#).
- When **Create new window** is selected, punch-in recording is not available. For more information, please see [Recording into an Existing Sound File](#).

Set up input monitoring

Turning input monitoring on or off

Choose **On**, **Off**, or **Auto** from the **Monitor** drop-down list to toggle record input monitoring.

When **Auto** is selected, the input is monitored during pre/post-roll and during recording only.

Monitoring your recording input through the Plug-In Chain

Select the **Monitor input through Plug-In Chain** check box if you want to monitor the selected channels from your recording input through the [Plug-In Chain](#).



Notes:

- **On** or **Auto** must be selected in the **Monitor** drop-down list to enable input monitoring.
- This setting is used for monitoring only; the Plug-In Chain is not applied to the recorded data.

Monitoring unselected channels when recording

Select the **Play unselected channels when recording** check box to if you want to monitor additional channels while recording.

- When the check box is selected, all unselected audio channels will play when you're recording into the selected channels.


This setting is useful when you're recording to backing tracks. For example, if you have a four-channel audio file, you could place backing tracks on channels 1 and 2 and record into channels 3 and 4.


Select channels 3 and 4, and select the **Play unselected channels when recording** check box. When you start recording, your audio is recorded into channels 3 and 4, and you'll be able to monitor channels 1 and 2 while recording.

- When the check box is cleared, unselected audio channels will play only during pre/post roll.

Adjust for DC offset


Sound Forge Pro software can automatically adjust for any **DC offset** produced by your audio hardware during the recording process.

1. Set up your hardware. For more information see [Recording Setup](#).
2. From the View menu, choose **Record Options** to open the Record Options window.
3. Click the **Arm** button  on the main toolbar.
4. Ensure your recording input is quiet.
5. Select the **DC adjust** check box.
6. Click the **Calibrate** button.

 If you change sound cards or are recording from different digital sources or at different sample rates, you should recalibrate the DC offset before recording.

How Do I Record from an External Source?

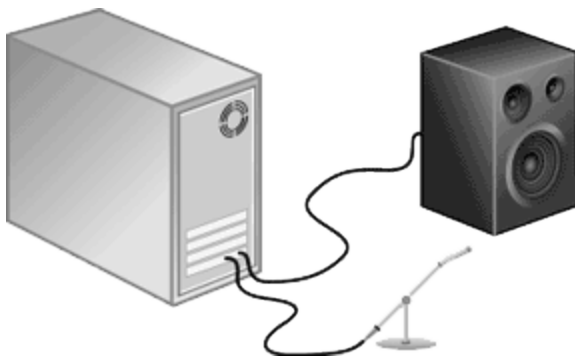
This topic provides general guidelines to help you record sound from an external source using Sound Forge Pro software. Your specific hardware may vary. Please refer to your hardware documentation for more information.

 If you're recording from a turntable, use a phono preamplifier between your turntable's output and your sound card's line input. Most turntables' outputs are phono-level (rather than line-level) outputs. Phono-level outputs are quieter than line-level outputs and have special equalization applied. A phono preamplifier will convert the phono-level signal to a line-level signal that you can record.

Connect an audio source to your sound card's input

Basic setup

In this setup, an audio source is connected to an input on your sound card, and your powered speakers are connected to a **Line Out** output. You could connect a computer microphone to your sound card's **Mic In** input, or you can connect line-level outputs from a tape deck or other source to a **Line In** input.

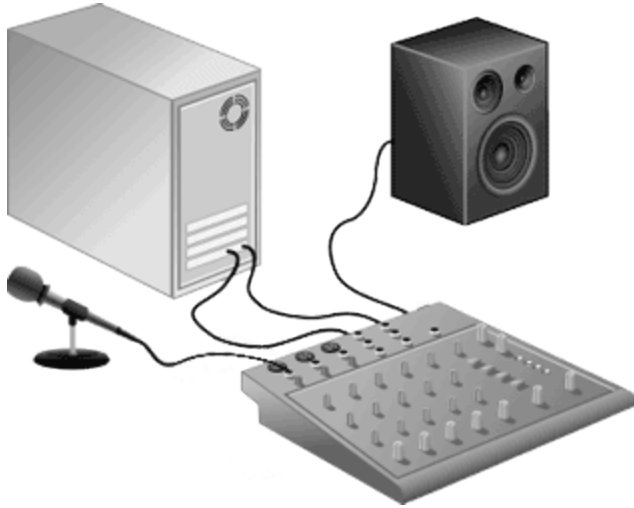


Basic setup with mixer/preamplifier

In this setup, your speakers and audio source are connected to a mixer or preamplifier. The mixer/preamplifier is then connected to **Line In** and **Line Out** connections on your sound card.

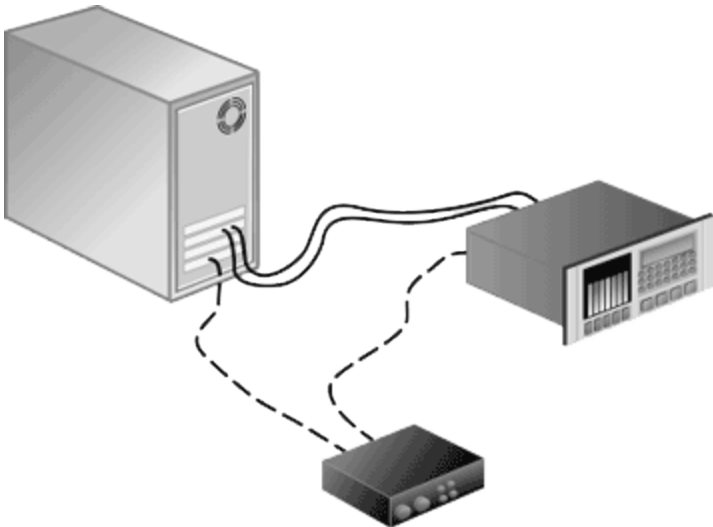


If you're recording from a turntable, use a phono preamplifier between your turntable's output and your sound card's line input. Most turntables' outputs are phono-level (rather than line-level) outputs. Phono-level outputs are quieter than line-level outputs and have special equalization applied. A phono preamplifier will convert the phono-level signal to a line-level signal that you can record.



Digital input/output with MIDI synchronization

In this setup, an audio source with digital input/output is connected to a sound card with digital input and outputs. Dashed lines represent a sync connection from your audio source to a MIDI timecode converter to a MIDI card.



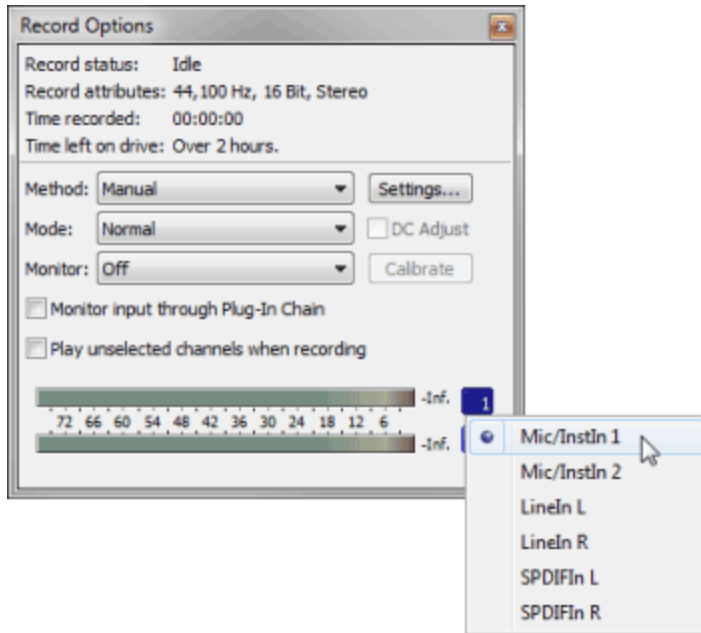
Choose an input device and adjust levels



The Record tab in the [Audio Preferences](#) page allows you to choose the audio inputs from which you want to record. Before recording, you'll need to verify that your sound card's recording inputs are active.



The maximum number of channels recorded depends on the data window where you're recording. For example, if you enabled six inputs on the Record tab in [Audio Preferences](#), you need to record into a six-channel data window to record all six inputs. If you record to a stereo data window, only two inputs will be recorded.

To choose your recording input, use the [Audio](#) tab in the Preferences dialog or click a channel number in the Record Options window and choose a new input port from the menu.




1. Ensure all cables are connected and that your audio source is generating a signal.
2. Adjust your recording levels:
 - If your audio device provides a console application to adjust levels, open the application and adjust its gain controls while monitoring the peak meters on the Meters tab in the recording dialog. Adjust the gain controls in the console application so Sound Forge Pro receives a strong signal with no clipping.
 -  For more information about using your sound card and its console application, please refer to the manufacturer's documentation.
 - If you're using your Windows sound card, perform the following steps to open the recording controls:
 - a. Double-click the speaker icon  in your system tray to open the Volume Control window.
 - b. From the Options menu, choose **Properties**.
 - c. Click the **Recording** radio button and click **OK**.
 - d. Select (or unmute) the device from which you want to record.
 - e. Adjust the **Volume** faders for the selected device and for the Master Record level while monitoring the recording meters in the Sound Forge Pro Record dialog.

For example, if you want to record from an audio CD in your CD-ROM drive, the CD **Mute** check box should not be selected, and the CD and Master Record **Volume** faders must be adjusted so Sound Forge Pro receives a strong signal with no clipping.

Adjust for DC offset

Sound Forge Pro software can automatically adjust for any **DC offset** produced by your audio hardware during the recording process.

1. Set up your hardware. For more information see [Recording Setup](#).
2. From the View menu, choose **Record Options** to open the Record Options window.
3. Click the **Arm** button  on the main toolbar.
4. Ensure your recording input is quiet.
5. Select the **DC adjust** check box.
6. Click the **Calibrate** button.



If you change sound cards or are recording from different digital sources or at different sample rates, you should recalibrate the DC offset before recording.

Recording Multichannel Audio

If you have an audio device that supports multiple inputs, you can use Sound Forge Pro to perform multichannel recording.

Tips:

- Sound Forge Pro is not a multitrack editor check out our [Vegas](#) and [ACID](#) family of products for full multitrack recording and editing. You can use multichannel recording to create surround audio or capture field recordings.—
- If you experience gapping or glitching when recording multichannel audio, try increasing your buffer size. You can increase the **Record buffering** setting on the **Audio** tab of the Preferences dialog or click the **Advanced** button on the Audio tab of the Preferences dialog to increase your device's buffers.

1. Connect your audio sources to your sound card's inputs. For more information, please see [Recording Setup](#).
2. Enable your recording inputs:
 - a. From the Options menu, choose **Preferences**, and click the Audio tab.
 - b. Choose your recording device from the **Audio device type** drop-down list.
 - c. Click the Record tab.
 - d. Select the **Enable** check box for each input you want to enable for recording, and then select a radio button to assign the input to an audio channel.

In the following example, the signal from Analog in 1 is recorded to channel 1, Analog In 2 is recorded to channel 2.

Channel	Device
Channel 1	▶ Analog In 1
Channel 2	▶ Analog In 2

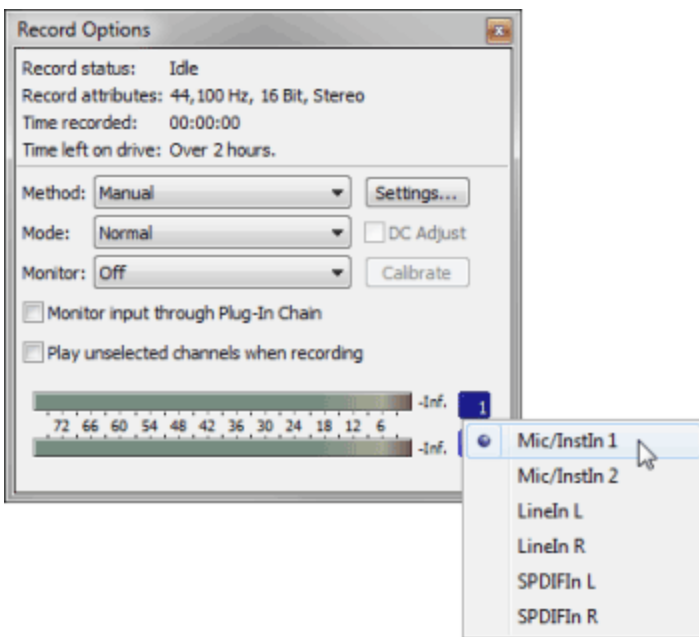
- e. Click **OK** to close the Preferences dialog and save your changes.
3. Verify that your recording mode is set to **Manual**.
 - a. From the View menu, choose **Record Options**. The Record Options window is displayed.
 - b. From the **Method** drop-down list, choose **Manual**.
 - c. If you want to set up pre-roll, post-roll, or a prerecord buffer, click the **Settings** button. For more information about other recording modes and methods, please see [Recording Options](#).

4. Create a data window for your recording:
 - a. From the File menu, choose **New**.
 - b. Choose a sample rate from the **Sample rate** drop-down list.
 - c. Choose a setting from the **Bit depth** drop-down list to specify the number of bits that should be used to store each sample.
 - d. Choose a setting from the **Channels** drop-down list to specify the number of channels that will be used in the window.
 - e. Click **OK**. A new, untitled sound file is created.



The maximum number of channels recorded depends on the data window where you're recording. For example, if you enabled six inputs on the Record tab in [Audio Preferences](#), you need to record into a six-channel data window to record all six inputs. If you record to a stereo data window, only two inputs will be recorded.

To choose your recording input, use the [Audio](#) tab in the Preferences dialog or click a channel number in the Record Options window and choose a new input port from the menu.



5. [Select](#) the sound data you want to replace, or click to position the cursor where you want to begin recording.




If you want to check your input levels before or during recording, you can use the meters.

The peak meters represent the volume of the recording input. For best results, the peak level should be somewhere in the yellow range with an occasional red segment: you want your input to be as loud as possible without clipping.

6. Click the **Arm** button  if you want to begin recording as soon as possible after clicking the **Record** button .



The **Arm** button is optional, but can allow for more accurate takes. When you click **Arm**, the wave device is opened and all recording buffers are loaded in order to minimize the amount of time between clicking the **Record** button and when recording starts.


7. Click the **Record** button  (or press Ctrl+R). Recording begins, and the [Time Display](#) window and the data window's selection status bar will show the current record position.



During recording, playback commands, the Preferences dialog, and commands that affect the recording data window are unavailable.

8. Recording will stop automatically at the end of the selection.

If you're recording without a selection, existing data is overwritten during recording, and you can click the **Record**  or **Stop** button  to end recording.

Clicking **Pause**  suspends recording, clearing the selection and moving the cursor to the end of the recorded data. When you pause recording, the recording device remains armed.

Generating MTC/SMPTE Synchronization During Recording

Sound Forge Pro software can generate MTC/SMPTE synchronization while recording.

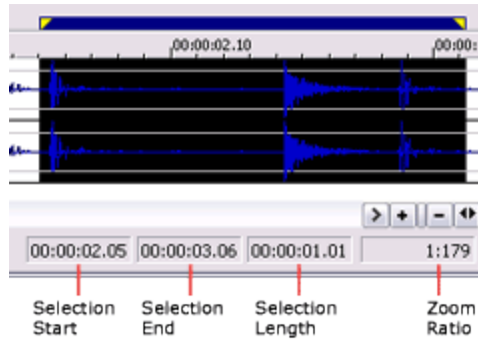
1. From the Options menu, choose **Preferences**, and click the [MIDI/Sync](#) tab.
2. On the MIDI/Sync tab, choose the trigger device from the **Input** drop-down list.
3. On the MIDI/Sync tab, choose the MIDI output device from the **Output** drop-down list and click the **OK** button.
4. From the Options menu, choose **MIDI In/Out**, and then choose **Generate MIDI Timecode** from the submenu to enable MIDI timecode output.

During recording, MIDI timecode is output from the selected output device. For more information about recording, please see [Recording](#).

Selecting Data and Positioning the Cursor

Selecting data and positioning the cursor are the first steps in most editing processes. After you have selected data, you can [cut](#), [copy](#), [paste](#), [mix](#), add [effects](#), and more.

The selection status bar in each data window shows the beginning, end, and length of a selection. If no selection has been made, the cursor position is displayed.




- Double-click the **Selection Start** box to type a value and move the cursor.
- Double-click the **Selection End** or **Selection Length** box to type values in the boxes to specify or edit a selection.
- Right-click to display the Status Format shortcut menu, which allows you to choose a time [format](#).

Selecting Data Using the Mouse

Using your mouse, you can select data simply by clicking and dragging in a data window.

Make a selection

1. Select the **Edit** tool .
2. Click to position the cursor, hold the mouse button, and drag over an area of the data window to select data.

As you drag past [markers](#) and [regions](#), the selection edge will snap to the marker/region tag.

For more information about channel selection, please see "Select Channels" in this help topic.

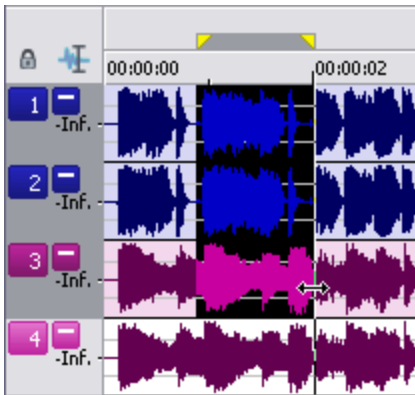
Select channels

When you are working with stereo or multichannel files, you can select data from the individual channels or all channels:

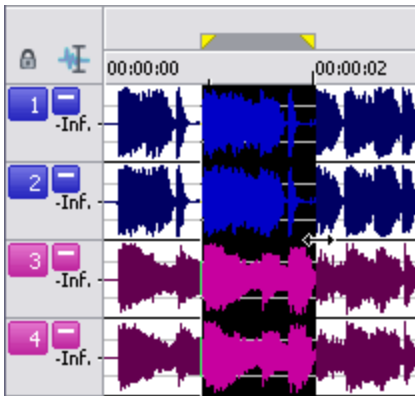
- Drag within a channel to select that channel only:



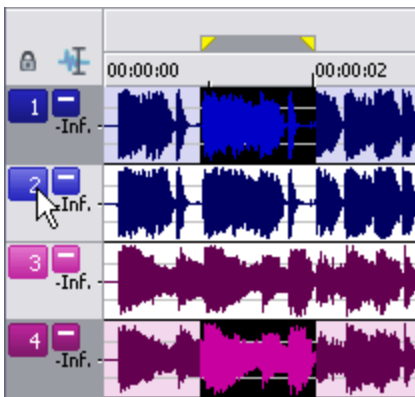
- Drag across channels to select multiple channels:




- Drag along the divider between channels (or the loop bar above the ruler) to select all channels:



- Hold Ctrl and click a channel to add or remove it from the current selection:





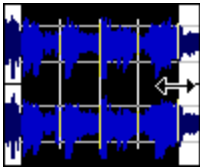
Lock selected channels

Click the **Lock Channel Selection** button  in the top-left corner of a data window to lock or unlock the current channel selection.

- When the channel selection is locked, you can drag anywhere in the data window to change the selection length or position without changing the currently selected channels (you can still Ctrl+click to add or remove channels from the selection).
- When the channel selection is not locked, dragging over a non-selected channel clears the current channel selection and selects the channels where you drag.



Adjust the length of a selection

1. Select the **Edit** tool .
2. Move the mouse over the edge of a selection. The cursor will be displayed as a .
3. Drag to change the length of the selected region.



You can also drag the ends of the loop region to adjust the selection length. Right-click the loop bar above the time ruler to display a shortcut menu, where you can set the selection to the visible portion of the waveform, select the entire file, or create a time selection from the loop region.

Shift a selection left or right

1. Select the **Edit** tool .
2. Move the mouse over the edge of a selection. The cursor will be displayed as a .
3. Hold the Shift key.
4. Drag to move the selected region.



You can also drag the center of the loop region to move a selection without resizing it:




The Set Selection Dialog

To display the Set Selection dialog, choose **Selection** from the Edit menu, and then choose **Set** from the submenu.

This dialog allows you to select data by specifying starting and ending points or choosing a region from the **Selection** drop-down list.

Select data

1. From the Edit menu, choose **Selection**, and then choose **Set** from the submenu.


2. Choose a selection type or region from the **Selection** drop-down list, or choose **Custom** to specify a custom selection:
 - a. Type a value in the **Start** edit box or use the spin controls to specify a starting point for your selection.
 - b. Type a value in the **End** edit box or use the spin controls to specify an ending point for your selection.
 -  Specifying a value in the **End** box will modify the value in the **Length** box. Specifying a value in the **Length** box will modify the value in the **End** box.
 - c. Type a value in the **Length** edit box or use the spin controls to specify the length of your selection.
3. Choose **Left**, **Right**, or **Both** from the **Channel** drop-down list to specify which channels will be selected.
4. Click the **OK** button.

Specify an input format

Choose a setting from the **Input format** drop-down list. This setting specifies the units for the dialog's **Start**, **End**, and **Length** boxes.

Preview your selection

Click the **Play** button to preview the selection. During playback, the button will change to a **Stop** button. Click again to stop playback.

 Select the **Play Looped** check box to enable looped playback of the current selection. You can modify the selection during playback.

Snap selection ends to zero crossings

Click the **Snap Zero** button to snap the beginning and end of the current selection to the nearest **zero-crossing**.

Snap selection ends to the time ruler


Click the **Snap Time** button to snap the beginning and end of the current selection to the nearest division on the time ruler.

Mark In

From the Edit menu, choose **Selection**, and then choose **Mark In** to set the beginning of the loop region at the current cursor position.



You can then right-click bar at the top of the loop region to insert a **region**, toggle **looped playback**, or **select** the loop region.

 Select the **Update loop bar on Mark In/Out** check box on the **Editing** tab of the Preferences dialog if you want the loop bar in a data window to be updated when you mark the **beginning** or **end** of a selection. When the check box is cleared, the loop bar isn't updated until after you've marked both ends of the selection.

Marking Out

From the Edit menu, choose **Selection**, and then choose **Mark Out** to set the end of the loop region at the current cursor position.



You can then right-click bar at the top of the loop region to insert a [region](#), toggle [looped playback](#), or [select](#) the loop region.




Select the Update loop bar on Mark In/Out check box on the [Editing](#) tab of the Preferences dialog if you want the loop bar in a data window to be updated when you mark the [beginning](#) or [end](#) of a selection. When the check box is cleared, the loop bar isn't updated until after you've marked both ends of the selection.

Looped Playback

From the Options menu, choose **Loop Playback** to repeatedly play back a section of your project.



When **Options > Seek Cursor on Playback** is selected, playback will restart when you position the cursor. If you do not want to interrupt playback when positioning the cursor, clear this command.

1. Drag the cursor to make a selection (or hold down the Shift key and use the arrow keys to make the selection).
2. From the Options menu, choose **Loop Playback**.
3. Click the **Play** button  to hear your selection looped.



If there is no selection, the entire sound file is played in an endless loop.

Quantize to Frames

From the Options menu, choose **Quantize to Frames** to force edits to occur on project frame boundaries. This setting is independent of grid and marker [snapping](#) and is useful when editing audio for video and creating [disc-at-once](#) CD projects.

When **Quantize to Frames** is turned on, the following actions will always occur on frame boundaries:

- Positioning the cursor
- Making selections
- Placing markers and regions



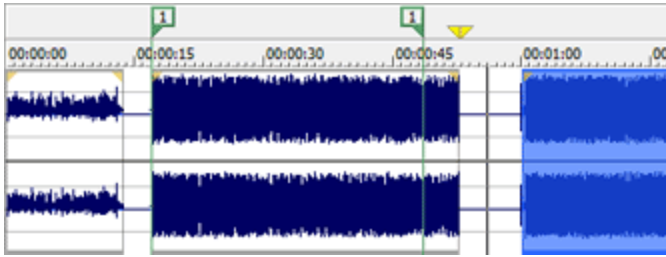
If you drag to a [snap point](#) that does not occur on a frame boundary when **Quantize to Frames** is enabled, the snap point will be quantized to the nearest frame boundary.

Enable Snapping

From the Options menu, choose **Snapping** and then choose **Enable** from the submenu to turn automatic snapping on or off in data windows.

Snapping helps you position the cursor, make [selections](#) and align items along the grid when you [paste](#), [mix](#), [trim](#), or work with [markers](#) and [regions](#).

As you drag items in a data window, snap points are highlighted:



If you want to modify an existing selection, you can use the commands on the Edit > Selection submenu to [snap the selection](#) to the grid and to zero crossings.

💡 Hold the Shift key to temporarily override snapping.

📌 In previous versions of Sound Forge Pro, both ends of a selection would snap to the grid when you released the mouse. Sound Forge Pro now uses a softer snapping mechanism that gives you more control: if you click near a grid line with snapping enabled, the cursor will snap to that grid line. As you drag a selection along the timeline, the cursor will stick to grid lines to allow you to snap to them. If you want to snap both edges of a selection to the grid as in previous versions of Sound Forge Pro, you can press T.

Turn snapping on or off

From the Options menu, choose **Snapping**, and then choose **Enable** from the submenu (or press F8) to turn snapping on or off. When snapping is enabled, objects will snap to the following points:

- The cursor
- Time selection edges

You can also choose to snap events to grid divisions, markers, or zero crossings.

Automatically snap to the grid

When snapping is enabled, you can also choose to have objects snap to whole time divisions as designated by the marks on the time ruler above the data window.

From the Options menu, choose **Snapping**, and then choose **Grid** from the submenu (or press Ctrl+F8) to toggle snapping to grid lines.

💡 To change the resolution of the grid, choose **Status Format** from the Options menu and then choose a setting from the submenu (or right-click the time ruler and choose a format from the shortcut menu).

Automatically snap to markers

When snapping is enabled, you can also choose to have elements in the data windows snap to markers.

From the Options menu, choose **Snapping**, and then choose **Markers** from the submenu (or press Shift+F8) to toggle snapping for the following marker types:

- [Markers](#)
- [Regions](#)
- [Command](#) markers
- Disc-at-once [CD tracks and indexes](#)
- [Sample](#) markers

Automatically snap to events

When snapping is enabled, you can also choose to have elements in the data windows snap to [event](#) boundaries.

From the Options menu, choose **Snapping**, and then choose **Events** from the submenu (or press Ctrl+Shift+F8) to toggle snapping to event edges.

Automatically snap to zero crossings

When snapping is enabled, you can also choose to have elements in the timeline snap to **zero-crossings**.

From the Options menu, choose **Snapping**, and then choose **Crossings** from the submenu (or press Ctrl+B) to toggle snapping to zero crossings.

Turn off automatic snapping at high zoom levels

When you're **zoomed** in, you may wish to turn off snapping so you can position a selection's start and end points exactly where you choose.

1. From the Options menu, choose **Preferences**, and then click the Editing tab.
2. Select the **Disable auto-snapping below 1:4 zoom ratios** check box.
3. Click **OK**.

Snap an existing selection to the grid or zero crossings

If you've **created a selection** without automatic snapping enabled or have modified a selection so its edges no longer align with the grid/zero crossings, you can use the commands on the Edit > Selection submenu to **snap the selection** to the grid and to zero crossings.

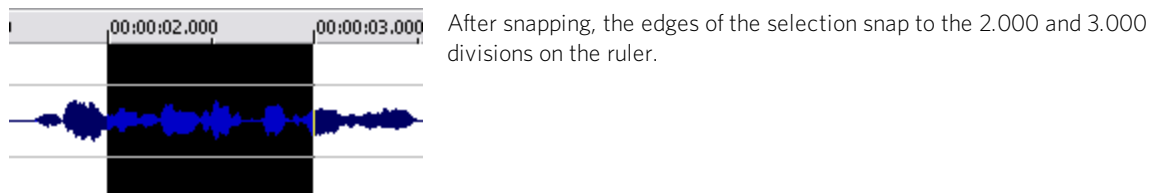
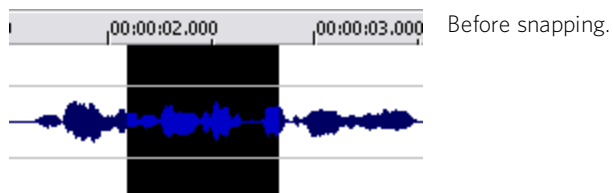
Selection Snapping

From the Edit menu, choose **Selection**, and then choose a command from the submenu to force the edges of the current selection to the points you choose. Snapping helps you align your selection with items in the data window.

If you want to use automatic snapping when positioning the cursor and making selections, use the commands on the Options menu to **enable snapping** and set snapping options.

Snap to Grid

From the Edit menu, choose **Selection**, and then choose **Snap to Grid** from the submenu (or press T) to force both edges of a selection to a whole time division as designated by the marks on the time ruler above the data window.



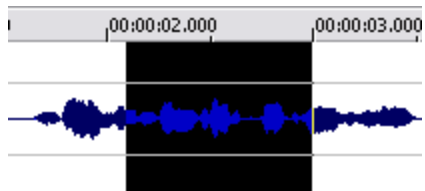
To change the resolution of the grid, choose **Status Format** from the Options menu and then choose a setting from the submenu (or right-click the time ruler and choose a format from the shortcut menu).

Snap Edge to Grid

From the Edit menu, choose **Selection**, and then choose **Snap Edge to Grid** from the submenu (or press Shift+T) to force the active edge of a selection to a whole time division as designated by the marks on the time ruler above the data window.

The active edge of a selection is defined by the blinking cursor. Press Home or End to change the active edge.

 Before snapping.

 After snapping, the active (right) edge of the selection snaps to the 3.000 division on the ruler.



To change the resolution of the grid, choose **Status Format** from the Options menu and then choose a setting from the submenu (or right-click the time ruler and choose a format from the shortcut menu).

Snap to Zero

Performing edits at **zero-crossings** reduces the possibility of introducing glitches in your sound file.

From the Edit menu, choose **Selection**, and then choose **Snap to Zero** from the submenu (or press Z) to force both edges of a selection to the next zero-crossing of the waveform.

 Before snapping.

 After snapping, the edges of the selection snap to the nearest locations where the waveform crosses the baseline.



The **Editing** tab in the Preferences dialog allows you to choose whether this is a negative, positive or any zero-crossing.

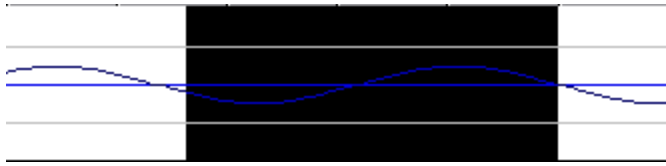
Snap Edge to Zero

Performing edits at **zero-crossings** reduces the possibility of introducing glitches in your sound file.

From the Edit menu, choose **Selection**, and then choose **Snap Edge to Zero** from the submenu (or press Shift+Z) to force the active edge of a selection to the next zero-crossing of the waveform.

The active edge of a selection is defined by the blinking cursor. Press Home or End to change the active edge.

 Before snapping.



After snapping, the active (right) edge of the selection snaps to the nearest location where the waveform crosses the baseline.

 The **Editing** tab in the Preferences dialog allows you to choose whether this is a negative, positive or any zero-crossing.

Extend to Next Zero

Performing edits at **zero-crossings** reduces the possibility of introducing glitches in your sound file.

From the Edit menu, choose **Selection**, and then choose **Extend to Next Zero** from the submenu (or press Z) to force both edges of a selection to the next zero-crossing of the waveform.

 The **Editing** tab in the Preferences dialog allows you to choose whether this is a negative, positive or any zero-crossing.

Extend Edge to Next Zero

Performing edits at **zero-crossings** reduces the possibility of introducing glitches in your sound file.

From the Edit menu, choose **Selection**, and then choose **Extend Edge to Next Zero** from the submenu (or press Shift+Z) to force the active edge of a selection to the next zero-crossing of the waveform.

The active edge of a selection is defined by the blinking cursor. Press Home or End to change the active edge.

 The **Editing** tab in the Preferences dialog allows you to choose whether this is a negative, positive or any zero-crossing.



Adjusting Selections

Sound Forge Pro includes tools that are designed to help you create your own loops for ACID software and other loop-based audio applications.

From the Edit menu, choose **Selection**, and then choose a command from the submenu to quickly adjust your selection length and position.

Halve Selection

From the Edit menu, choose **Selection**, and then choose **Halve** from the submenu (or press the ; key) to reduce the current selection by half.

 You can also click the  button on the **Navigation Toolbar**.

For example, if you have four measures selected and choose halve the selection, only measures one and two will be selected.

Double Selection

From the Edit menu, choose **Selection**, and then choose **Double** from the submenu (or press the ' key) to double the current selection.

 You can also click the  button on the **Navigation Toolbar**.

For example, if you have four measures selected and double the selection, an additional four measures will be selected.

Shift Selection Left

From the Edit menu, choose **Selection**, and then choose **Shift Left** from the submenu (or press the < key) to move the current selection left by the length of the selection.

 You can also click the  button on the [Navigation Toolbar](#)

Because the exact length of the selection is maintained, this tool is perfect for moving the selection a beat or measure at a time.

Shift Selection Right



From the Edit menu, choose **Selection**, and then choose **Shift Right** from the submenu (or press the > key) to move the current selection left by the length of the selection.

 You can also click the  button on the [Navigation Toolbar](#).

Because the exact length of the selection is maintained, this tool is perfect for moving the selection a beat or measure at a time.

Rotate Audio

From the Process menu, choose **Rotate Audio** (or press the : key) to change the feel of a given loop by moving the selection to the opposite end of the file.

 You can also click the  button on the [Process Toolbar](#)

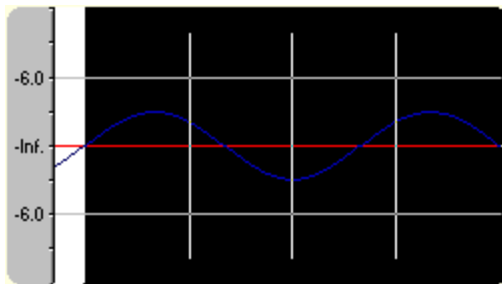
The function of this command depends on the current selection:

- If there is no selection, the first quarter of the file will be moved to the end.
- If a selection is made at the very beginning of the file, that audio will be cut and pasted at the end of the file. If a selection is made at the very end of the file, that audio will be cut and pasted at the beginning of the file.

 This command has no effect if the selection does not touch the beginning or end of the file.

Using Selection Grid Lines

From the Options menu, choose **Selection Grid Lines** to display grid lines that divide the [selection](#) into four equal parts. These lines make [creating loops](#) from existing material easier.



To change the number of divisions that will be used, choose **Options > Set Grid Divisions**, and then choose a setting from the submenu.

For example, if you're trying to create a loop in 3/4 time, changing the grid divisions to 3 allows you to divide a selection into three beats.

Toggling and Cycling Selections

Whoops! You just adjusted your selection until it was perfect, and now you've lost it with a stray click? No problem it's not lost at all.—

From the Edit menu, choose **Selection** and then choose **Toggle** (or press S or /) to switch between the last selection and the last cursor position. For instance, you may be setting the cursor in various places while navigating throughout a sound file. If you use the **Toggle** command, the last selected region will immediately return to the display.

From the Edit menu, choose **Selection** and then choose **Cycle** (or press Backspace) to step backward through the previous five time selections.

Select All

From the Edit menu, choose **Select All** to select all data in the current window.



Double-click in the waveform display to select all data.

- If a file contains regions, triple-click to select all data (if the **Disable triple clicking to select all sound file data** check box on the **Editing** tab in the Preferences dialog is cleared).
- If you're working with multichannel audio, only the channel you click is selected. Hold Ctrl while clicking additional channels to add or remove them from the selection.

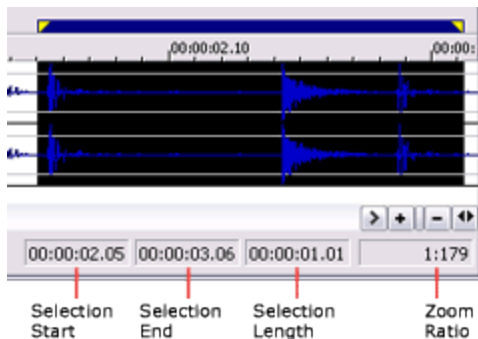
Go To

From the Edit menu, choose **Go To** to move the cursor to a specific location in a sound file.

1. From the Edit menu, choose **Go To**. The Go To dialog is displayed.
2. Choose a preset from the **Go To** drop-down list, or choose **Custom** to specify a cursor position using the **Position** and **Input Format** controls:
 - Type a value in the **Position** box or use the up and down arrows to determine where the cursor will be moved.
 - Choose a setting from the **Input Format** drop-down list to determine the **format** used by the **Position** box.
3. Click **OK** to close the dialog and move the cursor.





Press F5 and type a value in the **Selection Start** box in the data window to navigate to a specific location quickly.




The Find Dialog

The Find dialog searches for clicks and pops, volume levels, or silent breaks in an audio file.

1. From the Tools menu, choose **Find**.
2. Chose a preset from the drop-down list or adjust the controls in the dialog box to specify what you want to find.
3. Choose a setting from the **Find** drop-down list to specify the type of data you want to find:

Item	Description
Glitch	<p>Clicks and pops are unwanted sounds often found on worn records or on audio tape as a result of poor splicing, and they are seen as sharp glitches in the normal curve of a waveform.</p> <p>The glitch search algorithm looks at a waveform, starting at the cursor position, and determines when a glitch occurs based on the Threshold slope and Sensitivity settings. The cursor is then moved to the detected glitch to allow for further editing. You can use the Pencil tool  to draw a smooth curve over the glitch to remove it.</p>
Level equal to or above	Finds the next point after the cursor position when the waveform reaches the level specified by the Threshold level fader.
End of silent region	<p>Moves the cursor to the end of the next silent break.</p> <p>Adjust the Threshold level fader to determine the sound level that will be treated as silence.</p>
Largest peak	<p>Moves the cursor to the next largest peak amplitude.</p> <p> Searches progress from the current cursor position forward. To find the largest peak in a file, set the cursor to the beginning of the sound file or select all data before processing.</p>

4. Drag the **Threshold slope/level** slider to determine the sound level you want to find:
 - When **Glitch** is selected in the **Find** drop-down list, drag the slider to determine the minimum slope (steepness) of the glitch. A high setting will only detect glitches with a high slope, while a low setting will detect both low and high-sloped glitches.
 - When **Level equal to or above** is selected in the **Find** drop-down list, drag the fader to determine the sound level you want to find.
 - When **End of silent region** is selected in the **Find** drop-down list, drag the fader to determine the sound level that will be treated as silence. The search will move the cursor to the next position where the level goes below and then back above the silence threshold level.
5. When **Glitch** is selected in the **Find** drop-down list, drag the **Sensitivity** slider to determine how the algorithm looks for glitches:
 - With a high **Sensitivity** setting, any part of the waveform with a slope above the **Threshold slope** is detected as a glitch.
 - Lower **Sensitivity** settings force the glitch finder to verify that the high-sloped waveform is a glitch and not part of the original, smooth waveform.

 If no glitches are detected, but you can hear clicks or pops, try decreasing the **Threshold slope** and/or raising the **Sensitivity**. If the search is falsely detecting glitches, decrease the **Sensitivity** and/or raise the **Threshold slope**.
6. Click **OK**. Sound Forge Pro software searches for the next audio data that matches your parameters and positions the cursor there.

Centering the Cursor

From the Edit menu, choose **Center Cursor** to center the display so that the cursor appears in the center of the data window.

 Notes:

- This command does not actually move the cursor to a new position in the data window; it simply redraws the display so that you will see the areas of the sound file equally on either side of the cursor. If the cursor does not seem to center, the cursor may be very close to the beginning or end of the sound file (and therefore cannot be centered), or you may be zoomed out so the entire waveform is already visible.

- If you have a range of data selected, you can switch the cursor between selection points using the Home and End keys.

Basic Editing

The edit operations used most often include cut, copy, paste, clear/delete, mix, and trim/crop. Most of these functions use the clipboard, which is a temporary storage area. The clipboard can also be used to move data from one window to another.

Editing Tools

From the Edit menu, choose **Tool**, and then choose a tool from the submenu to change the active tool.



Click the edit tool selector in the data window (or press D or Shift+D) to toggle through the Edit, Magnify, Envelope, Edit, and Pencil tools.



The Edit Tool

From the Edit menu, choose **Tool**, and then choose **Edit** from the submenu to select the Edit tool. Use the Edit tool to **select data** and position the cursor.

You can also perform basic **envelope editing** with the Edit tool.

The Magnify Tool

From the Edit menu, choose **Tool**, and then choose **Magnify** from the submenu to select the Magnify tool.

Use the Magnify tool to zoom in to a region without losing your selection. Drag the mouse over an area to zoom in. A dotted rectangle is drawn around the area, and the area is magnified when you release the mouse button.

While holding the left mouse button, click the right mouse button to toggle through the three magnification modes:

- Zoom Time only: magnifies horizontally without changing the vertical level of the data window.
- Zoom Level only: magnifies vertically without changing horizontal zoom level of the data window.
- Time/ Zoom Level: magnifies horizontally and vertically.

For more information about zooming and magnification including using custom zoom ratios please see [Magnification and Zooming](#).---

The Pencil Tool

From the Edit menu, choose **Tool**, and then choose **Pencil** from the submenu to select the Pencil tool.

Use the Pencil tool to edit the waveform by drawing on it. For example, if you have a glitch in the sound data, zoom in to the glitch and smoothly redraw the waveform.




While holding down the left mouse button, you can also use the arrow keys to fine tune the pencil position.



The Pencil tool is available only at magnification levels below the **Pencil tool maximum zoom ratio** setting on the [Editing](#) tab in the Preferences dialog.

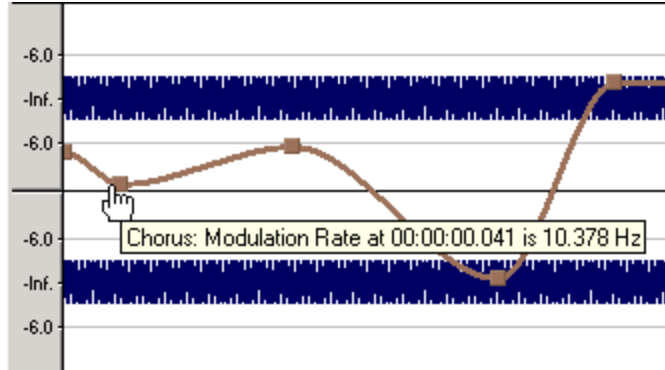
The Envelope Tool

When the Envelope  tool is selected, you can add, remove, select or adjust envelope points on **effect automation** envelopes.

The Edit tool  allows you to add, remove, or adjust envelope points, but you cannot select envelope points with the Edit tool.


Adjusting an envelope

By default, A new envelope will contain a single envelope point. If you want to adjust the overall level of an envelope, drag the envelope up or down. A floating ToolTip will show you the envelope's current setting:



If an envelope has multiple points, you can drag each point, or you can drag envelope segments up or down.

Tips:

- Hold Ctrl while dragging an envelope point or segment to adjust the value in fine increments without changing the envelope points' horizontal positions.
- Hold Ctrl+Alt while dragging an envelope point or segment to adjust the value in normal increments without changing the envelope points' horizontal positions.
- Hold Alt while dragging an envelope point to move the point's horizontal position without changing its value.
- With the Envelope tool , you can drag horizontally to select multiple envelope points in the selected data window.

Adding envelope points

To create more complex envelopes, you will need to add points. To add an envelope point, double-click the envelope. You can then drag and position the point as necessary.

To delete a point, right-click it and choose **Delete** from the shortcut menu.


Flipping an envelope

You can flip an envelope to invert the envelope around its center. Volume, panning, and effect automation envelopes can be flipped.

Flipping all points







1. Right-click an envelope or a point. A shortcut menu is displayed.
2. Choose **Flip All Points** from the shortcut menu.

Flipping selected points


1. Create a time selection with the Envelope tool  to select the points you want to flip.
2. Right-click an envelope in the time selection. A shortcut menu is displayed.
3. Choose **Flip Selected Points** from the shortcut menu.

Setting fade properties


You can adjust the fade curve for each envelope segment individually. To change the fade curve, right-click an envelope segment and choose a command from the shortcut menu.

Fade Type	Fade In/Out Envelope
Linear Fade	
Fast Fade	
Slow Fade	
Smooth Fade	
Sharp Fade	
Hold	


Cutting, copying, and pasting envelope points


1. Select the Envelope tool .
2. Click within a data window to select it.
3. Drag horizontally in a data window to select envelope points.
4. From the Edit menu, choose **Cut** or **Copy**.
5. Click to position the cursor where you want to paste envelope points.
 - 💡 Click within a different data window if you want to paste envelope points across data windows.
6. From the Edit menu, choose **Paste**.

Copying an envelope to another data window

1. Select the Envelope tool .
2. Click within a data window to select it.
3. From the Edit menu, choose **Select All**.
4. From the Edit menu, choose **Copy**.

5. Click within a data window to select it.


 You can paste envelope points to a different envelope type by selecting the envelope where you want to paste.


6. Click **Go to Start**  if you want the envelope to appear exactly as it was in the original data window, or click to position the cursor where you want the envelope to start.

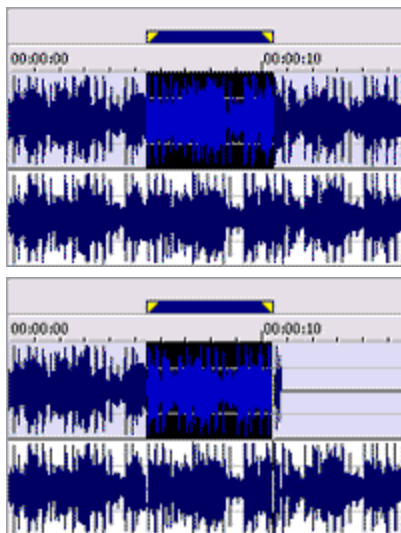
7. From the Edit menu, choose **Paste**.

Cut

From the Edit menu, choose **Cut** to remove the selected sound data and copy it to the clipboard. Cutting sound data replaces the previous contents of the clipboard.

1. Choose the **Edit** tool .
2. **Select** the data that you want to cut.
3. From the Edit menu, choose **Cut**. The data is removed and copied to the clipboard.

 If you cut data from individual channels of multichannel files, the waveform will contain silence at the end of the cut channel. The channels in a multichannel file must always be equal in length.




Before Cut

After Cut

Copy

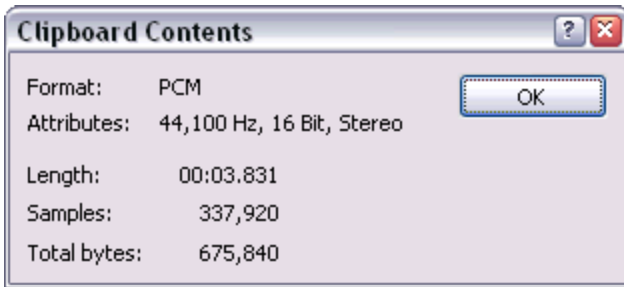
From the Edit menu, choose **Copy** to copy the selected sound data to the clipboard. Copying sound data replaces the previous contents of the clipboard.

1. Choose the **Edit** tool .
2. **Select** the data that you want to copy.
3. From the Edit menu, choose **Copy**. The data is copied to the clipboard.

Viewing Clipboard Contents

From the View menu, choose **Clipboard** and choose **Contents** from the submenu to view information about the sound data on the clipboard.

If no data is in the clipboard, this command is unavailable.



Playing Clipboard Contents


From the View menu, choose **Clipboard** and choose **Play** from the submenu to play the contents of the clipboard.

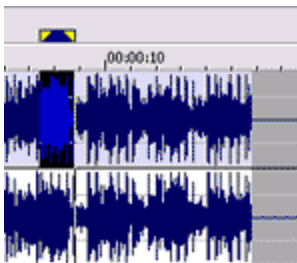
If no data is in the clipboard, this command is unavailable.

Paste

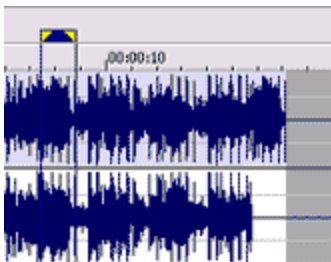
From the Edit menu, choose **Paste** to insert a copy of the clipboard contents at the current cursor position. If there is a selection, the **Paste** command deletes the selected data before inserting.

Notes:

- From the Options menu, choose **Drag-and-Drop Editing**, and choose **Paste** from the submenu if you want to use paste mode during drag-and-drop editing. Choosing this command has the same effect as toggle-clicking the right mouse button while dragging until the cursor is displayed as a . You can click the right mouse button while dragging to toggle **mix**, **paste**, and **CD track** drag-and-drop modes.
- Pasting into a multichannel file will insert data to all channels the channels in a multichannel file must always be equal in length.—



Before Paste
(clipboard contents are highlighted)



After Paste


Silence is pasted to the unselected channel.

If multiple channels were selected, the same data would be pasted to all selected channels, and silence would be pasted to the unselected channel

If no channels were selected, the same data would be pasted to all channels.


- Pasting data of different sample rates will cause the data in the clipboard to play at the same rate as the rate of the window in which the data is pasted.
- If any regions, markers, or loops are present in the original sound data, they will also be pasted into the destination sound file. To turn this feature off, turn off the **Lock to Selection > Markers/Regions** command on the Options menu.

Paste by dragging and dropping a selection

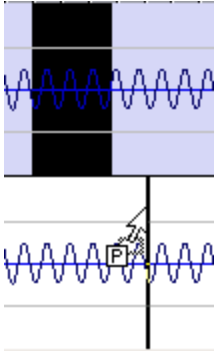
1. Choose the **Edit** tool .
2. Drag the mouse over an area of the data window to **select** the data you want to paste.



If the **Always open dropped files in new window** check box on the **General** page of the Preferences dialog is cleared, you can also hold Ctrl while dragging a file (or region) from the Explorer window to a data window to paste sound data. When the check box is selected, dropping a file on the Sound Forge Pro workspace always creates a new data window.




3. Drag the selection to the location where you want to paste the data and then press and hold Ctrl. The cursor is displayed as a , and a vertical line is displayed to show you where the paste will occur.

You can click the right mouse button while dragging to toggle **mix**, **paste**, and **CD track** drag-and-drop modes.



4. When you release the mouse button to drop the selection, the selection is pasted.

Paste audio from the clipboard

1. Choose the **Edit** tool .
2. Drag the mouse over an area of the data window to **select** the data you want to mix or crossfade, and then click **Cut**  or **Copy**  to place the audio on the clipboard.
3. Click to position the cursor where you want to paste the contents of the clipboard.
4. From the Edit menu, choose **Paste**.


Paste Special

From the Edit menu, choose **Paste Special** and choose a command from the submenu to specify how you want to paste the contents of the clipboard.


Mix


From the Edit menu, choose **Paste Special**, and then choose **Mix** from the submenu to mix a copy of the clipboard contents at the current cursor position.


Notes:

- From the Options menu, choose **Drag-and-Drop Editing**, and choose **Mix** from the submenu if you want to use mix mode during drag-and-drop editing. Choosing this command has the same effect as toggle-clicking the right mouse button while dragging until the cursor is displayed as a . You can click the right mouse button while dragging to toggle mix, **paste**, and **CD track** drag-and-drop modes.
- If any regions, markers, or loops are present in with the original sound data, they will also be pasted into the destination sound file. To turn this feature off, turn off the **Lock to Selection > Markers/Regions** command on the Options menu.

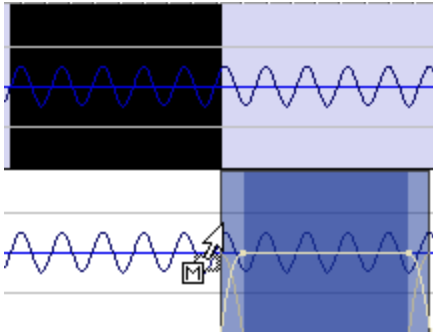
Mix by dragging and dropping a selection


1. Choose the **Edit** tool .
2. Drag the mouse over an area of the data window to **select** the data you want to mix.

 If the **Always open dropped files in new window** check box on the **General** page of the Preferences dialog is cleared, you can also drag a file (or region) from the Explorer window to a data window to paste sound data. When the check box is selected, dropping a file on the Sound Forge Pro workspace always creates a new data window.

3. Drag the selection to the location where you want to mix the data. The cursor is displayed as a , and a shaded selection box is displayed to show you where the mix will occur. An envelope is drawn to show you the mix and fade levels (the last-used settings from the Mix/Replace dialog are used by default).

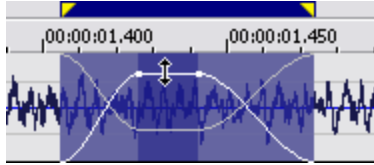
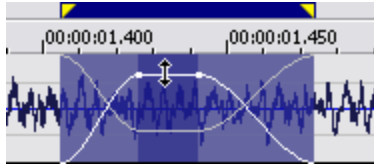
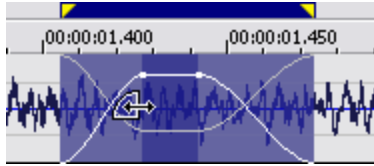

You can click the right mouse button while dragging to toggle mix, **paste**, and **CD track** drag-and-drop modes.

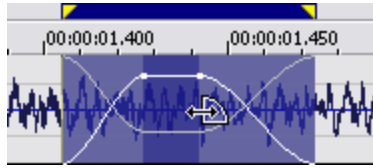



 If you want the Fade In and Fade Out curves to pay attention to the destination selection and file length when mixing between files, select the **Auto-crossfade Mix with selection** check box on the **Editing tab** of the Preferences dialog.

4. When you release the mouse button to drop the selection, the Mix/Replace dialog is displayed. If you want to bypass the Mix/Replace dialog, hold Shift when you release the mouse button.

To customize your mix settings, choose a setting from the **Preset** drop-down list in the Mix/Replace dialog, or adjust the controls as needed:

Item	Description
Source	<p>Drag the Source fader to adjust the volume of the selection you want to mix.</p> <p>Changing this setting has the same effect as dragging the sustain portion of the wet gain envelope in the data window:</p>  <p>Select the Invert Data check box to invert the source audio at the baseline (reverse the phase). Inverting data can help match transitions and compare the phase relationship of the two sound files.</p>
Destination	<p>Drag the Destination fader to adjust the volume of the selection you want to mix over.</p> <p>Changing this setting has the same effect as dragging the sustain portion of the dry gain envelope in the data window:</p>  <p>Select the Invert Data check box to invert the destination audio at the baseline (reverse the phase). Inverting data can help match transitions and compare the phase relationship of the two sound files.</p>
Fade In	<p>Type a value in the Fade In box (or use the spinner) to set the length of the fade in between the source and destination audio.</p> <p>Changing this setting has the same effect as dragging the attack portion of the envelope in the data window:</p>  <p>Click the Fade Curves button  and choose a curve type from the menu to set the speed of the fade in.</p>
Proportional Fade Lengths	<p>Select the Proportional fade lengths check box if you want to specify fade lengths as a percentage of the selection.</p>
Fade Out	<p>Type a value in the Fade Out box (or use the spinner) to set the length of the fade out between the source and destination audio.</p> <p>Changing this setting has the same effect as dragging the attack portion of the envelope in the data window:</p>






Click the **Fade Curves** button  and choose a curve type from the menu to set the speed of the fade out.

More Click to display additional controls at the bottom of the dialog that you can use to change the selection you want to process.

5. Click the **OK** button to apply the mix.

Mix audio from the clipboard

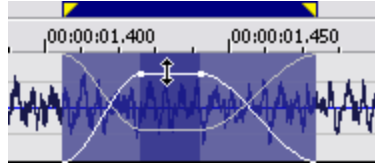
1. Choose the **Edit** tool .
2. Drag the mouse over an area of the data window to **select** the data you want to mix or crossfade, and then click **Cut** 
or **Copy**  to place the audio on the clipboard.
3. Click to position the cursor where you want to mix or crossfade the contents of the clipboard.
4. From the Edit menu, choose **Paste Special**, and then choose **Mix** from the submenu. The Mix/Replace dialog is displayed.

5. Choose a setting from the **Preset** drop-down list, or adjust the controls as needed:

Item	Description
------	-------------

Source Drag the **Source** fader to adjust the volume of the selection you want to mix.

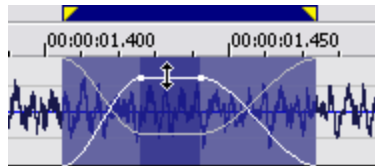
Changing this setting has the same effect as dragging the sustain portion of the wet gain envelope in the data window:



Select the **Invert Data** check box to **invert** the source audio at the baseline (reverse the phase). Inverting data can help match transitions and compare the phase relationship of the two sound files.

Destination Drag the **Destination** fader to adjust the volume of the selection you want to mix over.

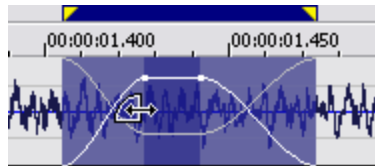
Changing this setting has the same effect as dragging the sustain portion of the dry gain envelope in the data window:




Select the **Invert Data** check box to **invert** the destination audio at the baseline (reverse the phase). Inverting data can help match transitions and compare the phase relationship of the two sound files.

Fade In Type a value in the **Fade In** box (or use the spinner) to set the length of the fade in between the source and destination audio.

Changing this setting has the same effect as dragging the attack portion of the envelope in the data window:

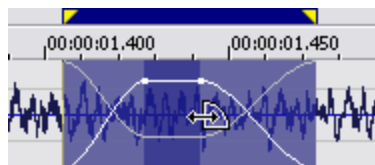



Click the **Fade Curves** button  and choose a curve type from the menu to set the speed of the fade in.

Proportional Fade Lengths Select the **Proportional fade lengths** check box if you want to specify fade lengths as a percentage of the selection.

Fade Out Type a value in the **Fade Out** box (or use the spinner) to set the length of the fade out between the source and destination audio.

Changing this setting has the same effect as dragging the attack portion of the envelope in the data window:



Click the **Fade Curves** button  and choose a curve type from the menu to set the speed of the fade out.

More Click to display additional controls at the bottom of the dialog that you can use to change the selection you want to process.

- Click the **OK** button to apply the mix.

Overwrite

From the Edit menu, choose **Paste Special**, and then choose **Overwrite** to replace the selected sound data with the contents of the clipboard.

The **Overwrite** command replaces data using the following rules:

- If the selected area is greater than the length of the clipboard, the data is overwritten from the beginning of the selection for the length of the clipboard.
- If the selected area is less than or equal to the length of the clipboard, the data is overwritten for the length of the selection only.

- Copy** the sound you want use to overwrite the current data.
- Select** the data you want to replace.
- From the Edit menu, choose **Paste Special**, and then choose **Overwrite**. The selected data is replaced with the contents of the clipboard.

Replicate

From the Edit menu, choose **Paste Special**, and then choose **Replicate** to paste multiple copies of the clipboard contents to the current selection.



The **Replicate** command will paste as many copies of the clipboard as will fit in the current selection. If no selection exists in the data window, the command is not available.

- Copy** the sound you want to paste.
- Select** the area where you want to paste the contents of the clipboard.
- From the Edit menu, choose **Paste Special**, and then choose **Replicate**. The Replicate dialog is displayed.
- Use the Replicate dialog to specify how you want to paste data.

Item	Description
Copy partials	Click to fill the selected region completely, using a partial copy of the clipboard if needed.
Whole copies	Click to use only whole copies of the clipboard contents to fill the selected region. The selected region will not be completely filled if its length is not an exact multiple of the clipboard length.

- Click the **OK** button.

Example:

- Copy a 1-second section of sound data onto the clipboard.
- Insert 5.5 seconds of silence in the data waveform.
- Select the 5.5 second area and select **Replicate**:
 - If you choose **Whole copies**, 5 copies of the clipboard will be placed in the area the silence previously occupied and 0.5 seconds of silence will remain at the end.
 - If you choose **Copy partials**, 5.5 copies of the clipboard will be placed in the data. No silence will remain.



The **Replicate** command is useful when you are trying to replace silent sections of audio with background noise. It can also be used to introduce stuttering effects or echoes.

Paste to New

From the Edit menu, choose **Paste Special**, and then choose **Paste to New** to create a new [data window](#) that contains the contents of the clipboard.

Delete (Clear)

From the Edit menu, choose **Delete (Clear)** to remove selected sound data without copying it onto the clipboard.

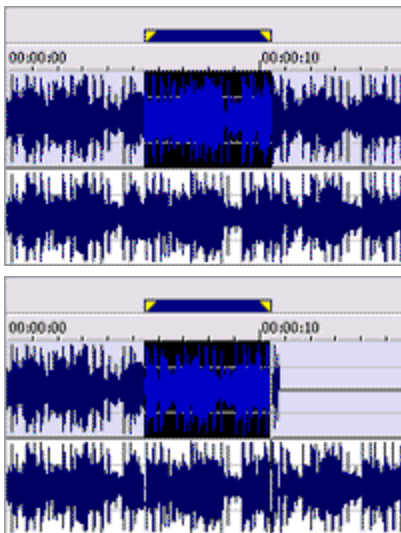


If the **Treat as Cutlist** command is selected (**Edit > Playlist/Cutlist > Treat as Cutlist**), deleting a selection creates a region in the [Cutlist](#) window, but does not remove the selection.

1. [Select](#) the data you want to delete.
2. From the Edit menu, choose **Delete (Clear)**.



If you delete data from individual channels of multichannel files, the waveform will contain silence at the end of the deleted channel. The channels in a multichannel file must always be equal in length.



Before Delete

After Delete

Trim/Crop

From the Edit menu, choose Trim/Crop to remove all data outside the current selection from the selected channel.



This command does not copy sound data to the clipboard.

1. [Select](#) the data you want to keep.
2. From the Edit menu, choose **Trim/Crop**.


Magnification and Zooming

Depending on the editing operations you want to perform, you may want to view the entire file or only a small section. You can change the magnification of each data window.



Tips:

- You can use the mouse wheel to zoom quickly: roll the wheel forward or back to zoom horizontally, or hold Ctrl while rolling the wheel to zoom vertically.
- If the **Allow Ctrl+drag style zoom in data windows** check box is selected on the **General** tab in the Preferences dialog, you can hold Ctrl while dragging in a window to switch to the Magnify tool temporarily.

 If you're using the Pencil tool and zoom out past the **Pencil tool maximum zoom ratio** setting on the **Editing** tab in the Preferences dialog, the tool will automatically revert to the **Edit tool**.

Use the Magnify tool

From the Edit menu, choose **Tool**, and then choose **Magnify** from the submenu (or click the **Magnify Tool** button  on the toolbar) to select the Magnify tool.

Use the Magnify tool to zoom in to a region without losing your selection. Drag the mouse over an area to zoom in. A dotted rectangle is drawn around the area and will magnify the area when the mouse button is released.

While holding the left mouse button, click the right mouse button to toggle through the three magnification modes:

- Zoom Time only: magnifies horizontally without changing the vertical level of the data window.
- Zoom Level only: magnifies vertically without changing horizontal zoom level of the data window.
- Time/Zoom Level: magnifies horizontally and vertically.

Zoom horizontally

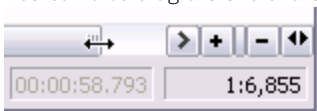
Zooming incrementally

To zoom in and out in time by small increments, press the Up Arrow/Down Arrow keys or use the **Zoom** buttons on the lower right-hand side of the data window:



Tips:

- Drag the splitter between the + and - buttons to zoom in large increments.
- You can also drag the end of the scroll box to zoom in or out:



Zooming in fully

From the View menu, choose **Zoom Time**, and then choose **In Full** from the submenu (or press Ctrl+Up Arrow) to maximize the horizontal magnification to 24:1 (24 pixels per sample).

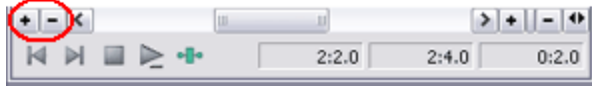
Zooming out fully

From the View menu, choose **Zoom Time**, and then choose **Out Full** from the submenu (or press Ctrl+Down Arrow) to zoom out to the lowest magnification so that the entire sound file will fit on the screen.

Zoom vertically

Zooming incrementally

To zoom in and out vertically by small increments, click the **Level Zoom In/Out** buttons, or click and drag the area between the buttons to zoom quickly.



Zooming out fully

From the View menu, choose **Zoom Level**, and then choose **Out Full** from the submenu to zoom out vertically to allow viewing of the entire amplitude range. This command also centers the centerline.

Zooming to fit the waveform to the window

From the View menu, choose **Zoom Level**, and then choose **Window** from the submenu to zoom in or out vertically to the maximum zoom ratio that allows you to view the entire waveform. This command also moves the centerline if the maximum positive and negative peaks are different.


Zoom to a selection

From the View menu, choose **Zoom Time** or **Zoom Level**, and then choose **Selection** from the submenu to maximize the current selection vertically and horizontally.

The **Selection** command calculates the maximum zoom factor for the size of a selection area, draws the data at this zoom factor, and centers the selection in the data window.

💡 Press Ctrl+Up Arrow (when a selection is active) or double-click the Level Ruler.

Zoom to an event

When using the **Event tool** , you can zoom to the selected event.

Right-click the event and choose **Zoom Event** from the shortcut menu (or press Ctrl+Up Arrow). The event is zoomed to fit the width of the data window.

Return to the default zoom ratio

From the View menu, choose **Zoom Time**, and then choose **Normal** from the submenu to zoom out to the default zoom ratio. If the entire sound file can fit in the window at a closer magnification, zoom normal will only zoom out to that ratio.

To change the default for the Normal zoom ratio, go to the **Display** tab in the Preferences dialog.

Use custom zoom ratios



You can define two custom zoom ratios to quickly adjust your magnification to frequently used settings.

Defining custom zoom ratios

1. From the Options menu, choose **Preferences**.
2. Select the Display tab.
3. Choose the zoom ratios you want to use from the **Custom zoom ratio 1** and **Custom zoom ratio 2** drop-down lists.

Displaying custom zoom ratios

Perform any of the following actions to display your custom zoom ratios:

- Click the **Custom Zoom 1**  or **Custom Zoom 2**  button on the **Navigation** toolbar.
- Press 1 or 2 on your numeric keypad.
- From the View menu, choose **Zoom Time**, and then choose a **Custom Zoom** command from the submenu.
- Right-click in a data window, choose **Zoom** from the shortcut menu, and then choose a **Custom Zoom** command from the submenu.

Undoing and Redoing Edits

When the **Undo past Save** check box is selected on the **General** tab in the Preferences dialog, Sound Forge Pro software maintains your undo history until you close the data window (or exit the application) so you can undo edit operations even if you've saved your file.

If you want to be able to undo edit operations even after closing and reopening your file, save a **Sound Forge Pro project**.

 From the View menu, choose **Undo/Redo History** to undo operations using the **Undo/Redo History** window.

Undo a single operation

From the Edit menu, choose **Undo** to reverse the last action performed. For example, if you deleted a section of data accidentally, use the **Undo** command to put the data back.

Undo all edits

From the Edit menu, choose **Undo All** to undo all operations performed on a file. **Undo All** will return your file to its original state.

Redo a single operation

From the Edit menu, choose **Redo** to reverse an undo operation.

Repeat


From the Edit menu, choose **Repeat** to repeat the last-performed operation. This can be used with most processing functions.

The last dialog settings will be used unless you hold the Shift key, which allows you to change the operation's parameters.

The Event Tool

From the Edit menu, choose **Tool**, and then choose **Event** from the submenu to select the Event tool.

Use the Event tool to edit multiple audio events in a single data window, which can be an easier way to edit edges and fades and lay out tracks for [disc-at-once CDs](#).

 Notes:

- Events do not loop and cannot exceed the start, end, or channels of the underlying media. For example, you cannot trim an event past its right edge to insert silence.
- To preserve events in a file after saving, use a [Sound Forge Pro project file](#) for editing.

Creating Events

Events are created when you cut/copy/paste sound data, split events, drag sound data to existing data windows, or process selections.

Create events by cutting, copying, or pasting sound data

[Cutting](#), [copying](#), [pasting](#), or [mixing](#) sound data will create events in a data window.

After performing one of these edits, select the Event tool to work with the new event.


Split events

From the Edit menu, choose **Event**, and then choose **Split** from the submenu (or press S) to split one or more selected events at the current cursor position.

For more information about splitting events, please see [Splitting Events](#).

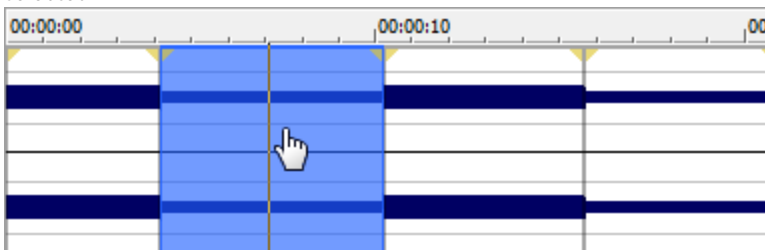
Create events by dragging files from the Explorer

You can create events in a data window by dragging files from the [Explorer window](#) or Windows Explorer.

 The **Always open dropped files in new window** check box on the [General](#) page of the Preferences dialog must be cleared if you want to create events with drag-and-drop operations. When the check box is selected, dropping a file on the Sound Forge Pro workspace always creates a new data window.


1. Drag a file from the Explorer window to a data window. The cursor indicates where the sound data will be added.
2. When you release the mouse button to drop the selection, the selection is pasted, and an event is created.
3. From the Edit menu, choose **Tool**, and then choose **Event** from the submenu.
4. When you click in the data window with the Event tool, events are selected. You can hold Ctrl or Shift to select multiple events.



In the following example, the data window contains four events, and the second event is highlighted to indicate that it is selected.



Create events by dragging selections



You can create events in a data window by dragging sound data within a data window or to another data window.

 The **Always open dropped files in new window** check box on the **General** page of the Preferences dialog must be cleared if you want to create events with drag-and-drop operations. When the check box is selected, dropping a file on the Sound Forge Pro workspace always creates a new data window.

1. Select the **Edit tool** .
2. Create a time selection in a data window.
3. Drag the selection to the location where you want to mix or paste it.
4. When you release the mouse button to drop the selection, the selection is pasted or mixed, and an event is created.
5. Select the Event tool . You can then use the Event tool to work with the new event.

Create events by processing a selection

When you apply processes or effects to a portion of a sound file, Sound Forge Pro creates an event from the selection.

1. Select the **Edit tool** .
2. Create a time selection in a data window.
3. Apply a **process or effect** to your time selection. Sound Forge Pro creates an event from the selection.
4. Select the Event tool . You can then use the Event tool to work with the new event.

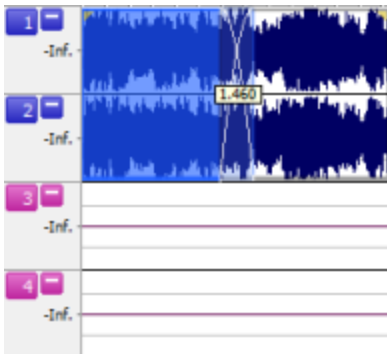
Moving Events

You can move events horizontally along the timeline by dragging them with the Event tool .

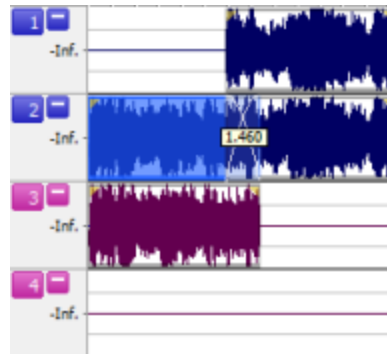
Moving an event past the end of the current file inserts time into the data window. You must remove any unwanted silence when you are finished editing the file.

When dragging events vertically across channels, you are limited to the number of channels in the current file. You cannot drag an event past the top or bottom channel in a data window to create more channels in the file.

Events can cross channel boundaries, but overlapping events must lie on the same channels. Sound Forge Pro automatically splits or merges channels as you move events.




Crossfaded events before channel split.



The channels in both events are split when the first event is moved to channels 2 and 3 because overlapping events must lie on the same channels.

You can also Ctrl+drag events to other data windows or to the workspace to create new data windows.


 Regions, markers, and envelope points are moved with an event. To turn this feature off, turn off the **Lock to Selection > Markers/Regions** and **Envelope Points** commands on the Options menu.

Splitting Events


From the Edit menu, choose **Event**, and then choose **Split** or **Split Regions** from the submenu to split one or more selected events.

Splitting an event allows you to adjust a small part of an event or break a single event into multiple sections that you can edit independently.

Split events at the cursor

1. Select the **Event tool** .
2. Position the cursor where you want to split the events.
3. **Select** the events you want to split.
4. From the Edit menu, choose **Event**, and then choose **Split** from the submenu (or press S):
 - If no events are selected, the events located at the current cursor position will be split throughout all of the channels.
 - If events are selected, only the selected events will be split at the current cursor position.

Split events at region boundaries

1. Add **regions** as needed.
2. Select the **Event tool** .
3. **Select** the events you want to split.
4. From the Edit menu, choose **Event**, and then choose **Split Regions** from the submenu (or press Ctrl+Alt+T):
5. If no events are selected, the events located at the current cursor position will be split throughout all of the channels at region boundaries.
6. If events are selected, only the selected events will be split at region boundaries.


Cutting, Copying, Pasting, Mixing, and Deleting Events

When working with the **Event tool** , you can easily cut, copy, paste, mix, and delete events in a data window.

Cut events

1. Select the events you want to cut.

For more information about selecting events, please see [Selecting Events](#).


2. From the Edit menu, choose **Cut**, or click the **Cut** button  on the Standard toolbar.

The selected events are removed from the data window and placed on the clipboard.

Copy events

1. Select the events you want to copy.

For more information about selecting events, please see [Selecting Events](#).

2. From the Edit menu, choose **Copy**, or click the **Copy** button  on the Standard toolbar.


The selected events are copied to the clipboard and the waveform is unchanged.

Paste events

After events are copied or cut to the clipboard, you can paste them to a different place in the data window or to a different data window.

Notes:

- If any regions or markers are present in the original sound data, they will also be pasted into the destination sound file. To turn this feature off, turn off the **Lock to Selection > Markers/Regions** command on the Options menu.
- Envelope points from the original sound data are not pasted into the destination sound file.

1. Move the cursor to the desired location on the timeline.
2. From the Edit menu, choose **Paste**, or click the **Paste** button  on the Standard toolbar.

The clipboard events are inserted into the data window, and existing events on the selected channels are moved in the data window by the total length of the pasted events.

If no channels are selected, the clipboard events are pasted to all channels.

Mix events

You can mix files, events, and selections when using the Event tool by dragging audio from the current data window, other data windows, the Sound Forge Pro Explorer window, or Windows Explorer.

Mixed audio is inserted as new events over existing events in a data window. [Crossfades](#) are created, but the Mix dialog is not displayed.


Delete events

1. Select the events you want to delete.


For more information about selecting events, please see [Selecting Events](#).


2. From the Edit menu, choose **Delete (Clear)**, or press Delete.

The selected events are removed from the data window, but they are not placed on the clipboard.

 Regions, markers, and envelope points are deleted with an event. To turn this feature off, turn off the **Lock to Selection > Markers/Regions** command on the Options menu.

Selecting Events

When working with the [Event tool](#) , you can select one or more events, but you cannot create [time selections](#).

 If you want to zoom to an event, right-click the event and choose **Zoom Event** from the shortcut menu (or press Ctrl+Up Arrow). The event is zoomed to fit the width of the data window.

Selecting events with the mouse

To select an event, click it with the Event tool . To deselect an event, hold Ctrl while clicking it.

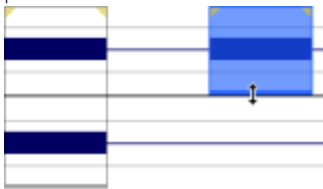
To select multiple nonadjacent events, hold the Ctrl key and click each event you want to select.

To select multiple adjacent events, hold the Shift key and click the first and last event you want to select. All events between the first and last selected events are also selected.

Double-click an event to select it and adjust the loop bar to the length of the event.



You can drag the top and bottom edges of events if you want to use only a subset of the channels in a multichannel file. This method is also useful for duplicating or rearranging channels without performing channel conversion, which always processes the entire file:



You can quickly restore contiguous channels by dragging the event edge back.

Selecting events using menu commands

From the Edit menu, choose **Event**, and then choose **Select Next Event** or **Select Previous Event** from the submenu to select the next or previous event in the data window.

Choose **Select First Event** or **Select Last Event** to select the first or last event in the data window.

Choose **Extend to Next Event** or **Extend to Previous Event** to extend the current selection to the next or previous event in the data window.

Choose **Extend to First Event** or **Extend to Last Event** to extend the current selection to the first or last event in the data window.

Selecting events using keyboard shortcuts

You can use [keyboard shortcuts](#) to select events while using the Event tool.

Crossfading Events

From the Options menu, choose **Event**, and then choose **Automatic Crossfades** from the submenu if you want to automatically create **crossfades** when you overlap two events on the same channel.

When **Automatic Crossfades** is turned off, overlapping events punch in and out with no fades.



You can show or hide the crossfade length ToolTip by selecting **Event** and then **Show Crossfade Lengths** from the Options menu or pressing Ctrl+Shift+T.

Create an automatic crossfade

You can easily create crossfades between audio or events by simply dragging an event.

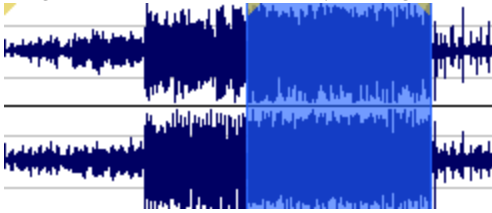
1. From the Options menu, choose **Event**, and then choose **Automatic Crossfades** from the submenu to turn on automatic crossfades.
2. Drag an event so that it overlaps another event on the same channel.
3. A crossfade is automatically added to transition between the two events.


Create a manual crossfade

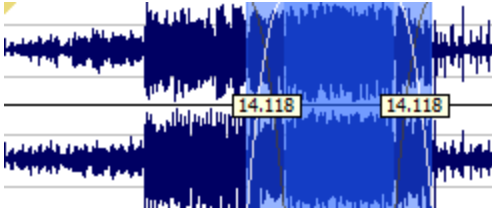
An automatic crossfade is not inserted if a shorter event is placed on top of a longer event (as in a punch-in). You can manually create a crossfade to fade in to or out of the shorter event.

This is a fast and effective method of punching in to replace a bad section of audio.

1. Drag a shorter event so it overlaps a longer event.



2. Hover over upper-left or upper-right corner of an audio event until the cursor is displayed as a .
3. Click the corner of the event and drag to create a fade.
4. Repeat step 3 for the other end of the event.



Change the fade type

You can change a crossfade to use one of many combinations of fast, slow, linear, smooth, and sharp fade curves.


1. Right-click the crossfade region to display a shortcut menu.
2. Choose **Fade Type** from the shortcut menu and choose a fade curve from the submenu.

Event Envelopes (ASR)

You can apply envelopes to individual events. Events, known as ASRs (attack sustain, and release) give you the ability to control an event's fade-in, fade-out, and overall level.

When you create an event, handles are added that are used to set the envelope. As you drag these handles, a volume envelope appears.

Adjust an event's volume


1. Hover over the top of an audio event.
2. When you see the envelope cursor () , drag the volume line to the desired level. As you drag the envelope, the event's gain is displayed in dB.

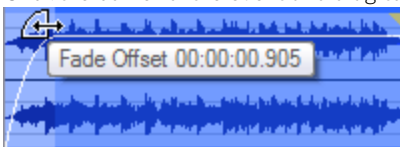


Tips:

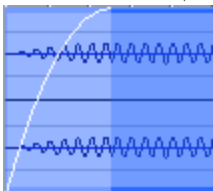
- Hold Ctrl (or hold the right mouse button) while dragging the sustain portion of the envelope to adjust the value in fine increments.
- When you have multiple events selected, the gain of all selected events is adjusted simultaneously.

Fade an event in or out

1. Hover over upper-left or upper-right corner of an audio event until the cursor is displayed as a .
2. Click the corner of the event and drag to create a fade.



To remove a fade, drag the end of the fade curve back to the edge of the event.



Change the fade type

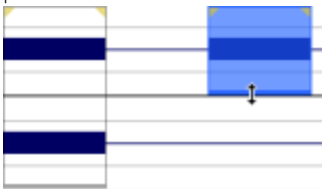
1. Right-click the fade-in or fade-out region to display a shortcut menu.
2. Choose **Fade Type** from the shortcut menu and choose a fade curve from the submenu.

Slipping and Trimming Events

You can use any of the following methods to adjust events.




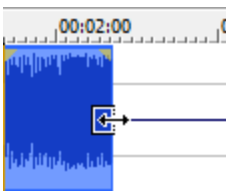
You can drag the top and bottom edges of events if you want to use only a subset of the channels in a multichannel file. This method is also useful for duplicating or rearranging channels without performing channel conversion, which always processes the entire file:



You can quickly restore contiguous channels by dragging the event edge back.

Trim an event

1. With the Event tool  selected, hover over the edge of an event. The cursor is displayed as a .
2. Drag the edge of the event to trim it.

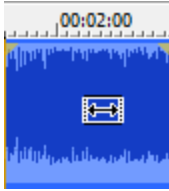


Events do not loop and cannot exceed the start, end, or channels of the underlying media. For example, you cannot trim an event past its right edge to insert silence.

Slip (shift the contents of) an event

Hold Alt while dragging an event. The cursor is displayed as a .

As you drag the event, the contents of the event shift, but the event will not move. You can use this technique when you want to maintain an event's length and position, but have the event play a different section of the source media file.



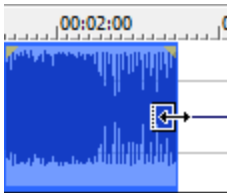
Tips:

- Hold the Shift key to temporarily override snapping.
- Regions, markers, and envelope points are moved with the contents of the event. To turn this feature off, turn off the **Lock to Selection > Markers/Regions** and **Envelope Points** commands on the Options menu.

Slip-trim an event

Hold Alt while dragging the right or left edge of an event. The cursor is displayed as a .

As you drag the event edge, the opposite edge of the event will remain fixed, trimming the media from the edge you drag.



Tips:

- Hold Alt+Shift while dragging any portion of an event to slip-trim the right edge. The left edge of the event will remain fixed on the timeline, and the media is slipped past the left edge of the event. This slip mode is useful when you want to slip an event without changing its last frame.
- Holding the Shift key temporarily overrides snapping if it is enabled. Release the Shift key while dragging to snap the event to available snap points.
- Regions, markers, and envelope points are moved with the contents of the event. To turn this feature off, turn off the **Lock to Selection > Markers/Regions** and **Envelope Points** commands on the Options menu.

Auto Ripple Events

You can ripple the contents of the data window following an edit after performing the following tasks:

- Adjusting an event's length by trimming, slipping, or slip-trimming.
- Moving events.
- Cutting events.
- Pasting events.
- Mixing events.
- Deleting events.


1. Select **Options > Event > Auto Ripple** (or press Ctrl+Shift+R) to turn on auto ripple.
2. Perform one of the edits listed above.

The contents of the data window are rippled after the edit.



If no channels are selected, events are rippled across all channels. If channels are selected, only events on the selected channels are rippled. For more information, see "[Selecting Data Using the Mouse](#)" on page 117

Applying Processes and Effects to Events

When working with the **Event tool** , you can process multiple selected events at once, but Sound Forge Pro processes each event individually. The processed result is only the length and number of channels in the event at the time of processing, not the entire length and number of channels of the underlying media.



Notes:

- You cannot use format-changing processes such as bit-depth conversion or resampling when working with the Event tool.—
- Effects are applied to events before any **event envelope**, and event fades are reapplied after processing.
- Processing multiple events creates a single operation in the **Undo/Redo History** window.



For more information about applying processes and effects, click [here](#).

Using Markers, Regions, and Commands


Markers and regions serve as reference points along the timeline. You can use markers for annotations, to insert metadata commands, or for MIDI triggers.

Using Markers

From the Insert menu, choose **Marker** to add a marker at the current cursor position. Markers are reference points you can place throughout a file. You can use markers to identify positions for editing or to seek forward and back within a streaming media file.


Markers can be quickly selected from the list in the [Go To](#) dialog. Also, markers are displayed in the [Regions List](#) for quick playback.

Insert a marker

1. Position the cursor where you want to add a marker.
2. From the Insert menu, choose **Marker**. A marker  will be added at the cursor position.
3. If you want to name the marker, right-click the tag and choose **Rename** from the shortcut menu. Type a name for the marker in the edit box and press Enter.

 You can also insert markers during playback by pressing the M key.

Name or rename a marker

Right-click the marker tag  and choose **Rename** from the shortcut menu. Type the name of the marker in the edit box and press Enter when you're finished.


or—
Double-click to the right of the marker and type a name in the edit box.

Move a marker



Drag the marker tag  to a new location.

Markers will snap to other markers, [regions](#), and [command markers](#). Hold Shift while dragging to override snapping.



Delete a marker

Right-click the marker tag  and choose **Delete** from the shortcut menu.

Delete all markers and regions

Right-click above the loop region, choose **Markers/Regions**, and choose **Delete All** from the submenu. All markers  and [regions](#)  are removed.

Delete all markers and regions within the selected area

Right-click above the loop region, choose **Markers/Regions**, and choose **Delete All in Selection** from the submenu. All markers  and [regions](#)  in the selected area are removed.

Preview a marker

Click a marker's **Play** button  in the [Regions list](#).

Trigger a marker using MIDI commands

1. Right-click the marker tag and choose **Edit** from the shortcut menu. The [Regions List](#) window is displayed.
2. Click the down arrow ▼ in the marker's **Trigger** column to display a drop-down list.

Trigger type	Description
Note On - Play	The marker will be played when the specified note on message is received and will play for the full length of the file.
Note On - Play / Off - Stop	The marker will be played when the specified note on message is received and will stop when the full file is played or the specified Note Off message is received.
Note On - Queue / Off - Play	The marker will be queued for play when the specified note on message is received and will play when the corresponding Note Off message is received. This is used to reduce the time between receiving a trigger and playing a marker.

3. In the **Chan** box, specify the MIDI input channel for triggering.
4. In the **Note** box, specify the MIDI note that will trigger region playback. This value can be entered as a MIDI note value such as C4 or as a MIDI note number such as 60.

 Notes:


- If the [Trigger from MIDI Timecode](#) command is selected while using this dialog, you can auto-complete the **Chan** and **Note** values by pressing a key on your MIDI keyboard.
- Triggers in the Regions List function differently from triggers specified in the [MIDI Triggers](#) dialog and the [Playlist](#). When using triggers in the Playlist, Regions List, or MIDI Triggers dialog, be aware that they can interact to create unexpected results. Sound Forge Pro software first looks at the MIDI Triggers, then the Regions List, and then the Playlist when determining what to do when a MIDI command is detected. If you only want to use the triggers in the Regions List, turn off all the triggers in the MIDI Triggers dialog and the Playlist.

Inserting Regions


From the Insert menu, choose **Region** to add region markers at each end of the current selection. Regions can be used to indicate sections of projects such as choruses or verses, or they can be used to make notes in the project.

The [Regions List](#) window contains all of the regions and markers that exist in the active data window.

Insert a region

1. Drag the cursor in the data window or marker bar to make a time selection.
2. From the Insert menu, choose **Region**. Numbered region markers  are placed at the start and end of the selected area.

3. If you want to name the region, right-click the tag and choose **Rename** from the shortcut menu. Type a name for the region in the edit box and press Enter.

 You can also insert regions by pressing the R key (or Ctrl+Alt+R when the **Event tool** is selected).


Name or rename a region

Right-click the starting region marker  and choose **Rename** from the shortcut menu. Type the name of the region in the edit box and press Enter when you're finished.

or—

Double-click to the right of the region marker and type a name in the edit box.


Select a region

Right-click the starting or ending region marker  and choose **Select Region** from the shortcut menu. The region is highlighted.

or—

Double-click the start or end region marker. The region is highlighted.


Move a region

Drag either region tag  to move the tab and change the region's size.



Hold the Alt key while dragging either region tag to move a region and preserve its length.

Regions will snap to other **markers**, regions, and **command markers**. Hold Shift while dragging to override snapping.



Delete a region

Right-click the region marker  and choose **Delete** from the shortcut menu.

Delete all markers and regions

Right-click above the loop region, choose **Markers/Regions**, and choose **Delete All** from the submenu. All markers  and **regions**  are removed.

Delete all markers and regions within the selected area

Right-click above the loop region, choose **Markers/Regions**, and choose **Delete All in Selection** from the submenu. All markers  and **regions**  in the selected area are removed.

Preview a region

Click a region's **Play** button  in the **Regions list**.

Trigger a region using MIDI commands

1. Right-click the marker tag and choose **Edit** from the shortcut menu. The Regions List is displayed.

- Click the down arrow ▼ in the region's **Trigger** column to display a drop-down list.

Trigger type	Description
Note On - Play	The region will be played when the specified note on message is received and will play for the full length of the file.
Note On - Play / Off - Stop	The region will be played when the specified note on message is received and will stop when the full file is played or the specified Note Off message is received.
Note On - Queue / Off - Play	The region will be queued for play when the specified note on message is received and will play when the corresponding Note Off message is received. This is used to reduce the time between receiving a trigger and playing a region.

- In the **Chan** box, specify the MIDI input channel for triggering.
- In the **Note** box, specify the MIDI note that will trigger region playback. This value can be entered as a MIDI note value such as C4 or as a MIDI note number such as 60.



Notes:

- If the **Trigger from MIDI Timecode** command is selected while using this dialog, you can auto-complete the **Chan** and **Note** values by pressing a key on your MIDI keyboard.
- Triggers in the Regions List function differently from triggers specified in the **MIDI Triggers** dialog and the **Playlist**. When using triggers in the Playlist, Regions List, or MIDI Triggers dialog, be aware that they can interact to create unexpected results. Sound Forge Pro software first looks at the MIDI Triggers, then the Regions List, and then the Playlist when determining what to do when a MIDI command is detected. If you only want to use the triggers in the Regions List, turn off all the triggers in the MIDI Triggers dialog and the Playlist.

Converting Markers to Regions

From the Edit menu, choose **Regions List**, and then choose **Markers to Regions** from the submenu. All existing markers will be converted to regions using the data between each consecutive marker as the region boundary.

For example, if your file contains three markers, this command will create two regions; the first region will span the area between the first and second markers, and the second region will span the area between the second and third markers.



Right-click the Regions List and choose **Markers to Regions** from the shortcut menu.

Creating Regions Automatically

The Auto Region dialog allows you to automatically create regions in a sound file for the Regions List and Playlist. To display this dialog, choose **Auto Region** from the Tools menu. For more information, see "[Inserting Regions](#)" on page 155 "[Regions List](#)" on page 40 or "[Playlist/Cutlist](#)" on page 163

Regions can be detected according to fast sound attacks (such as drum beats or words) or according to the **Selection tempo** value specified in the File Properties window.

Creating regions based on fast attacks

- From the Tools menu, choose **Auto Region**.
- Drag the **Attack sensitivity** slider to determine how sensitive the attack-detection algorithm is to fast increases in volume.

With a high setting, regions are created when the sound level increases by very small amounts, and more regions are created. With a low setting, the sound level must increase by a large amount before a new region is created, and fewer regions are created.

3. Drag the **Release sensitivity** slider to determine the minimum decrease in sound level that must occur before a region end is created.
 With a high setting, regions are created when the sound level decreases by very small amounts, and more regions are created. With a low setting, the sound level must decrease by a large amount before a new region is created, and fewer regions are created. A low setting is useful if you want regions to be created after quiet breaks.
4. Drag the **Minimum level** fader to determine the threshold sound level that must be found before a new region is created.
 With a high setting, only high-level sounds will trigger the creation of a new region. This is useful if you want loud instrument attacks in a song (such as the bass drum) to mark the beginning of a region, since they often correspond to the beginning of a measure or beat. Low threshold settings will also allow low-level sound attacks to create new regions.
5. In the **Minimum beat duration** box, specify the minimum length that must elapse before a new region can be created.
 A low setting will allow very short regions to be created if sound attacks occur in fast succession. This is useful for uptempo music. A higher setting will prevent quick sound attacks from being separated into different regions.
6. Select the **Use release point for end of region** check box to end a region when the sound level drops by a factor determined by the **Release sensitivity**. This is useful if you don't want the silence between sounds or phrases to be included in the regions.
 When this check box is cleared, region ends are only created when attacks are detected.
7. Click the **OK** button.

Creating regions based on a musical time interval


When you select the **Build regions using the current tempo** check box, regions are created according to the file's current tempo.

1. Use the Edit Tempo dialog to edit or calculate the musical tempo of your file. For more information, see ["Editing Tempo" on page 28](#)
2. From the Tools menu, choose **Auto Region**.
3. Select the **Build regions using the current tempo** check box.
4. Use the **Measures** and **Beats** boxes to specify the interval between regions.
5. For example, if you want a region to be created at every beat, set **Beats** to 1 and **Measures** to 0. To create a region at every measure, set **Measures** to 1 and **Beats** to 0.

For more information about using processing dialog controls, see ["Using Processing Dialogs" on page 182](#)

Extracting Regions to New Files



From the Tools menu, choose **Extract Regions** to create new files from [regions](#) in the Regions List.

1. From the Tools menu, choose **Extract Regions**. The Extract Regions dialog is displayed.
2. In the **Regions to extract** box, select the regions you want to extract. You can hold the Ctrl or Shift keys to select multiple regions.
3. In the **Destination folder** box, specify the folder where the extracted regions will be saved, or click the **Browse** button to choose a new folder.
4. Type a name in the **File name prefix** box if you want add a prefix to extracted regions. For example, enter Test to extract the files Test Region 001.wav, Test Region 002.wav, Test Region 003.wav, and so on.
 Select the **Use long file names for destination file names** check box to allow file names of up to 128 characters including spaces. The files names will consist of the value in the **File name prefix** box and the region name. When this check box is cleared, file names will conform to the 8.3 naming convention. These names consist of the first 5 characters from the **File name prefix** and a unique three-digit number starting with the number specified in the **Start file counter index** box. For example, if you have 4 regions selected for extraction, and your prefix is set to PREFIX, the names used will be PREFIX000.wav, PREFIX001.wav, PREFIX002.wav PREFIX003.wav.
5. Click the **Extract** button to extract the selected regions.

Updating Marker or Region Positions

From the **Edit** menu, choose **Regions List**, and then choose **Update** from the submenu to move a marker or region to match the current cursor position or selection.



To update a marker quickly, right-click the marker  or region tag  and choose **Update** from the submenu.

1. If the Regions List isn't already visible, choose **View > Metadata > Regions List**.
2. In the Regions List window, select the **marker** or **region** you want to update.
3. In the data window, indicate the new position of the marker or region:
4. If you want to update a marker's position, place the cursor where you want to move the marker.
5. If you want to update a region's position, select a range of data in the data window.
4. From the Edit menu, choose **Regions List**, and then choose **Update** from the submenu:
5. If you are updating a marker, the marker moves to the cursor position. If you have a range of data selected, the cursor will blink at one end of a selection; press the Home key to move the cursor to the beginning of the selection, or press End to move to the end of the selection.
6. If you are updating a region, the beginning and ending points of the region are moved to match the current selection, and the length of the region is modified if the selection is a different length than the original region.



Hold Alt while dragging a region tag to move a region while preserving its length.

Replicating Markers or Regions

Replicating a marker or region creates an exact copy of an existing marker or region in a file. You can use the Regions List window to modify the properties of the replicated entry.

1. Select an entry in the **Regions List**.
If the Regions List is not visible, choose **Regions List** from the View menu.
2. From the Edit menu, choose **Regions List** and choose **Replicate** from the submenu.



Right-click an entry in the Regions List and choose **Replicate** from the shortcut menu.

Deleting Markers or Regions

From the Edit menu, choose **Regions List**, and then choose **Delete** from the submenu to remove the selected marker or region from the **Regions List window**.



Tips:

- Select a region or marker in the Regions List window and press Delete.
- Right-click above the loop region, choose **Markers/Regions**, and choose **Delete All** or **Delete All in Selection** from the submenu.

Splitting Regions

Splitting a region divides an existing region at the current cursor position, producing two separate regions.

1. In the **Regions List window**, select the region you want to split.
2. In the data window, position the cursor where you want the split to occur.
3. From the Edit menu, choose **Regions List**, and choose **Split** from the submenu (or right-click a region in the Regions List window and choose **Split** from the shortcut menu).



Before split If the cursor is placed within the region you're splitting, the region will be split at the cursor position.



After split



Before split If the cursor is placed outside the region you're splitting, a new region will be created from the closest edge of the original region to the cursor position.



After split

Importing a Regions/Playlist File

From the Edit menu, choose **Regions List** or **Playlist/Cutlist**, and then choose **Open** from the submenu to import an existing regions/playlist file (.sfl) into the current sound file. This command offers the flexibility of using multiple playlists for the same sound file.

1. From the Edit menu, choose **Regions List** or **Playlist/Cutlist**, and then choose **Open** from the submenu.
 - 💡 Right-click the Regions List or Playlist/Cutlist window and choose **Open** from the shortcut menu.
2. Use the Open Regions/Playlist dialog to locate an existing regions/playlist file.
3. Specify the type of regions you want to import from the **Files of Type** drop-down list:
 - a. Choose **Playlist File (.sfl)** to import a Sound Forge Pro regions/playlist file.
 - b. Choose **Session 8 File (.prm)** to import a file that supports both Session 8 and Sound Forge Pro regions.
 - c. Choose **Windows Media Script File (.txt)** to import a file that includes Windows Media script **commands**.
 - d. Choose **Text File (Tab delimited) (.txt)** to import markers and regions from a plain text file.
 - e. Choose **Wave File (.wav)** to import markers and regions from another sound file.
4. Click the **Open** button.

📌 Opening a new regions/playlist file will clear the current regions and playlist entries. Make sure you have **saved** the current regions/playlist before continuing.

Copying Regions to the Clipboard


From the Edit menu, choose **Regions List** and choose **Copy onto Clipboard** to copy the text of the Regions List onto the clipboard for use with a text editor.

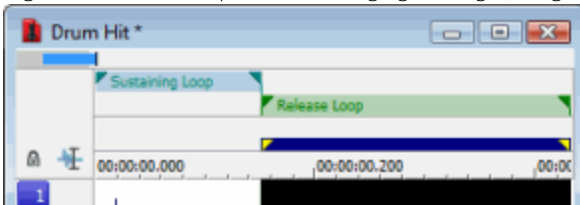
Editing a regions list in a text editor allows you to make an annotated list that you can print for reference.

💡 Right-click the Regions List and choose **Copy onto Clipboard** from the shortcut menu.

Locking Loop and Region Lengths

From the Options menu, choose **Lock Loop/Region Length** to force the length of a region to remain constant when changing the start or end time of a region or loop.

💡 When this option is not selected, you can hold the Alt key while dragging region markers  to lock the length of a region. To move a loop without changing its length, drag the bar between the loop markers:



Clearing Markers and Regions

From the Edit menu, choose **Regions List** and choose **Clear All** from the submenu to remove all markers and regions from the current file. This command will also clear the **Playlist/Cutlist window**.

💡 Right-click above the loop region, choose **Markers/Regions**, and choose **Delete All** or **Delete All in Selection** from the submenu.

Inserting Commands

From the Insert menu, choose **Command** to place a metadata command marker at the current cursor position.


Command markers indicate when an instruction (function) will occur in a streaming media file. You can use command markers to display headlines, captions, link to Web sites, or any other function you define.

📄 Windows Media Player 9 and later will ignore metadata commands unless the **Run script commands when present** check box is selected on the Security tab of the player's Preferences dialog. Be sure to instruct your audience to select this check box before playing your file.

Insert a command marker

1. Place the cursor where you want to insert the command marker.
 - 📄 Commands snap to the nearest millisecond.
2. From the Insert menu, choose **Command**. The Command Properties dialog is displayed.
3. From the **Command** drop-down list, choose the **type** of command you want to insert, or type a custom command in the box.

4. In the **Parameter** box, enter the argument that should be passed to the command. For example, if you're using an URL command, enter the address of the Web page you want to display.

Command	Player type	Description
URL	Windows Media	Indicates when an instruction is sent to the user's Internet browser to change the content being displayed. In the Parameter box, enter the URL that will display at a specific time during the rendered project's playback.
Text	Windows Media	Displays text in the captioning area of the Windows Media Player located below the video display area. In the Parameter box, enter the text that will display during playback.  To view captions during playback in Windows Media Player 9, choose Captions and Subtitles from the Windows Media Player Play menu, and then choose On if Available from the submenu.
WMClosedCaption	Windows Media	Displays the text from the Parameter box in the captioning window that is defined by an HTML layout file.
WMTextBodyText	Windows Media	Displays the text from the Parameter box in the text window that is defined by an HTML layout file.
WMTextHeadline	Windows Media	Displays the text from the Parameter box in the headline window that is defined by an HTML layout file.

5. In the **Position** box, type the time you want the command to occur in your project. The command is inserted at the cursor position by default.

Delete a command marker

Right-click the command marker tag  and choose **Delete** from the shortcut menu.

Edit a command marker

Right-click the command marker tag  and choose **Edit** from the shortcut menu.

or—

Double-click the command marker tag.


Move the cursor to a command marker

Click the command marker tag .

Use command templates

If you frequently insert commands that use similar settings, you can create a template to insert command settings automatically.

Creating a template

1. From the Insert menu, choose **Command** to display the Command Properties dialog.
2. Enter the settings you want to use in the **Command**, **Parameter**, and **Position** boxes.
3. In the **Template** box, enter the name you want to use to store the template.
4. Click the **Save** button .

Recalling a template

1. From the Insert menu, choose **Command** to display the Command Properties dialog.
2. Choose the template you want to use from the **Template** drop-down list. The **Command**, **Parameter**, and **Position** boxes are automatically filled in using the information stored in the template.
3. Edit the settings in the **Command**, **Parameter**, and **Position** boxes as necessary.
4. Click **OK**.

Editing metadata commands

Your metadata command templates are saved in the following file: **C:\Users\[user name]\AppData\Local\MAGIX\Sound Forge Pro\12.0\cmdtemp.xml**.


You can edit this file directly to modify your templates.

Editing with a Playlist/Cutlist

From the Edit menu, choose **Playlist/Cutlist** and choose a command from the submenu to arrange regions in a playlist or cutlist.

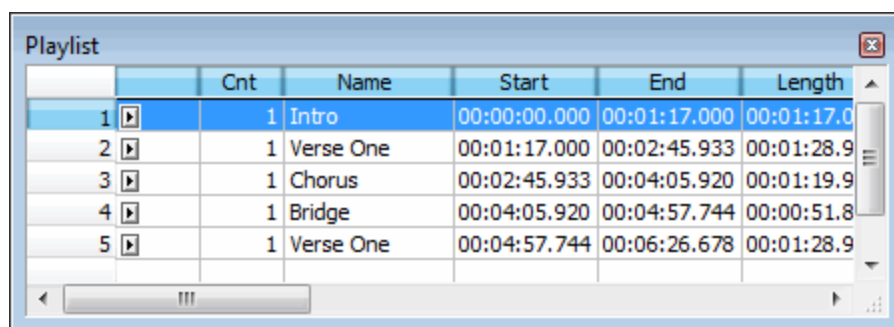
A playlist/cutlist allows you to perform nondestructive editing by defining **regions** and arranging them to determine a playback order without modifying your original file. When you are done arranging the regions, Sound Forge Pro software can create a new file containing your final arrangement.

From the Edit menu, choose **Playlist/Cutlist**, and then choose **Treat as Cutlist** from the submenu to toggle between Playlist and Cutlist mode.


 You can open the first playlist in a sound file by choosing **Playlist/Cutlist** from the View menu.

Playlist/Cutlist

From the View menu, choose **Metadata**, and then choose **Playlist/Cutlist** to open or close the Playlist/Cutlist window. This window is used to arrange regions for playback.



 **Tips:**

- To play a region, click the **Play** button  to the left of each region. The selected region and all subsequent playlist entries are played in succession.
- You can edit a Playlist/Cutlist region by typing new values in the **Cnt**, **Trigger**, **Chan**, **Note**, and **SMPTE Time** boxes.
- You can rearrange regions by dragging rows within the Playlist/Cutlist window (drag the leftmost numbered column).

Add a region to the Playlist/Cutlist window

Perform one of the following actions to add a region to the Playlist/Cutlist window:

- Drag the region from the Regions List window to the Playlist/Cutlist window.
- Right-click a region in the Regions List window and choose **Add to Playlist** from the shortcut menu.
- To create a region and add it to a playlist/cutlist, select a range of data and drag it to the Playlist/Cutlist window.




A region is automatically created in the data window, and the new region is added to the playlist/cutlist.

Specify a region's play count

Type a value in the **Cnt** box in the Playlist window to specify the number of times the playlist region will repeat before playing the next region.

Setting this value to 0 will cause the region to be skipped during playback.

In the following example, Region 1 will be played once, Region 2 will be played twice, and then Region 3 will be played once.

Playlist						
		Cnt	Name	Start	End	Length
1		1	Intro	00:00:00.000	00:01:17.000	00:01:17.0
2		2	Verse One	00:01:17.000	00:04:14.867	00:02:57.8
3		1	Chorus	00:04:14.867	00:05:34.853	00:01:19.9

Pre-roll playback

Select the **Pre-roll playback** check box in the Playlist window and specify a value to set the amount of pre-roll that will be heard from the end of the previous region when starting the playlist sequence from the current region.

Example: two regions are defined in the Playlist/Cutlist window, and the pre-roll time is set to 0.5 seconds. When you start playback from region 2, the last 0.5 seconds of region 1 will be played before starting region 2. This allows you to hear the transition between the two regions.



From the Edit menu, choose **Playlist/Cutlist**, and then choose **Pre-Roll Playback** from the submenu (or press /) when a playlist region is selected.

Set a playlist stop point

Perform either of the following actions to set the stop point for a playlist:

- Right-click a region in the Playlist window and choose **Stop Point** from the shortcut menu.
- Select a region in the Playlist window and press Ctrl+8.

A red indicator  is displayed in the left column in the Playlist window to identify the stop point.

When you **play** your playlist, it will continue to play through the regions until it encounters a stop point. This is useful when triggering playback from incoming MIDI or timecode and you only want certain sections of the playlist to be played at a time.

Trigger a playlist region using MIDI commands

1. In the Playlist window, select a method from the **Trigger** drop-down list to specify how the playlist region will be invoked.

- Specify trigger parameters in the **Channel**, **Note**, and **SMPTE time** boxes.



If the **Trigger from MIDI Timecode** command is selected, you can auto-complete the **Channel** and **Note** values by pressing a key on your MIDI Keyboard.

Item	Description
Channel	If the playlist region will be triggered by a MIDI note, this is the receive channel for that region.
Note	If the playlist region will be triggered by a MIDI note, this is the MIDI note number that will trigger this playlist region. This value can be entered as a MIDI note value (such as C4) or as a MIDI note number (such as 60).
SMPTE time	If the playlist region will be triggered from a SMPTE time cue, this is the point in SMPTE time that will trigger the region.

When a region has a trigger associated with it, a musical note is displayed next to the region's **Play** button: 



Trigger playback with MIDI timecode

You can use MIDI timecode to trigger Sound Forge Pro playback from another device.

- From the Options menu, choose **Preferences**, and click the **MIDI/Sync** tab.
- On the MIDI/Sync tab, choose the trigger device from the **Input** drop-down list and click the **OK** button.
- From the Options menu, choose **MIDI In/Out**, and then choose **Trigger from MIDI Timecode** from the submenu to enable MIDI input.
- From the View menu, choose **Toolbars**. Select the **Regions/Playlist** check box and click the **OK** button. The timecode is displayed in the **Regions/Playlist** toolbar when you start your MIDI device.
- Create a **region** that includes the sound data you want to trigger.
- Add the region to your **playlist/cutlist**.
- In the Playlist window, choose **SMPTE: Play at Time** from the **Trigger** drop-down list and enter the time at which you want to start playback in the **SMPTE time** box.

Adding, Arranging, Removing Playlist/Cutlist Regions

By **adding regions** to a playlist or cutlist, you can perform advanced arranging without altering your source file.

These regions will be played back when you click the **Play** button  in the Playlist/Cutlist window, skipped when you click the **Play as Cutlist** button  in a data window, or saved when you save the playlist/cutlist as a **new file**.

Adding a region

- Select a region in the Regions List. If the Regions List is not visible, choose **View > Metadata > Regions List**
- From the Edit menu, choose **Playlist/Cutlist**, and then choose **Add** from the submenu (or right-click the Playlist/Cutlist window and choose **Add** from the shortcut menu).



Shortcuts:

- Drag the region from the Regions List window to the Playlist/Cutlist window.
- Right-click a region in the Regions List window and choose **Add to Playlist** from the shortcut menu.
- To create a region and add it to a playlist/cutlist, select a range of data and drag it to the Playlist/Cutlist window.

A region is automatically created in the data window, and the new region is added to the playlist/cutlist.

Moving regions

To change the order of the regions in the Playlist/Cutlist window, drag a region to a new position.

Replicating a playlist/cutlist region

Replicating a playlist/cutlist region creates an exact copy of an existing region in the Playlist/Cutlist window. You can use the [Playlist window](#) to modify the properties of the replicated region.

1. Select a region in the Playlist/Cutlist window.
2. From the Edit menu, choose **Playlist/Cutlist**, and then choose **Replicate** from the submenu.

Deleting a region

1. Select a region in the Playlist/Cutlist window. If the window is not visible, choose **View > Metadata > Playlist**.
2. From the Edit menu, choose **Playlist/Cutlist**, and then choose **Delete** from the submenu (or press the Delete key).



Removing a region from the Playlist/Cutlist window will not remove regions from the Regions List window or waveform.

Clearing all playlist/cutlist regions

From the Edit menu, choose **Playlist/Cutlist**, and then choose **Clear** from the submenu to remove all regions from the Playlist/Cutlist window.



This command will not remove regions from the Regions List window or waveform.

Playing a Playlist/Cutlist

Playing your playlist or cutlist allows you to audition your arrangement of regions in the Playlist/Cutlist window.

Play a playlist

In the Playlist/Cutlist window, click the **Play**  button for the first region you want to hear.

Playback begins with the selected region and continues until Sound Forge Pro software encounters a stop point. If no stop point exists, playback will continue through the end of the playlist.



To change the number of times each region will be played or to set a stop point, type a new value in the **Cnt** box or use the **Play count** box in the [Playlist window](#).

Play a cutlist

1. From the Edit menu, choose **Playlist/Cutlist**, and then choose **Treat as Cutlist** from the submenu.




Right-click the Playlist/Cutlist window and choose **Treat as Cutlist** from the shortcut menu.

2. Click the **Play as Cutlist** button  in the data window's playbar.

Playback begins at the cursor position, skipping cutlist regions.



The **Play as Cutlist** button  is not displayed until you select the **Treat as Cutlist** command.

Pre-roll playlist entries

From the Edit menu, choose **Playlist/Cutlist**, and then choose **Pre-Roll Playback** (or right-click a region in the Playlist/Cutlist window and choose **Pre-roll Playback** from the shortcut menu) to begin playback starting with the end of the previous region

when starting the playlist sequence.

You can specify the pre-roll time on the [Playlist window](#) or on the [Previews](#) tab in the Preferences dialog.

💡 Press / (forward slash) when a playlist region is selected.

Example: two regions are defined in the Playlist/Cutlist window, and the pre-roll time is set to 0.5 seconds. When you start playback of the playlist from region 2, the last 0.5 seconds of region 1 will be played back before starting region 2. This allows you to hear the transition between the two regions.

Creating a New File from a Playlist/Cutlist

From the Edit menu, choose **Playlist/Cutlist**, and then choose **Convert to New** from the submenu to create a new sound file that contains the regions arranged as specified in the current playlist/cutlist. The new file will contain the exact sequence of regions you hear when [playing](#) from the Playlist/Cutlist window.

Convert to New processes audio only; any video stream in your file will be ignored.

💡 Right-click in the Playlist/Cutlist window and choose **Convert to New** from the shortcut menu.

Deleting Cutlist Regions

From the Edit menu, choose **Playlist/Cutlist**, and then choose **Delete Cut Regions** from the submenu to remove cutlist regions from a file. This command is not available unless **Treat as Cutlist** is selected.

💡 Right-click the Playlist/Cutlist window and choose **Delete Cut Regions** from the shortcut menu.

Saving a Regions/Playlist File

You can save a file's [regions list](#) and [playlist/cutlist](#) to an external file. This command offers the flexibility of using multiple playlists for the same sound file.

1. From the Edit menu, choose **Regions List** or **Playlist/Cutlist**, and then choose **Save As** from the submenu.

💡 Right-click the Regions List or Playlist/Cutlist window and choose **Save As** from the shortcut menu.

2. Use the Save Regions/Playlist As dialog to specify a folder and filename.
3. Specify the type of regions list you want to save from the **Save as type** drop-down list:
 - Choose **Playlist File (.sfl)** to save a Sound Forge Pro regions/playlist file.
 - Choose **Session 8 File (.prm)** to save a file that supports both Session 8 and Sound Forge Pro regions.
 - Choose **Windows Media Script File (.txt)** to save a file that includes Windows Media script [commands](#).
4. Choose **Text File (Tab delimited) (.txt)** to save markers and regions to a plain text file.
5. Click the **Save** button.

Copying the Playlist/Cutlist to the Clipboard

From the Edit menu, choose **Playlist/Cutlist**, and then choose **Copy onto Clipboard** to copy the text of the [playlist/cutlist](#) onto the clipboard for use with a text editor.

Editing a playlist/cutlist in a text editor allows you to make an annotated list that you can print for reference.

💡 Right-click the Playlist/Cutlist window and choose **Copy onto Clipboard** from the shortcut menu.

Applying Processes and Effects

Sound Forge Pro software includes many processes and effects that you can use to manipulate the audio in your media files.

The included audio plug-ins can improve the quality of your audio or create unique sounds. Sound Forge Pro software also supports additional DirectX and VST effects from MAGIX or other third parties.

There are several ways to apply a plug-in to an audio file:

- You can choose a plug-in from the Process, Effects, or FX Favorites menu.
- You can apply a plug-in from the Plug-In Manager using simple drag-and-drop operations.
- You can use the Plug-In Chain to create chains of plug-ins that you can apply simultaneously.



Use the VST Effects tab in the Preferences dialog to indicate where your VST plug-ins are installed and which plug-ins you want to make available to Sound Forge Pro software. For more information, see ["Preferences - VST Effects" on page 261](#)

The Process, Effects, and FX Favorites Menus

The Process, Effects, and FX Favorites menus allow you to apply audio plug-ins. Most of the functions can be applied to single channels within multichannel files as well as areas selected within the file.

The Process and Effects menus are reserved for the plug-ins that are included with Sound Forge Pro software. You can use the Plug-In Manager to organize your favorite effects and chains within the FX Favorites menu. For more information, see ["Using the Plug-In Manager" on page 170](#)



After installing new DirectX or VST effects, you can use either of the following methods to add them to the FX Favorites menu:

- From the FX Favorites menu, choose **Recreate by Plug-In Name** to clear the current FX Favorites structure and create new folders based on the first word in the plug-ins' names.
- From the FX Favorites menu, choose **Organize**. In the Organize Favorites dialog, drag your new plug-ins from the Plug-Ins folder to the desired folder in the FX Favorites portion of the tree view on the left side of the dialog.

Applying an effect

1. Select the data you want to process. If no data is selected, processing will be applied to the entire file. For more information, see ["Selecting Data and Positioning the Cursor" on page 117](#)

When using the Event tool , select the events you want to process.






When you're working with multichannel files, only the selected region in the selected channel is processed. Most functions can be applied to the individual or all channels. However, since the channels in a multichannel file must be equal in length, functions that affect the length of the data cannot be performed on individual channels. These functions include Insert Silence, Resample, Time Stretch, Gapper/Snipper, Pitch Bend, and Pitch Shift (without preserving duration).

If you want to apply one of these processes in a single channel, convert the file into separate mono files (you can select a channel and drag it to the Sound Forge Pro workspace to create a new file quickly), apply the process, and merge the files into a new multichannel file.

2. Choose a command from the Process, Effects, or FX Favorites menu.
3. Choose a preset from the **Preset** drop-down list or adjust the dialog controls as needed.

For more information, see ["Using Processing Dialogs" on page 182](#)

4. Click the **Preview** button to hear the effects of your processing settings. Select the **Bypass** check box to hear the unprocessed signal.

When using the Event tool , you can click the **Go to Previous Event**  or **Go to Next Event**  button at the bottom of the processing dialog to navigate events when multiple events are selected. For more information, see ["The Event Tool" on page 145](#)


5. To change the portion of the sound file that will be processed, change the selection:
6. Click and drag in the data window to create or change a selection. For more information, please see [Selecting Data Using the Mouse](#).
7. Click the **More** button in the processing dialog to display **Start**, **End**, **Length**, and **Channels** controls at the bottom of the processing dialog.
8. Click the **OK** button to start processing.

During processing, a progress meter is displayed at the bottom of the data window. You can cancel the operation at any time by clicking the **Cancel** button to the left of the progress meter, or you can press the Escape key.

Previewing a processing operation

Click the **Preview** button in a processing dialog to audition the function. Select the **Bypass** check box to hear the unprocessed sound.

Saving a preset

1. Type a name in the **Preset** box in the processing dialog.
2. Click the **Save Preset** button . The current dialog settings are saved in a new preset.

Changing the selection while previewing

To change the portion of the sound file that will be processed, change the selection:

- Click and drag in the data window to create or change a selection. For more information, see ["Selecting Data Using the Mouse" on page 117](#)
- Click the **More** button in the processing dialog to display **Start**, **End**, **Length**, and **Channels** controls at the bottom of the processing dialog.

For more information, see ["Using Processing Dialogs" on page 182](#)




You can also change the selection by right-clicking the processing dialog and choosing a command from the shortcut menu.


Adjusting previewing and processing settings

You can use the buttons and shortcut menus in processing dialogs to set parameters for previewing and processing with plugins.


For more information, see ["Using Processing Dialogs" on page 182](#)

Applying Processes and Effects to Events

When working with the Event tool , you can process multiple selected events at once, but Sound Forge Pro processes each event individually. The processed result is only the length and number of channels in the event at the time of processing, not the entire length and number of channels of the underlying media.

 Notes:

- You cannot use format-changing processes such as bit-depth conversion or resampling when working with the Event tool.—
- Effects are applied to events before any **event envelope**, and event fades are reapplied after processing.
- Processing multiple events creates a single operation in the **Undo/Redo History** window.

 For more information about applying processes and effects, click [here](#).

Using the Plug-In Manager

From the View menu, choose **Plug-In Manager** to open or close the Plug-In Manager.


The Plug-In Manager displays your plug-ins in an easy-to-use tree view much like the Windows Explorer. You can use the Plug-In Manager to do any of the following tasks:

- Apply effects to data windows using simple drag-and-drop operations.
- Add plug-ins to the **Plug-In Chain**.
- Create folders to organize your plug-ins.

 You can dock the Plug-In Manager within the Sound Forge Pro workspace so it's always visible.


Apply a plug-in or chain to a media file



1. **Select** the data you want to process. If no data is selected, processing will be applied to the entire file.

 When you're working with multichannel files, only the selected region in the selected channel is processed. Most functions can be applied to individual or all channels. However, since all channels in a multichannel file must be equal in length, functions that affect the length of the data cannot be performed on individual channels. These functions include Insert Silence, Resample, Time Stretch, Gapper/Snipper, Pitch Bend, and Pitch Shift (without preserving duration).


If you want to apply one of these processes in a single channel, convert the file into separate mono files (you can select a channel and drag it to the Sound Forge Pro workspace to create a new file quickly), apply the process, and merge the files into a new multichannel file.


2. Open a folder in the Plug-In Manager to find the plug-in or chain that you want to use.

 Effects **chains**—including packages created in Vegas or ACID—are displayed in the DirectX Chains folder in the Plug-In Manager.

3. Drag a plug-in or chain from the Plug-In Manager to a data window. The **Audio Plug-In Chain** is displayed.
4. Use the Audio Plug-In Chain to preview your effects and adjust settings as needed. You can select the **Bypass** button  to hear the original, unprocessed audio.
5. When you're satisfied with the chain, click the **Process Selection** button  in the Plug-In Chain to apply the effect.

Use the Plug-In Manager to organize plug-ins and build the FX Favorites menu

The Plug-In Manager includes a FX Favorites folder  that you can use to organize your audio plug-ins. Plug-ins from this folder will be available from the FX Favorites menu in the Sound Forge Pro menu bar.

1. Open a folder in the Plug-In Manager.
2. Select the plug-ins you want to add.
3. Click the **Create New Folder** button  if you want to create a subfolder under the FX Favorites folder. Subfolders will be displayed as submenus in the FX Favorites menu. For example, if you wanted to group all of your reverbs, you could copy them to a folder named Reverb under the FX Favorites folder. You could then choose a reverb by choosing **Reverb** from the FX Favorites menu and then choosing a plug-in from submenu.
4. Drag the selected plug-ins to the FX Favorites folder. The plug ins are copied to the DX Favorites folder and to the FX Favorites menu.



From the FX Favorites menu, choose **Recreate by Plug-In Names** to remove the current favorites structure and create new folders based on the first word in the plug-ins' names. For example, if you have Waves Renaissance Bass, Waves Renaissance DeEsser, and Waves Renaissance Vox installed, a Waves folder will be created in your FX Favorites. You can rename plug-ins to change the way the Plug-In Manager creates folders.

Rename a plug-in

You can use the Plug-In Manager to replace a plug-in's default name with a name that's more user-friendly or meaningful.

1. Right-click a plug-in and choose **Rename** from the shortcut menu. The plug-in name becomes editable.
2. Type a new name in the box and press Enter. The new name is used in the Plug-In Manager and FX Favorites menu.

Hide a plug-in

If you want to prevent a plug-in from appearing in Sound Forge Pro without uninstalling the plug-in, you can use the Plug-In Manager to hide it. For example, you might hide a codec that is incorrectly identified as a plug-in.

1. Right-click a plug-in and choose **Hide** from the shortcut menu. You will be prompted to confirm that you want to permanently hide the plug-in.
2. Click **Yes**.



To restore hidden plug-ins, you can force Sound Forge Pro to rescan your system for plug-ins by deleting the **HKEY_CURRENT_USER\Software\MAGIX\Sound Forge Pro\12.0\DXCache** key in the Windows Registry.

Using the Plug-In Chain

From the View menu, choose **Plug-In Chain** to open or close the Plug-In Chain for the current data window.



If you want to apply a single plug-in chain to a data window, use **FX Favorites > Apply Plug-In Chain**. For more information, see [Applying a Plug-In Chain](#).

The Plug-In Chain allows you to link up to 32 DirectX and VST plug-ins into a single processing chain. All of the plug-ins in the chain can be previewed simultaneously in real time (as long as your computer can process the preview information quickly enough).


The Plug-In Chain is modeless—you can navigate your data windows to change selections or apply effects to a different data window without closing the Plug-In Chain.—

Create a plug-in chain

1. **Select** the data you want to process.




If you've used previous versions of Sound Forge Pro software, you'll notice that you can now click away from the Plug-In Chain at any time to adjust your selection or even to apply an effects chain to a different data window.



2. From the View menu, choose **Plug-In Chain**.
3. Choose a preset from the **Chain** drop-down list to load an existing chain, or add the desired plug-ins to the chain.
4. Choose which of the chain's plug-ins you want to apply:
 - Select an effect's **Bypass** button  to prevent the audio signal from being sent through the plug-in. This is useful for isolating certain plug-ins without removing others from the chain.
 - Deselect the **Bypass** button for each plug-in you want to apply to your signal.
5. Adjust each plug-in's properties as desired.

Add, remove, or arrange plug-ins on a chain

Adding a plug-in from the Plug-In Chooser

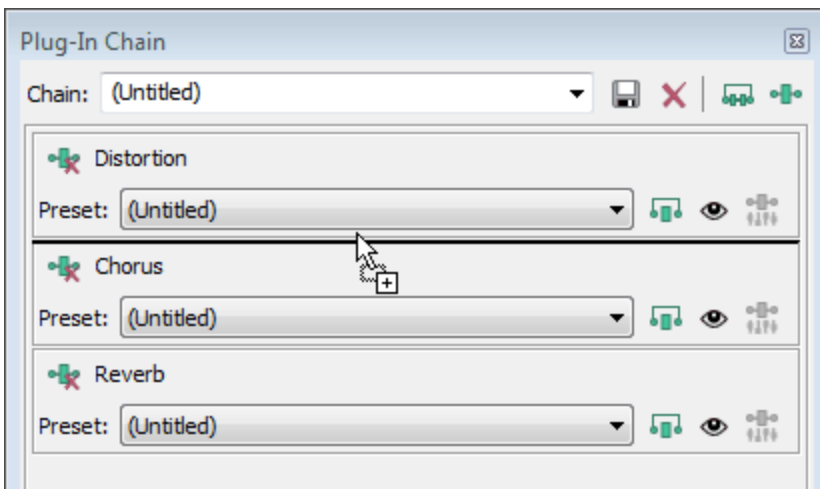
1. Click the **Add Plug-Ins to Chain** button  in the Plug-In Chain window. The Plug-In Chooser window appears.
2. Select each plug-in you want to add, and then click the **Add** button, or browse to an effects package. The plug-ins appear at the bottom of the window in the order you added them.

 Tips:

3. You can also double-click a plug-in in the Plug-In Chooser to add it to the chain.
4. To reorder the plug-ins within the chain, simply drag a plug-in button to a new location, or click the **Shift Plug-In Left**  or **Shift Plug-In Right**  buttons.
3. Once you have added all of the plug-ins and specified the plug-in chain order, click the **OK** button.

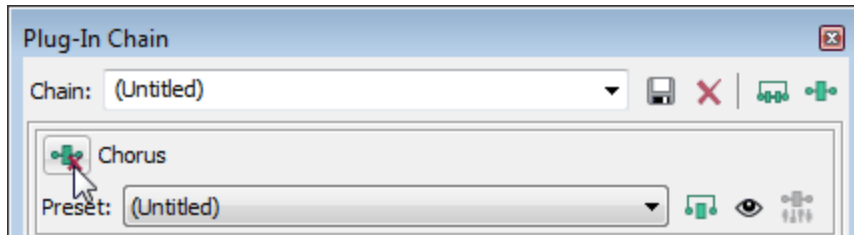
Adding a plug-in from the Plug-In Manager

You can add a plug-in to a chain quickly by dragging it from the [Plug-In Manager](#) to the Plug-In Chain window. Drop the plug-in at the position where you want to add it to the chain:




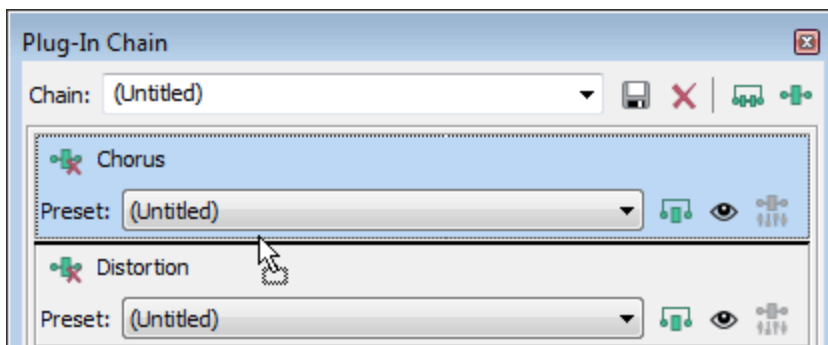
Removing a plug-in


Click the **Remove Plug-In** button .




Editing a plug-in chain

1. From the View menu, choose **Plug-In Chain**.
2. Choose a preset from the **Chain** drop-down list.
3. To bypass a plug-in without removing it from the chain, select the effect's **Bypass** button .
4. To reorder the plug-ins within the chain, simply drag a plug-in button to a new location.



5. Click the **Show Plug-In Window** button  to display the effect's parameters in a separate window. For more information about using specific plug-ins, click the **Plug-In Help ?** button.

Set a plug-in's properties

Click the **Show Plug-In Window** button  to display the effect's parameters in a separate window. For more information about using specific plug-ins, click the **Plug-In Help ?** button.

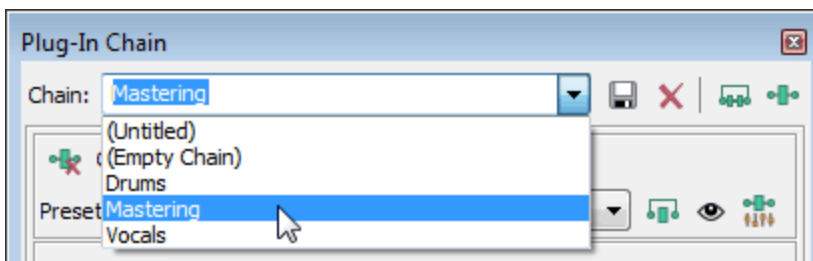


You can have multiple plug-in windows open in the Sound Forge Pro workspace. To quickly close all open plug-in windows, right-click a plug-in in the Plug-In Chain window and choose **Close All Plug-In Windows** from the shortcut menu.

Load an effects chain or plug-in preset

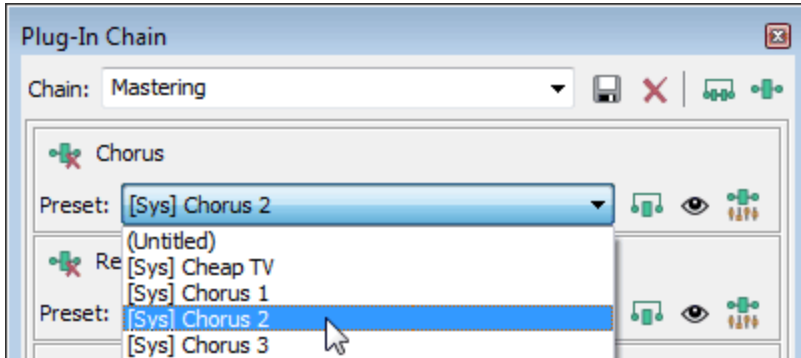
Loading a plug-in chain preset

Choose a setting from the **Chain** drop-down list. The preset chain is loaded using the saved settings for each DirectX and VST plug-in in the chain.





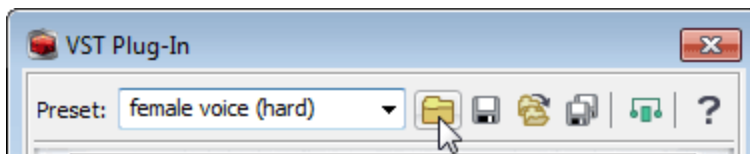
Loading a preset for an individual DirectX plug-in

Choose a setting from the **Preset** drop-down list. The plug-in settings stored in the preset are loaded.



Loading a preset for an individual VST plug-in

1. Click the **Show Plug-In Window** button  to display the effect's parameters in a separate window.
2. Click the **Open VST Preset** button .





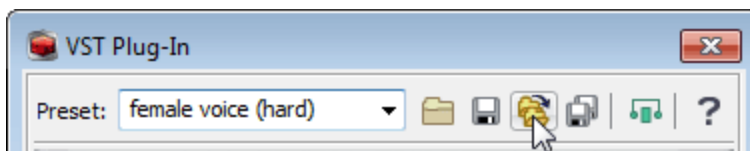
The Open VST Preset dialog is displayed.

3. Browse to the .fxp file that you want to use.
4. Click the **Open** button.

The current VST preset is replaced with the settings stored in the .fxp file.

Loading a bank of VST plug-in presets

1. Click the **Show Plug-In Window** button  to display the effect's parameters in a separate window.
2. Click the **Open VST Bank** button .




The Open VST Preset Bank dialog is displayed.


3. Browse to the .fxb file that you want to use.
4. Click the **Open** button.

All presets for the current VST plug-in are replaced with the settings stored in the .fxb file, and the first preset in the bank is loaded by default.



Preview the effects chain

Effects from the Plug-In Chain are previewed in real time when you play back a file.

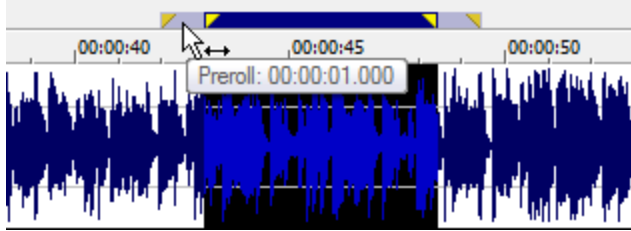
To hear the results of your effects chain without applying it to the sound file, click the **Play Normal** button  in the data window's playbar.

You can select the **Bypass** button  in the Plug-In Chain to bypass all effects in the chain, or select the **Bypass** button for an effect to bypass individual effects.

Preview with pre- or post-roll

If you want to listen to the unprocessed audio before or after the current selection, click the **Pre-Roll**  and **Post-Roll**  buttons in the Plug-In Chain and create a time selection.

Pre- and post-roll allow you to hear the transition from unprocessed to processed data. When the **Pre-Roll** and **Post-Roll** buttons are selected, the pre/post roll regions are displayed next to the loop region in the data window:



 If no time selection exists, playback begins at the current cursor position and does not include the pre- and post-roll regions. Right-click the loop bar and choose **Select Loop Region** from the shortcut menu to create a time selection.


You can use the **Previews** tab in the Preferences dialog to specify how many seconds of unprocessed audio will be played before the processed selection.

Apply the effects chain

Effects from the Plug-In Chain are applied when you **save** the file.

Save the plug-in chain as a preset

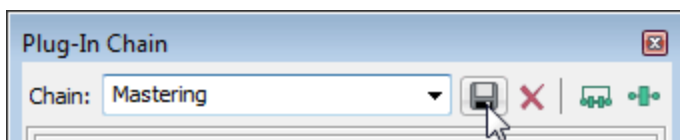
When you save a plug-in chain, the order of the effects in the chain and the settings for each plug-in are saved with the chain.

 Effect automation envelope points are not saved with presets. If you are using effect automation envelopes and save a preset during playback, the effect's settings at the playback cursor position are saved.


1. Add plug-ins to the chain.
2. Adjust each plug-in's properties.
3. Type a name in the **Chain** box.

 You cannot modify default presets.



4. Click the **Save Chain Preset** button .

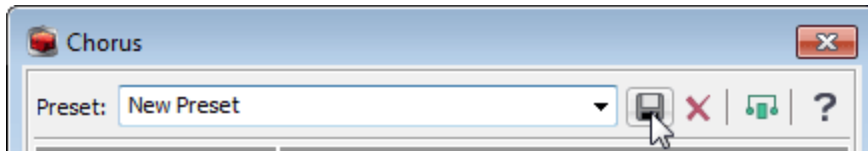


Save the settings from an individual plug-in as a preset



 Effect automation envelope points are not saved with presets. If you are using effect automation envelopes and save a preset during playback, the effect's settings at the playback cursor position are saved.

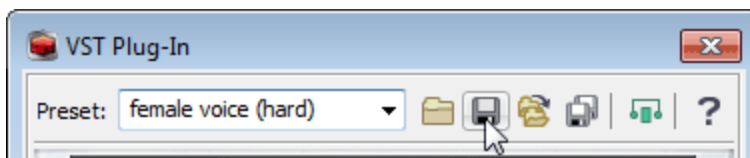
Saving a preset for an individual DirectX plug-in

1. Click the **Show Plug-In Window** button  to display the effect's parameters in a separate window.
2. Type a name in the **Preset** box.
3. Click the **Save Preset** button :



Saving a preset for an individual VST plug-in



1. Click the **Show Plug-In Window** button  to display the effect's parameters in a separate window.
2. Click the **Save VST Preset As** button .

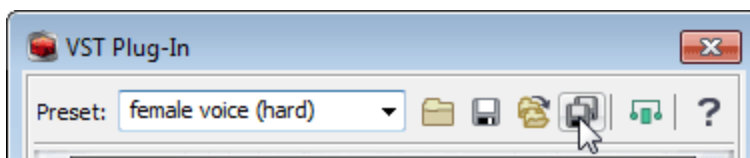


The Save VST Preset dialog is displayed.

3. Browse to the folder where you want to save the .fxp file and type a name in the **File name** box.
4. Click the **Save** button. The current plug-in settings are saved in the .fxp file.

Saving a bank of VST plug-in presets

1. Click the **Show Plug-In Window** button  to display the effect's parameters in a separate window.
2. Click the **Save VST Bank As** button .



The Save VST Preset Bank dialog is displayed.

3. Browse to the folder where you want to save the .fxb file and type a name in the **File name** box.
4. Click the **Save** button. All presets for the current plug-in are stored in the bank.

Plug-In Chain shortcuts

If you want to make your editing *really* fast, the Plug-In Chain can be controlled using [keyboard shortcuts](#).


Applying a Plug-In Chain

From the FX Favorites menu, choose **Apply Plug-In Chain** to apply a plug-in chain to a selection or data window.




If you want to work with each data window's active plug-in chain or use effect automation, choose **View > Plug-In Chain**. For more information, see

Creating a plug-in chain

1. Select the data you want to process. For more information, see ["Selecting Data and Positioning the Cursor" on page 117](#)
2. From the FX Favorites menu, choose **Apply Plug-In Chain**.
3. Choose a preset from the **Chain** drop-down list to load an existing chain, or add the desired plug-ins to the chain.
4. Choose which of the chain's plug-ins you want to apply:
 - Clear an effect's check box  to prevent the audio signal from being sent through the plug-in. This is useful for isolating certain plug-ins without removing others from the chain
 - Select the check box for each plug-in you want to apply to your signal.
5. If you want to choose a processing mode to determine how Sound Forge Pro software handles the extra audio tail of plug-ins such as reverb or delay, right-click the processing dialog and choose a command from the shortcut menu:
 - Choose **Ignore Tail Data** to ignore the tail. The effect will end abruptly at the end of the selection.
 - Choose **Mix Tail Data** to mix the tail into the adjacent material. This is the most natural-sounding option.
 - Choose **Insert Tail Data** to insert the audio tail. All audio to the right of the tail will be moved over to accommodate the extra audio.
6. Adjust each plug-in's properties as desired.

Adding, removing, or arranging plug-ins on a chain

Adding a plug-in from the Plug-In Chooser

1. Click the **Add Plug-Ins to Chain** button  in the Apply Plug-In Chain window. The Plug-In Chooser window appears.
2. Select each plug-in you want to add, and then click the **Add** button, or browse to an effects package. The plug-ins appear in the Apply Plug-In Chain window in the order you added them.



Tips:

You can also double-click a plug-in in the Plug-In Chooser to add it to the chain.


To reorder the plug-ins within the chain, simply drag a plug-in button to a new location, or click the **Shift Plug-In Left**  or **Shift Plug-In Right**  buttons.

3. Once you have added all of the plug-ins and specified the plug-in chain order, click the **OK** button.

Removing a plug-in

Select a plug-in in the Apply Plug-In Chain window and click the **Remove Selected Plug-In** button .

Editing a plug-in chain

1. From the FX Favorites menu, choose **Apply Plug-In Chain**.
2. Choose a preset from the **Chain** drop-down list.
3. To bypass a plug-in without removing it from the chain, clear an effect's check box  **Reverb**.
4. To reorder the plug-ins within the chain, simply drag a plug-in button to a new location.
5. Click the plug-in's button to select it, and use the bottom half of the dialog box to adjust the effect's parameters. For more information about using specific plug-ins, click the **Plug-In Help ?** button.

To apply the effects chain to a data window, click the **OK** button in the Apply Plug-In Chain window.

When you save a plug-in chain, the order of the effects in the chain and the settings for each plug-in are saved with the chain.

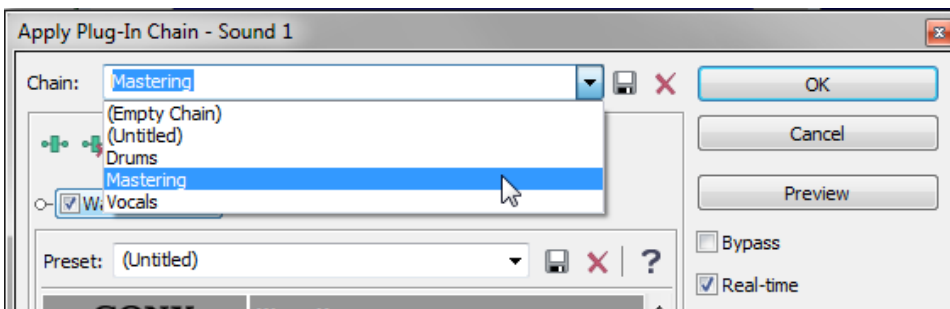
Set a plug-in's properties

Click the plug-in's button to select it, and use the bottom half of the dialog box to adjust the effect's parameters. For more information about using specific plug-ins, click the **Plug-In Help ?** button.

Load an effects chain or plug-in preset

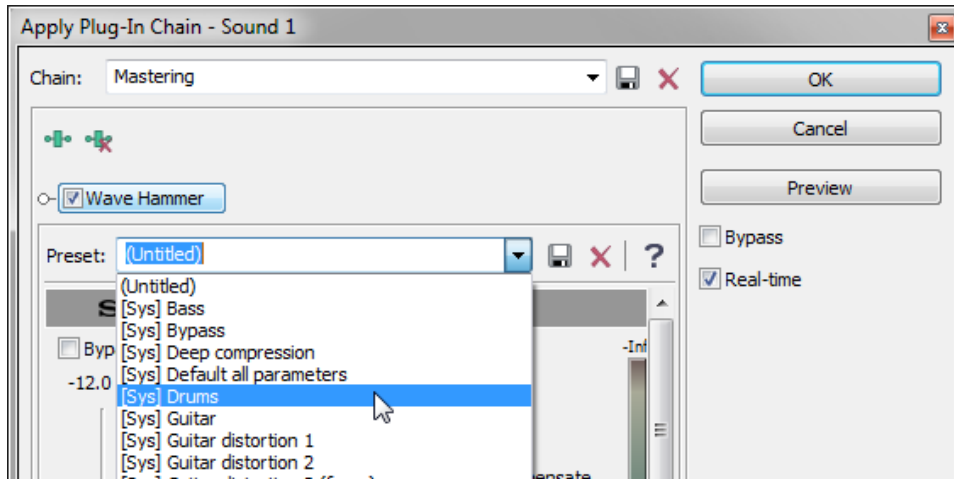
Loading a plug-in chain preset

Choose a setting from the **Chain** drop-down list. The preset chain is loaded using the saved settings for each DirectX and VST plug-in in the chain.




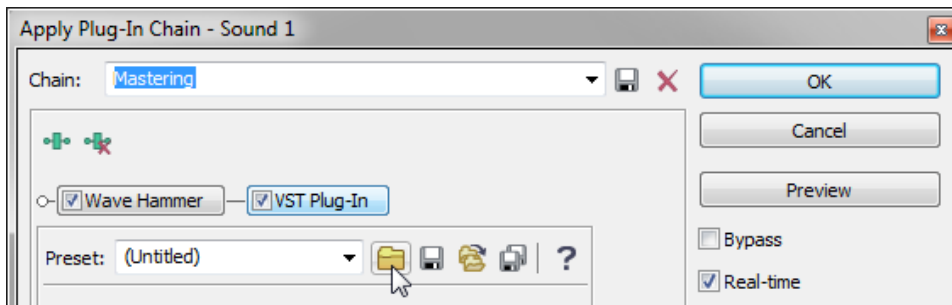
Loading a preset for an individual DirectX plug-in

Choose a setting from the **Preset** drop-down list. The plug-in settings stored in the preset are loaded.



Loading a preset for an individual VST plug-in

1. Click the VST effect's button to display the effect's parameters in the Apply Plug-In Chain window.
2. Click the **Open VST Preset** button .




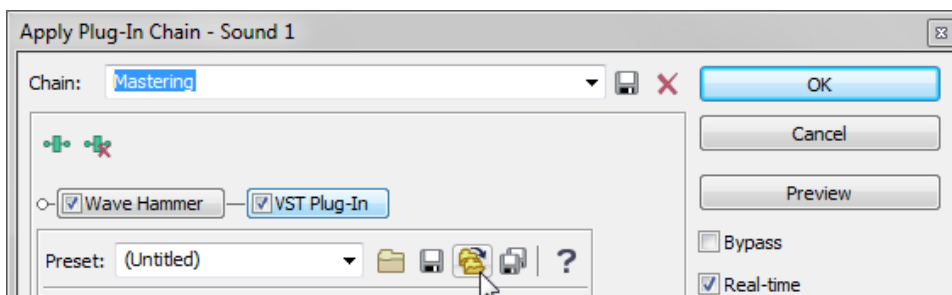
The Open VST Preset dialog is displayed.

3. Browse to the .fxp file that you want to use.
4. Click the **Open** button.

The current VST preset is replaced with the settings stored in the .fxp file.

Loading a bank of VST plug-in presets

1. Click the VST effect's button to display the effect's parameters in the Apply Plug-In Chain window.
2. Click the **Open VST Bank** button .




The Open VST Preset Bank dialog is displayed.

3. Browse to the .fxb file that you want to use.
4. Click the **Open** button.

All presets for the current VST plug-in are replaced with the settings stored in the .fxb file, and the first preset in the bank is loaded by default

Preview the effects chain

To hear the results of your effects chain without applying it to the sound file, click the **Preview** button in the Apply Plug-In Chain window.

You can select the Bypass check box to bypass all effects in the chain, or clear an effect's check box  to bypass individual effects.

You can use the buttons and shortcut menus in processing dialogs to set parameters for previewing and processing with plug-ins. Click the **More** button to display controls you can use to adjust the selection, wet and dry gain, and fade in/out settings.



For more information, see ["Using Processing Dialogs" on page 182](#)

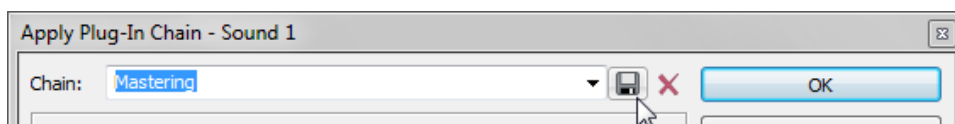
Apply the effects chain

To apply the effects chain to a data window, click the **OK** button in the Apply Plug-In Chain window.

Save the plug-in chain as a preset


When you save a plug-in chain, the order of the effects in the chain and the settings for each plug-in are saved with the chain.

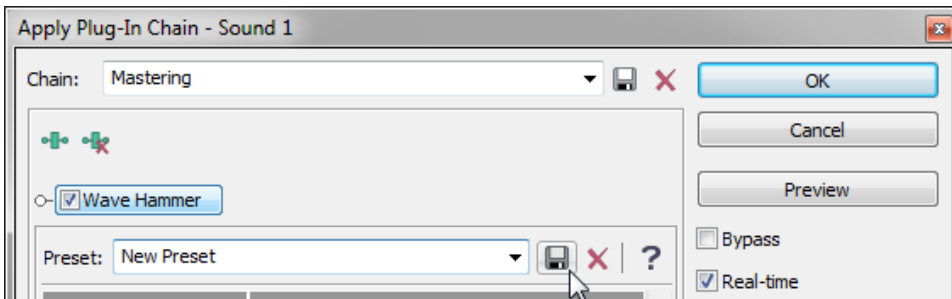
1. Add plug-ins to the chain.
2. Adjust each plug-in's properties.
3. Type a name in the **Chain** box.
 You cannot modify default presets.
4. Click the **Save Chain Preset** button .




Save the settings from an individual plug-in as a preset

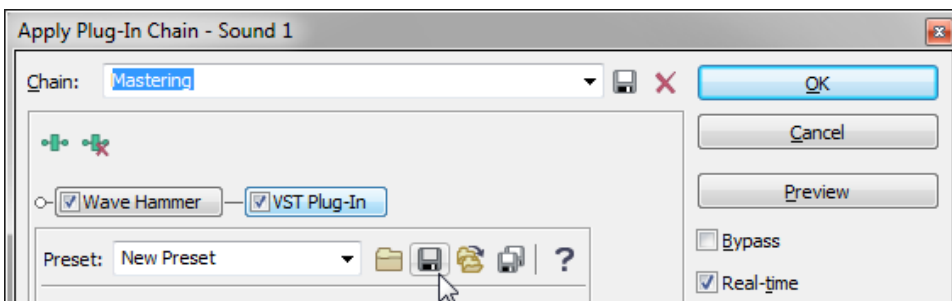
Saving a preset for an individual DirectX plug-in

1. Click the effect's button to display the effect's parameters in the Apply Plug-In Chain window.
2. Type a name in the **Preset** box.
3. Click the **Save Preset** button :



Saving a preset for an individual VST plug-in


1. Click the VST effect's button to display the effect's parameters in the Apply Plug-In Chain window.
2. Click the **Save VST Preset As** button .

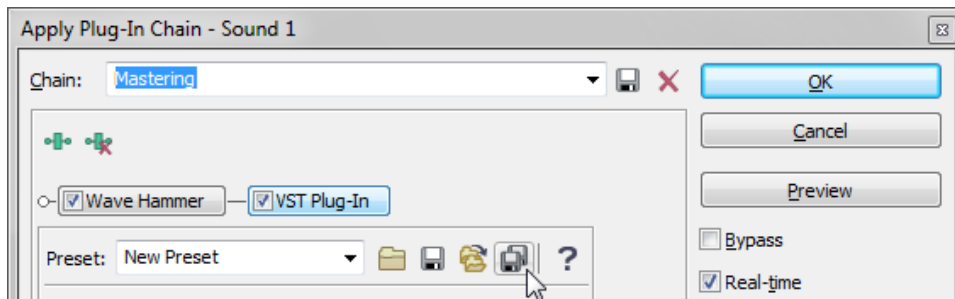


The Save VST Preset dialog is displayed.

3. Browse to the folder where you want to save the .fxp file and type a name in the **File name** box.
4. Click the **Save** button. The current plug-in settings are saved in the .fxp file.

Saving a bank of VST plug-in presets

1. Click the VST effect's button to display the effect's parameters in the Apply Plug-In Chain window.
2. Click the **Save VST Bank As** button .



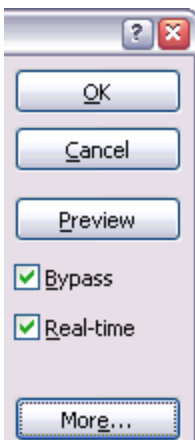
The Save VST Preset Bank dialog is displayed.

3. Browse to the folder where you want to save the .fxb file and type a name in the **File name** box.
4. Click the **Save** button. All presets for the current plug-in are stored in the bank.

Using Processing Dialogs

In previous versions of Sound Forge Pro, processing dialogs were modal: after opening a processing dialog, you couldn't adjust the selection in the data window. You can move freely between processing dialogs and data windows to adjust your selection, fade-in and -out, and gain levels.

All processing dialogs share common controls along the right-hand side of the dialog. Use these controls to save and delete custom presets, preview your changes, and modify the selection.



Item	Description
OK	Closes the dialog and processes the dialog settings.
Cancel	Closes the dialog without making changes.
Preview	Click to begin previewing the processed sound file.
Bypass	Select this check box and click Preview to hear the unprocessed audio. This is a useful feature when comparing the affected and unprocessed signal.
Real-time	When this check box is selected, Sound Forge Pro will try to preview the plug-in in real time. If your computer can not keep up, clear the check box. When the check box is cleared, the maximum preview length is determined by the Limit non-realtime previews to setting on the Previews tab of the Preferences dialog.

More Click to display additional controls at the bottom of the dialog that you can use to change the selection you want to process or adjust dry and wet gain and fades.

Preview audio

Click the **Preview** button to hear the effect of the current dialog settings on the selected audio.

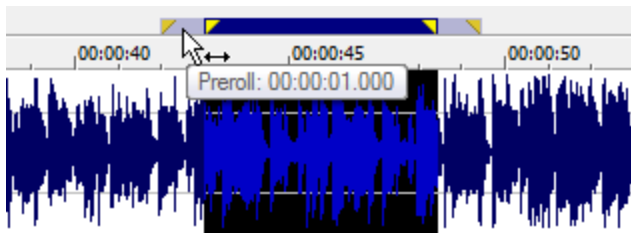
During playback, you can select the **Bypass** check box to hear the unprocessed audio. This is a useful feature when comparing the affected and unprocessed signal.

Preview with pre- or post-roll

If you want to listen to the unprocessed audio before or after the current selection, right-click the processing dialog and choose **Pre-Roll** or **Post-Roll** from the shortcut menu. A check box is displayed next to the commands when they're selected.

Pre- and post-roll allow you to hear the transition from unprocessed to processed data.

When the **Pre-Roll** and **Post-Roll** buttons are selected, the pre/post roll regions are displayed next to the loop region in the data window:




You can use the **Previews** tab in the Preferences dialog to specify how many seconds of unprocessed audio will be played before and after the processed selection.

Choose a processing mode for tail data

If you want to specify how Sound Forge Pro handles the extra audio tail of plug-ins such as reverb or delay, right-click the processing dialog and choose a command from the shortcut menu:

- Choose **Ignore Tail Data** to ignore the tail. The effect will end abruptly at the end of the selection.
- Choose **Mix Tail Data** to mix the tail into the adjacent material. This is the most natural-sounding option.
- Choose **Insert Tail Data** to insert the audio tail. All audio to the right of the tail will be moved over to accommodate the extra audio.


Create a preset

1. Choose a command from the Process, Effects, or FX Favorites menu.
2. Adjust the dialog controls to create the desired effect.
3. Type a name in the **Preset** box.
4. Click the **Save Preset** button .





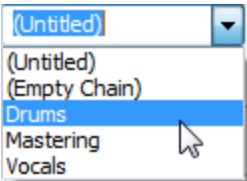



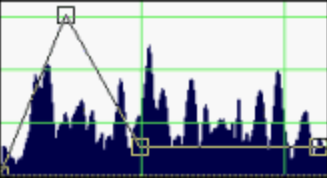

Delete a preset

1. Choose a command from the Process, Effects, or FX Favorites menu.
2. Choose a preset from the **Preset** drop-down list.

3. Click the **Delete Preset** button .

 The **Delete Preset** button is available only for custom presets.

Use Sound Forge Pro controls

Control	Description
	<p>Slider/Fader Drag the handle to change the setting.</p> <p> Tips:</p> <ul style="list-style-type: none"> • Hold the left and right mouse buttons (or hold the Control key) to fine-tune a control's value. • You can use the Up, Down, Left and Right arrow keys to change the value in small increments or the Page Up and Page Down keys to change the value in larger increments. The Home and End keys change the parameter value to its maximum or minimum. • Double-click a handle to return to the default value (usually 0%, 50%, or 100%). Left-clicking on the hash marks in a fader also changes the value by very small increments.
	<p>Spin Control Use the up/down buttons or type a value in the edit box to change the setting.</p> <p> Tips:</p> <ul style="list-style-type: none"> • Click the button between the up/down buttons and drag the mouse to change the setting in large increments. • Hold down both mouse buttons (or hold down the Control key) to fine-tune a control's value. • You can use the Up/Down arrow and Page Up/Page Down keys to alter the value.
	<p>Drop-Down List Click the drop-down list and choose an item. If you have to scroll through a large list, click the scroll buttons or use the arrow keys.</p> <p> If you scroll down the drop-down list for a preset, you can see all of the parameters change for each preset. This is useful for getting a feel for which parameters are used to create different effects.</p>
	<p>Button Click a button or press the spacebar while it is selected.</p>
	<p>Radio Button Radio buttons always come in groups of two or more where you can select only one option. When you select a radio button, the previously selected button is turned off.</p>
	<p>Check Box Click a check box to select it. You can click a selected check box to clear it.</p>
	<p>Envelope Graph An envelope allows you to change a sound over time.</p>  <ul style="list-style-type: none"> • Drag the small boxes (envelope points) up or down. • To create a new envelope point, click the envelope. • To delete an envelope point, click it with the right mouse button, or double-click it with the left mouse button. • To move all envelope points, press Ctrl+A and drag when the envelope has focus (the cursor will be displayed as a .



You can create up to 16 envelope points. Click the **Reset Envelope** button to reset the graph.


Change the data window selection

You can adjust the selection to be processed by changing the selection in the data window or using the controls at the bottom of the processing dialog.



Right-click the processing dialog and choose a command from the shortcut menu to change the selection quickly. Choose **Select Original** to restore the selection that existed when you first opened the processing dialog. Choose **Select All** to select all data in the current window.

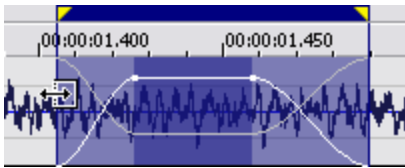
1. Click the **More** button in the processing dialog. Selection and gain controls are displayed at the bottom of the dialog.
2. Type a value in the **Start** box (or use the spinner) if you want to change the beginning of the selection.

Click the **Lock Start** button  if you want to preserve the selection start when adjusting the **Length** or **End** settings.



When using the **Event tool** , the **Start** box is automatically locked.

Changing this setting has the same effect as dragging the beginning of the selection in the data window:

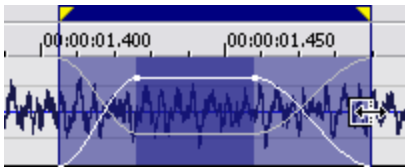


3. Type a value in the **End** box (or use the spinner) if you want to change the end of the selection.




When using the **Event tool** , the **End** box is not available.

Changing this setting has the same effect as dragging the end of the selection in the data window:




4. Type a value in the **Length** box (or use the spinner) if you want to specify the length of the selection. The beginning of the selection remains fixed.

Click the **Lock Selection Length** button  if you want to preserve the selection length when adjusting the **Start** or **End** settings.



When using the **Event tool** , the **Length** box is automatically locked.

5. Type a value in the **Channels** box to change the current channel selection. You can separate individual channels with commas or use hyphens to indicate channel ranges.



Click the **Lock Channels** button  if you want to lock the channel selection.

For example, type 1, 3, 6-8 to select channels 1, 3, 6, 7, and 8.

Changing this setting has the same effect as holding Ctrl while clicking channels in the data window.



When using the **Event tool** , the **Channels** box is automatically locked.

6. When using the **Event tool** , you can click the **Go to Previous Event**  or **Go to Next Event**  button at the bottom of the processing dialog to navigate events when multiple events are selected.

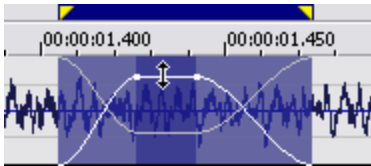
Change the wet/dry mix and fade in/out

You can adjust the wet/dry mix and fade in/out by changing the envelopes in the data window or using the controls at the bottom of the processing dialog.

If you want to change the default fade values, you can use the [Editing](#) tab in the Preferences dialog.

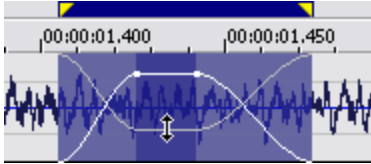
1. Click the **More** button in the processing dialog. Selection and gain controls are displayed at the bottom of the dialog.
2. Type a value in the **Wet Gain** box (or use the spinner) to set the level of the processed signal that will be mixed into the output.

Changing this setting has the same effect as dragging the sustain portion of the wet gain envelope in the data window:



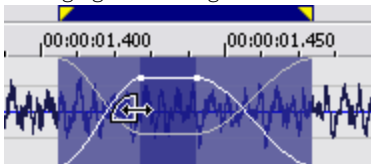
3. Type a value in the **Dry Gain** box (or use the spinner) to set the level of the unprocessed signal that will be mixed into the output.


Changing this setting has the same effect as dragging the sustain portion of the dry gain envelope in the data window:



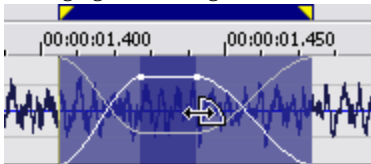
4. Type a value in the **Fade In** box (or use the spinner) to set the length of the fade in between the unprocessed and processed signal.

Changing this setting has the same effect as dragging the attack portion of the envelope in the data window:



5. Click the **Fade Curves** button  and choose a curve type from the menu to set the speed of the fade in.
6. Type a value in the **Fade Out** box (or use the spinner) to set the length of the fade out between the processed and unprocessed signal.

Changing this setting has the same effect as dragging the release portion of the envelope in the data window:




7. Click the **Fade Curves** button  and choose a curve type from the menu to set the speed of the fade out.

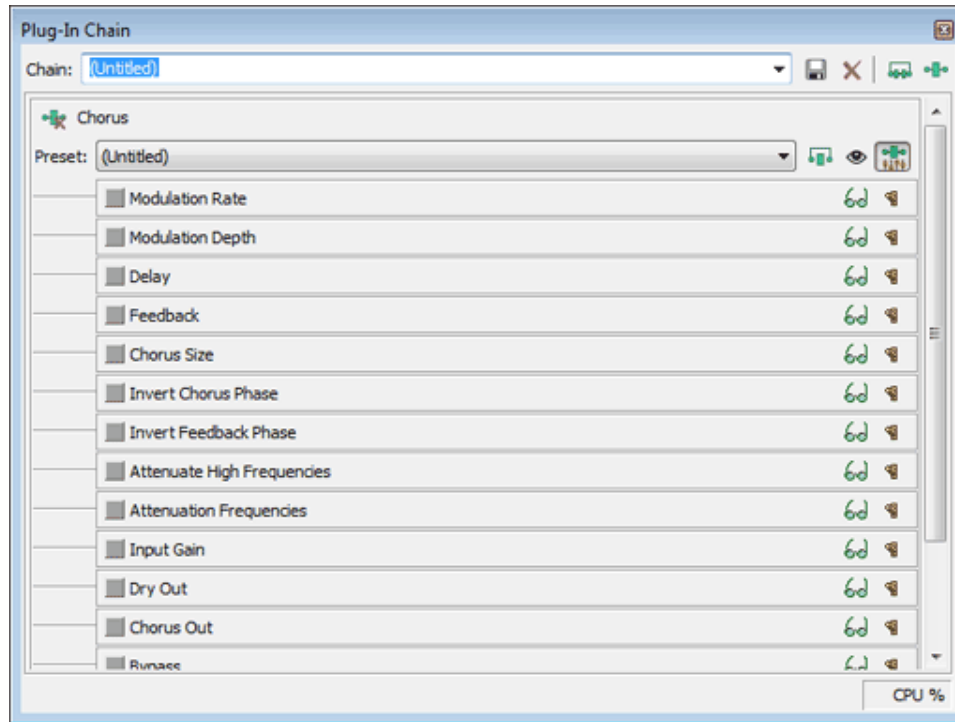


Tips:


- To reset the fade in and out to the default values, right-click the processing dialog and choose **Reset Fade Values** from the shortcut menu.
- To save default fade in and out values, adjust the **Fade In** and **Fade Out** controls, and then right-click the processing dialog and choose **Save Fade Values** from the shortcut menu.

Automating Effect Parameters


When you add an effect that supports automation to the Plug-In Chainer, you can click the Show Parameters button  to display the effect's automatable parameters. You can use these controls to add, show/hide, and enable/bypass automation envelopes.



Plug-in parameters can be edited using the plug-in's controls or the automation envelope in the data window.

 Choosing a new effect chain preset will clear the current effect automation settings.

Adding a volume or panning envelope

 Panning envelopes will have no effect on mono source data. Convert mono sound data to stereo before adding a panning envelope. For more information, see "[Channel Converter](#)" on page 194

1. Click within a data window to give it focus.
2. From the Insert menu, choose **Volume Envelope** or **Pan Envelope** (you can also press V to add a volume envelope, or press P to add a panning envelope).

An envelope is added to the data window, and the Sound Forge Pro Volume or Sound Forge Pro Pan plug-in is added to the Audio Plug-In Chainer. If the Plug-In Chainer is not visible, it will be opened automatically.

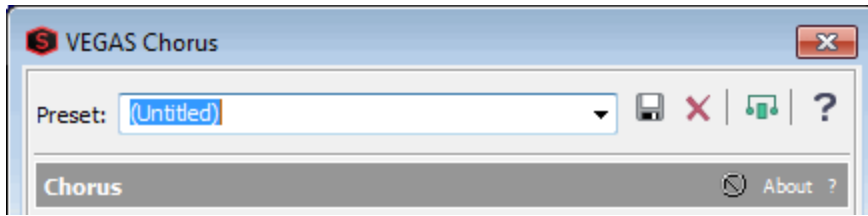
 If a data window already has a volume or panning envelope, pressing V or P will hide the envelope.

3. Adjust volume or panning with the envelope in the data window.

Adjusting effect parameters with plug-in controls

1. Click to position the cursor in the data window and use the controls in the Plug-In Chainer to adjust effect parameters at the cursor position. The envelope is updated as you adjust the plug-in's controls.

- If you've enabled the **Bypass** parameter for a plug-in, you can click the **Bypass** button in the plug-in's banner to toggle the Bypass envelope at the cursor position.



- You can also adjust the envelope to adjust parameters. For more information, see ["The Envelope Tool" on the facing page](#)



When you automate an effect's frequency parameter such as the modulation frequency parameter in the amplitude modulation effect you may notice that the frequency changes are more apparent when moving through the lower frequencies. This is because frequency scales plug-ins use a logarithmic scale, but effect automation uses linear interpolation.

To make the automated frequency changes sound more natural, change the fade curve types to change the interpolation rates between envelope points. For high-to-low frequency sweeps, use a fast fade curve; for low-to-high frequency sweeps, use a slow curve. For more information, see ["The Envelope Tool" on the facing page](#)

Adjusting effect parameters with envelopes

An envelope is displayed in the data window for each effect parameter that you've chosen to automate. Envelope points represent plug-in parameter settings at a specific point in time.

You can add points, adjust their positions, and change the fade curves between points to modify effect parameters and the transitions between them. For more information, see ["The Envelope Tool" on the facing page](#)





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Previewing effect automation

Effects from the Plug-In Chain are previewed in real time when you play back a file.



To hear the results of your effects chain without applying it to the sound file, click the **Play Normal** button  in the data window's playbar.

You can select the **Bypass** button  in the Plug-In Chain to bypass all effects in the chain, or select the **Bypass** button for an effect to bypass individual effects.



Applying effect automation

Effects from the Plug-In Chain are applied when you save the file.

Showing or hiding effect automation envelopes

- In the Plug-In Chainer, click the **Show Parameters**  button to display the effect's automatable parameters.
- Select the **Show Envelope** button  to display a parameter's envelope, or deselect the button to hide the envelope. Hiding an envelope simply removes the line from the data window while it retains the playback properties.


Enabling or bypassing effect automation envelopes


1. In the Plug-In Chainer, click the **Show Parameters**  button to display the effect's automatable parameters.
2. Select the **Enable Envelopes** button  to apply an automation envelope to your audio signal, or deselect the button to ignore the envelope.

When the button is not selected, an effect automation envelope is ignored and the effect's initial state is used for the duration of the data window.

Bypassed envelopes are drawn with a dashed line in the data window.

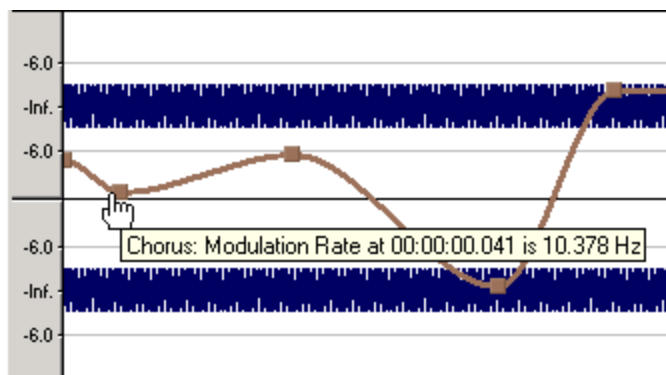
The Envelope Tool

When the Envelope  tool is selected, you can add, remove, select or adjust envelope points on [effect automation envelopes](#).

The Edit tool  allows you to add, remove, or adjust envelope points, but you cannot select envelope points with the Edit tool.


Adjusting an envelope

By default, A new envelope will contain a single envelope point. If you want to adjust the overall level of an envelope, drag the envelope up or down. A floating ToolTip will show you the envelope's current setting:



If an envelope has multiple points, you can drag each point, or you can drag envelope segments up or down.

Tips:

- Hold Ctrl while dragging an envelope point or segment to adjust the value in fine increments without changing the envelope points' horizontal positions.
- Hold Ctrl+Alt while dragging an envelope point or segment to adjust the value in normal increments without changing the envelope points' horizontal positions.
- Hold Alt while dragging an envelope point to move the point's horizontal position without changing its value.
- With the Envelope tool , you can drag horizontally to select multiple envelope points in the selected data window.

Adding envelope points

To create more complex envelopes, you will need to add points. To add an envelope point, double-click the envelope. You can then drag and position the point as necessary.

To delete a point, right-click it and choose **Delete** from the shortcut menu.


Flipping an envelope

You can flip an envelope to invert the envelope around its center. Volume, panning, and effect automation envelopes can be flipped.

Flipping all points



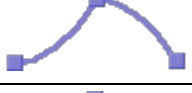



1. Right-click an envelope or a point. A shortcut menu is displayed.
2. Choose **Flip All Points** from the shortcut menu.

Flipping selected points


1. Create a time selection with the Envelope tool  to select the points you want to flip.
2. Right-click an envelope in the time selection. A shortcut menu is displayed.
3. Choose **Flip Selected Points** from the shortcut menu.

Setting fade properties

You can adjust the fade curve for each envelope segment individually. To change the fade curve, right-click an envelope segment and choose a command from the shortcut menu.




Fade Type	Fade In/Out Envelope
Linear Fade	
Fast Fade	
Slow Fade	
Smooth Fade	
Sharp Fade	
Hold	

Cutting, copying, and pasting envelope points

1. Select the Envelope tool .
2. Click within a data window to select it.
3. Drag horizontally in a data window to select envelope points.
4. From the Edit menu, choose **Cut** or **Copy**.
5. Click to position the cursor where you want to paste envelope points.
 - 💡 Click within a different data window if you want to paste envelope points across data windows.

- From the Edit menu, choose **Paste**.

Copying an envelope to another data window

- Select the Envelope tool .
- Click within a data window to select it.
- From the Edit menu, choose **Select All**.
- From the Edit menu, choose **Copy**.
- Click within a data window to select it.
 -  You can paste envelope points to a different envelope type by selecting the envelope where you want to paste.
- Click **Go to Start**  if you want the envelope to appear exactly as it was in the original data window, or click to position the cursor where you want the envelope to start.
- From the Edit menu, choose **Paste**.

Processes

Automatically Trimming/Cropping a File

From the Process menu, choose **Auto Trim/Crop** to automatically remove unnecessary silence in a sound file and automatically fade the end-points phrases in and out.

Item	Description
Preset	Choose a preset from the drop-down list, or click the Save As button to create a new preset.
Function	Choose a mode from the drop-down list: <ul style="list-style-type: none"> • Keep edges outside of the selection: Silence between the selection points and the sound material is deleted. Use this to remove silence from the edges of a selection. Data outside of the selection is not deleted. • Remove edges outside of the selection: Silence between the selection points and the sound material is deleted. Anything outside of the selection is also deleted. Use this to trim a sound from a larger file. • Remove silence between phrases (creates regions): All silence between phrases inside of the selection is deleted. Regions are created between phrases. Use this to delete the silence between sound effects and automatically create regions in the Regions List. For more information, see "Regions List" on page 40 • Remove data beyond loop points: All data after the selected loop is deleted. Since most samplers never play audio beyond a loop, data beyond the loop is unnecessary. • Remove data from start and limit file length: Allows you to specify an amount of sound that should be deleted from the beginning of each file and specify a maximum length for converted files. If a file is longer than this length, it will be trimmed. This setting is useful for creating sample clips.
Attack threshold	Drag the fader to set the threshold level used for the detection of the trim/crop start point. -Inf. is complete silence; 0 dB is the maximum amplitude level.
Release threshold	Drag the fader to set the threshold level used for the detection of the trim/crop end point. -Inf. is complete silence; 0 dB is a maximum amplitude level.
Fade in	Specify the length of fade-in applied to the sound file after the trim/crop start point is detected. This is useful for preventing glitches at beginning and ending points.

Fade out	Specify the length of the fade-out applied to the sound file after the detected trim/crop end point.
Minimum inter-phrase silence	Specify the minimum amount of silence that must exist between phrases before a new region is created.
Minimum length following loop end	When using the Remove data beyond loop points option, this number specifies the number of samples that must exist after the loop. This is used to ensure that a sampler can loop properly, since some samplers don't use the exact loop points supplied.

Bit-Depth Converter

From the Process menu, choose **Bit Depth**, and then choose **Bit-Depth Converter** from the submenu to convert sound files to different bit depths.



Because the signal-to-noise ratio decreases when you decrease the bit depth of a file, you should maximize the volume of the sound file using the **Volume** or **Normalize** functions before performing the conversion.

Change a file's bit depth

1. From the Process menu, choose **Bit Depth**, and then choose **Bit-Depth Converter** from the submenu.

2. Choose a preset from the **Preset** drop-down list or adjust the controls as desired:

a. Choose a bit depth from the drop-down list.



Increasing a file's bit depth cannot improve the quality of the existing audio, but does allow higher resolution for processing.

b. Choose a setting from the **Dither** drop-down list if you're decreasing the file's bit depth and want to add dither noise to mask **quantization noise**. For example, if you want to burn a 24-bit audio file to an audio CD, dithering will produce a cleaner signal than a simple bit-depth conversion.

Setting	Description
Half Rectangular	Eliminates distortion caused by conversion to a lower bit depth, but the noise level is dependent on the signal. This setting uses a maximum dither noise amplitude of 0.5 LSB (least significant bit).
Rectangular	Identical to Half Rectangular , but with a maximum dither noise amplitude of 1 LSB (least significant bit).
Triangular	Eliminates distortion caused by conversion to a lower bit depth and eliminates noise floor modulation by producing a slightly higher noise level.
Highpass Triangular	Eliminates distortion caused by conversion to a lower bit depth and eliminates noise floor modulation by producing a slightly higher noise level. Noise is shifted to higher frequencies than standard triangular dithering.
Gaussian	Does not perform as well as rectangular or triangular dithering, but may be suitable for some material.
POW-r	Uses the POW-r dithering algorithms for best dithering quality.

In general, **Highpass Triangular** with noise shaping produces the most favorable results.

a. Choose a setting from the **Noise shaping** drop-down list to apply noise shaping to your signal. Noise shaping lowers the perceived noise floor of the signal by shifting most of the noise into the upper frequencies of human hearing.

Setting	Description
Off	Does not apply noise shaping.
High-Pass Contour	Moves noise into high frequencies. The frequencies to which the noise is shifted (shaped) are close to the Nyquist frequency, so you should not apply noise shaping to files with a sample rate below 44.1 kHz. For example, a 22 kHz signal has a Nyquist frequency of 11 kHz. If you move most of the noise into that range, you are putting it into a sensitive area of human hearing and will produce a worse-sounding signal.
Equal Loudness Contour	Distributes noise equally into high and low frequencies.

When the **POW-r** dithering algorithm is used, you can select from three noise shaping modes. Which dithering mode sounds the best depends mainly on the audio signal.

Setting	Description
POW-r #1	This function uses a special dithering curve to minimize quantization noise.
POW-r #2	This function uses additional noise shaping across a wide frequency range to extend the dynamic range by 5-10 dB.
POW-r #3	This function uses additional, optimized noise shaping to extend the dynamic range by up to 20 dB between 2 kHz and 4 kHz. The human ear is most sensitive to this frequency range.

c. Click **OK**.

Set the bit depth for playback only

Right click the **Bit Depth** box on the status bar and choose a new bit depth from the shortcut menu.

44,100 Hz	16-bit	Stereo	00:00:20.07	7566.5 MB
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Channel Converter

From the Process menu, choose **Channel Converter** to change the number of channels in an audio file. The Channel Converter dialog can also be used to reverse the channels of a stereo file or intermix the channels of a multichannel file to create interesting panning effects.



To perform quick channel conversion without specifying the mix, use the **Audio channels** box on the [File Properties](#) window or right-click the **Channels** box in the [status bar](#) and choose a setting from the shortcut menu.

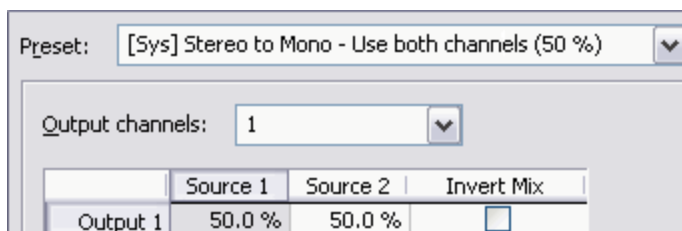


Notes:

- If you want to apply a [panning envelope](#) to a mono file, use the Channel Converter to convert the file to stereo first.
- You can use mono files in the [Pan/Expand dialog](#) if you choose **Pan (preserve stereo separation)** or **Pan (mix channels before panning)** from the **Process mode** drop-down list. When you click **OK** to apply your changes, the file will be converted to stereo and your panning settings will be applied.

Convert a stereo file to mono

1. From the Process menu, choose **Channel Converter**.
2. Choose a setting from the **Preset** drop-down list, or adjust the controls as needed:
 - a. Choose **1** from the **Output channels** drop-down list to create a mono file.
 - b. Click in the **Source 1** box and type a gain value (or drag the fader) to adjust the amount of the original left channel that will be mixed to the new mono file.
 - c. Click in the **Source 2** box and type a gain value (or drag the fader) to adjust the amount of the original right channel that will be mixed to the new mono file.
 - d. Select the **Invert Mix** check box if you want to reverse the [phase](#) of the new left-channel mix.

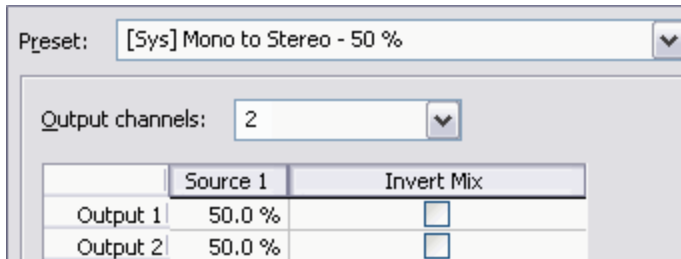


3. Click the **OK** button.

Convert a mono file to stereo (or multichannel)

1. From the Process menu, choose **Channel Converter**.

2. Choose a setting from the **Preset** drop-down list, or adjust the controls as needed:
 - a. Choose a setting from the **Output channels** drop-down list to indicate the number of channels in the converted file.
 - b. Click in the **Output** box for each output channel and type a gain value (or drag the fader) to adjust the amount of the original mono file that will be mixed to the new channel.
 - c. Select the **Invert Mix** check box if you want to reverse the **phase** of the new channel's content.



3. Click the **OK** button.

Intermix channels in a file

1. From the Process menu, choose **Channel Converter**.
2. Adjust the controls as needed:
 - a. Choose a setting from the **Output channels** drop-down list to indicate the number of channels in the converted file.
 - b. Click in the **Source** box for each output channel and type a gain value (or drag the fader) to adjust the amount of the original channel that will be mixed to the new channel.
 - c. Select the **Invert Mix** check box if you want to reverse the **phase** of the new channel's content.
3. Click the **OK** button.

Swap stereo channels

1. From the Process menu, choose **Channel Converter**.
2. From the **Preset** drop-down list, choose the **Stereo to Stereo - Swap Channels** preset.
3. Click the **OK** button.

Removing DC Offset

From the Process menu, **DC Offset** to change the baseline of a sound file to compensate for electrical mismatches between your sound card and input device. Glitches and other unexpected results can occur when sound effects are applied to files that contain **DC offsets**.



An easy way to spot DC offset is to **zoom** in to a silent section of your sound file. If the silent waveform matches the centerline in the waveform display, your file does not contain DC offset.

Automatically detect and remove DC offset

1. From the Process menu, choose **DC offset**.
2. Click the **Automatically detect and remove** radio button.
3. Click the **OK** button.



To speed processing, select the **Compute DC offset from first 5 seconds only** check box. Only the first five seconds of a sound file will be analyzed when measuring the DC offset. The only time that five seconds is not sufficient is if a long fade-in or mute has been applied at the beginning of the file.

Specify an offset value

1. Determine the amount of DC offset in your file:
 - a. From the Tools menu, choose **Statistics**.
 - b. Record the values displayed in the **Average value (DC offset)** columns.
 - c. Click the **OK** button.
2. Click the **Adjust DC offset by** radio button and enter a value in the edit box to specify an offset value.
3. Click the **OK** button



To speed processing, select the **Compute DC offset from first 5 seconds only** check box. Only the first five seconds of a sound file will be analyzed when measuring the DC offset. The only time that five seconds is not sufficient is if a long fade-in or mute has been applied at the beginning of the file.

Equalization

From the Process menu, choose **EQ**, and then choose an equalizer type from the submenu to adjust the tonal characteristics of your data.

Graphic EQ: For information about using the effect, click the **?** button in the FX dialog.


Paragraphic EQ: For information about using the effect, click the **?** button in the FX dialog.

Parametric EQ: For information about using the effect, click the **?** button in the FX dialog.

Fading In and Out

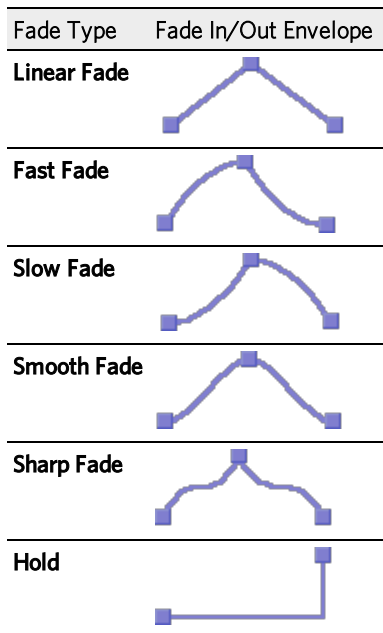
From the Process menu, choose **Fade**, and then choose a command from the submenu to vary the volume of a sound file over time.


Perform a graphic fade

1. **Select** the data you want to fade.
 -  If no data is selected, the fade is applied to the entire file.
2. From the Process menu, choose **Fade**, and then choose **Graphic** from the submenu.

3. Adjust the envelope to achieve the desired sound:

- Drag the small envelope points up or down.
- To create a new envelope point, double-click the envelope.
- To delete an envelope point, right-click it and choose **Delete** from the shortcut menu.
- To change the fade curve between two points, right-click an envelope segment and choose a command from the shortcut menu:




- To move all envelope points, press Ctrl+A and drag when the envelope has focus (the cursor will be displayed as a ).
- Select a radio button in the **Maximum Gain** group to adjust the range of the envelope graph.

 You can create up to 16 envelope points. Click the **Reset Envelope** button to remove all but the outer two envelope points.

Displaying the waveform

Choose a command from the **Show wave** drop-down list if you want to display the waveform in the envelope graph.

If you're working with a multichannel file, you can choose to view individual channels or the mixed waveform.

 The waveform is unavailable when the selection is greater than 300,000 samples.

Fade in


1. **Select** the data you want to fade.

 If no data is selected, the fade is applied to the entire file.

2. Choose **Fade In** to perform a linear fade from -Inf. to 0 dB.

Fade out

1. **Select** the data you want to fade.

 If no data is selected, the fade is applied to the entire file.

2. Choose **Fade Out** to perform a linear fade from 0 dB to -Inf.

Inserting Silence

The Insert Silence dialog allows you to insert a section of silence in a sound file.

1. From the Insert menu, choose **Silence**.
2. In the **Insert** box, specify the length of silence that you want to add.
3. Choose a setting from the **at** drop-down list to specify where the silence should be inserted.
 - **Cursor**: inserts silence at the current cursor position.
 - **Start of File**: inserts silence at the beginning of the file.
 - **End of File**: inserts silence at the end of the file.
4. Click the **OK** button.

Inverting Data

From the Process menu, choose **Invert/Flip** to reverse the **phase** of the sound data. Although inverting data does not make an audible difference in a single file, it can be useful for matching a sample transition when executing certain pastes, mixes, or loops.

If no data is selected, the entire file will be inverted.

Muting Sound

From the Process menu, choose **Mute** to set the volume of a selection to -Inf dB (silence).

If no data is selected, the entire file will be muted.

Normalizing Audio

From the Process menu, choose **Normalize** to raise the volume of a selection so that the highest sample level reaches a user-defined level. Use normalization to ensure you are using all of the dynamic range available to you without clipping.



When normalizing multichannel data, normalization is computed on the loudest sample value found in any selected channel and the same gain is applied to all selected channels. If a single channel is selected, normalization will affect only that channel.



When you convert files to a compressed format such as MP3, peaks that are at or near 0 dB may be clipped by the compression process. Consider normalizing first to reduce the possibility of clipped peaks (normalizing to a peak level of -0.9 dB is a good starting point).

Normalize using a peak value


When you normalize to a peak value, you can specify the level to which the maximum detected sample value will be set. A constant gain is applied to the selection to raise the peak to this level.

1. From the Process menu, choose **Normalize**.
2. Click the **Peak level** radio button.
3. Click the **Scan Levels** button.
 - When previewing, the entire file must be scanned even when previewing a small selection. Clicking the **Scan Levels** button stores the current Peak and RMS values. This allows you to preview different **Normalize to** level settings without rescanning the entire file.—
4. Drag the **Normalize to** fader to specify the level to which the highest peak should be set.
5. Click the **OK** button.


Normalize using average RMS level

When you normalize using average **RMS** level, the average RMS value of the sound file is raised to a value you specify. This is helpful for matching the apparent loudness of different recordings.

1. From the Process menu, choose **Normalize**.
2. Click the **Average RMS level** radio button.
3. Click the **Scan Levels** button.

 When previewing, the entire file must be scanned even when previewing a small selection. Clicking the **Scan Levels** button stores the current Peak and RMS values. This allows you to preview different **Normalize to** level settings without rescanning the entire file.—

4. Drag the **Normalize to** fader to specify the new average RMS level for the selection.

 When using RMS levels, set the **Normalize to** fader to -6 dB or less. Normalizing to 0 dB boosts the signal so that it has the same apparent loudness as a 0 dB square wave (which is incredibly loud). If you were to do so, all of the dynamic range of the signal would be squashed and all the peaks would either be clipped or seriously compressed. Normalizing a *peak* to 0 dB is OK, but normalizing RMS to anything above -6 dB can compromise sound quality.

5. Adjust scan settings:

Item	Description
Ignore below	<p>Drag the fader to determine the level of material you want to include in the RMS calculation. Any sound material below the threshold will be ignored in the calculation. This is useful to eliminate any silent sections from the RMS calculation. You should set this parameter a few dB above what you consider to be silence.</p> <p>If you set this value to minus infinity, all sound data will be used. If the value is set too high (above -10 dB), there is a good chance that the RMS value is always below the threshold. In this case, no normalization will occur. Therefore, it is good to test the threshold by using the Scan Levels button.</p>
Attack time	Specify how quickly the scan should respond to transient peaks in the sound file. A slower attack time will tend to ignore fast-peaking material.
Release time	Specify how quickly the scan should stop using transient peak material after it has begun to drop in level. A slower release time will increase the amount of material included in the RMS calculation.
Use equal loudness contour	Select this check box if you want the RMS calculation to compensate for high- and low-frequency audio. Very low and high frequencies are less audible than mid-range frequencies.

6. Select an option from the **If clipping occurs** drop-down list:

Item	Description
Apply dynamic compression	<p>Any peaks that would clip are limited to below 0 dB using nonzero attack and release times to minimize distortion. In other words, a time-varying gain is used to ensure that no hard clipping occurs.</p> <p>This option is useful for getting very loud, yet clear sound during the mastering process.</p>
Normalize peak value to 0 dB	The selection's peak amplitude level is normalized to 0 dB. This applies the maximum possible constant gain that doesn't clip to the selection. Less gain is applied than would be necessary to achieve the Normalize to RMS level.
Ignore (saturate)	Sound data is allowed to clip. Use this option only if the clipping samples are very short and infrequent.
Stop processing	Any sound data that would clip causes the Normalize function to stop processing and display a notification.

7. Click the **OK** button.

Normalize using levels from another selection or file

1. Select the data you want to use to normalize your data.
2. From the **Process** menu, choose **Normalize**.
3. Click the **Scan Levels** button.
4. Close the **Normalize** dialog.
5. Select the data you want to normalize.
6. From the **Process** menu, choose **Normalize**.
7. Select the **Use current scan level** check box.
8. Click the **OK** button. The selection is normalized to the level displayed in the **Peak** or **RMS** fields without rescanning.

Pan/Expand

From the Process menu, choose **Pan/Expand** to change the stereo image of an audio file by drawing an envelope that will be applied across the current data selection. You can create up to 16 envelope points.



Use the [phase scope](#) to watch for phase cancellation when using the Pan/Expand dialog.

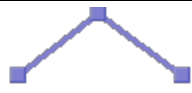








Pan/Expand can only be used on mono or stereo files.

Pan audio and preserve stereo separation

The **Pan (preserve stereo separation)** processing mode allows you to perform right- and left-channel panning effects without mixing the channels together. This is used to simulate left/right positioning of stereo recordings.

1. From the Process menu, choose **Pan/Expand**.
2. Choose **Pan (preserve stereo separation)** from the **Process mode** drop-down list.
3. Adjust the envelope to achieve the desired sound:
 - Drag the small envelope points up or down to pan the audio left or right at that envelope point.
For example, panning a stereo file hard right will play only the right channel through the right speaker.
 - To create a new envelope point, double-click the envelope.
 - To delete an envelope point, right-click it and choose **Delete** from the shortcut menu.
 - To change the fade curve between two points, right-click an envelope segment and choose a command from the shortcut menu:

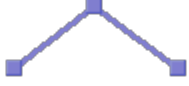





Fade Type	Fade In/Out Envelope
Linear Fade	
Fast Fade	
Slow Fade	
Smooth Fade	
Sharp Fade	
Hold	


- To move all envelope points, press Ctrl+A and drag when the envelope has focus (the cursor will be displayed as a ).
4. Drag the **Output gain** fader if you want to apply a gain after processing.
 5. Click the **OK** button.

Pan mixed channels

The **Pan (mix channels before panning)** processing mode allows you to perform right- and left-channel panning effects by first mixing the two channels and then changing the volume between channels.

1. From the Process menu, choose **Pan/Expand**.
2. Choose **Pan (mix channels before panning)** from the **Process mode** drop-down list.
3. Adjust the envelope to achieve the desired sound:
 - Drag the small envelope points up or down to pan the audio left or right at that envelope point.
For example, panning a stereo file hard right will play the mixed right and left channels through the right speaker.
 - To create a new envelope point, double-click the envelope.
 - To delete an envelope point, right-click it and choose **Delete** from the shortcut menu.
 - To change the fade curve between two points, right-click an envelope segment and choose a command from the shortcut menu:

Fade Type	Fade In/Out Envelope
Linear Fade	
Fast Fade	
Slow Fade	
Smooth Fade	
Sharp Fade	
Hold	

- To move all envelope points, press Ctrl+A and drag when the envelope has focus (the cursor will be displayed as a )
4. Drag the **Output Gain** fader if you want to apply a gain after processing.
 5. Click the **OK** button.

Display the waveform

Choose a command from the **Show wave** drop-down list if you want to display the waveform in the envelope graph.

If you're working with a stereo file, you can choose to view individual channels or the mixed waveform.

 The waveform is unavailable with very large selections.







Perform stereo expansion


The **Stereo expand** processing mode allows you to contract or expand the stereo image of a stereo recording, from dead center (mono), to completely panned wide (no center channel). For realistic effects, you should not venture too far from Normal.

 Notes:

- This effect works best with true stereo recordings and will not work with mono material.
- Panning a stereo recording toward the center can emphasize vocals; widening the image can de-emphasize vocals.

1. From the Process menu, choose **Pan/Expand**.
2. Choose **Stereo expand** from the drop-down list.
3. Adjust the envelope to achieve the desired sound:
 - Drag the small envelope points up or down to expand or contract the stereo image.
 - To create a new envelope point, double-click the envelope.
 - To delete an envelope point, right-click it and choose **Delete** from the shortcut menu.
 - To change the fade curve between two points, right-click an envelope segment and choose a command from the shortcut menu:

Fade Type	Fade In/Out Envelope
Linear Fade	
Fast Fade	
Slow Fade	
Smooth Fade	
Sharp Fade	
Hold	







- To move all envelope points, press Ctrl+A and drag when the envelope has focus (the cursor will be displayed as a ).
4. Drag the **Output Gain** fader if you want to apply a gain after processing.
 5. Click the **OK** button.


Mix a mid-side mix to right and left channels

The **Mix Mid-Side (MS) recording to left and right channels** processing mode allows you to convert a **mid-side** recorded track to a left/right track and set the width of the stereo image.

 Before mixing, you must first ensure that the mid track is in the left channel and the side track in the right.

1. From the Process menu, choose **Pan/Expand**.
2. Choose **Mix Mid-Side (MS) recording to left and right channels** from the **Process mode** drop-down list.
3. Adjust the envelope to set the width of the stereo image:
 - Drag the small envelope points up or down.
 - To create a new envelope point, double-click the envelope.
 - To delete an envelope point, right-click it and choose **Delete** from the shortcut menu.
 - To change the fade curve between two points, right-click an envelope segment and choose a command from the shortcut menu:

Fade Type	Fade In/Out Envelope
Linear Fade	
Fast Fade	
Slow Fade	
Smooth Fade	
Sharp Fade	
Hold	

- To move all envelope points, press Ctrl+A and drag when the envelope has focus (the cursor will be displayed as a ).
4. Drag the **Output Gain** fader if you want to apply a gain after processing.
 5. Click the **OK** button.

Resampling

From the Process menu, choose **Resample**, and then choose **Resample** from the submenu to change the **sample rate** of an existing sound file.

Resampling data changes the number of recorded samples per second. When changing to a higher sample rate, extra samples are interpolated and the file size increases. When changing to a lower sample rate, some samples are removed and the file size decreases.


Resample your data

1. From the Process menu, choose **Resample**.
2. In the **New sample rate** box, specify the sample rate to which the sound file will be converted.

 Increasing a file's sample rate cannot improve the quality of the existing audio, but does allow higher resolution for processing.

3. Drag the **Interpolation accuracy** slider to determine the complexity of the method used during the resampling process.

The audible difference between values can be subtle without the use of test tones and is most apparent in high frequencies. In general, a setting of 1 is adequate for general-purpose audio. Settings of 2 and 3 are good for high-end audio. Setting this parameter to 4 results in slow processing, but produces near-perfect results for audiophiles and audio researchers.

 When downsampling by an even multiple (such as when resampling from 44 kHz to 22 kHz), processing is always fast and perfectly accurate.

4. Select the **Apply an anti-alias filter during resample** check box to preserve high-frequency content when downsampling.

Since the maximum frequency that can be represented by any sample rate is one-half of the sampling rate (the **Nyquist frequency**), high frequencies in a sound file cannot be represented if the sound file is downsampled. Therefore, when downsampling a file with strong high-frequency content, anti-aliasing should be used to prevent these high frequencies from becoming low-frequency distortion.

5. Click the **OK** button.

Set the sample rate without resampling

When you convert between two very close sample rates and want to process the file quickly, you can change the sample rate without resampling. However, the original pitch of the file is not preserved.

1. From the Process menu, choose **Resample**.
2. In the **New sample rate** box, specify the sample rate to which the sound file will be converted.
3. Select the **Set the sample rate only** check box to change the playback rate without resampling the data. This means that the original pitch of the file is not preserved.
4. Click the **OK** button.

 To set the sample rate quickly, right-click the **Sample Rate** box in the status bar and choose a new rate from the shortcut menu.

Processing time (Normalize): 1.859 seconds	44,100 Hz	16 bit	Stereo	00:34:07.838	01:10:27.093	843,927.7 MB
	Sample Rate	Bit Depth	Channels	Total Length	CD Time Remaining	Free Storage

Reversing Sound


From the Process menu, choose **Reverse** to reverse the current selection, creating a backward-tape effect.

 If no data is selected, the entire file will be reversed.

Smooth/Enhance

From the Process menu, choose **Smooth/Enhance** to add or remove high-frequency content.

1. From the Process menu, choose **Smooth/Enhance**.
2. Drag the **Operation** slider toward Smooth or Enhance:
3. The Smooth function will smooth fast-changing transients in a sound and is useful for removing glitches.
4. The Enhance function boosts the very highest frequencies (close to the **Nyquist frequency**) in the sound file, making the sound file sound more vivid. It is useful for compensating for the effects of downsampling or for bringing out very fast transients in a sound file.

 Since the enhance function boosts frequencies near the Nyquist frequency, the current sample rate will determine what frequencies will be affected. At 44,100 Hz, the effect can be very subtle.

Time Stretch

From the Process menu, choose **Time**, and then choose a command from the submenu to change the duration of a sound file.

Time Stretch

1. **Select** the data you want to stretch.

 If no data is selected, time stretching is applied to the entire file.

From the Process menu, choose **Time**, and then choose **Time Stretch** from the submenu.

2. For information about using the effect, click the **?** button in the FX dialog.

élastique Time Stretch

1. **Select** the data you want to stretch.


 If no data is selected, time stretching is applied to the entire file.

2. From the Process menu, choose **Time**, and then choose **élastique Timestretch** from the submenu.

For information about using the effect, click the **?** button in the FX dialog.

Changing Volume

The Volume dialog allows you to change the volume of a selection. To display this dialog, choose **Volume** from the Process menu.

 Excessive volume increases may cause distortion. You can also use the **Normalize** dialog to maximize the volume of a sound file.

1. **Select** the data you want to modify.

 If no data is selected, the volume of the entire file will be modified.

2. From the Process menu, choose **Volume**.
3. Drag the **Gain** fader to adjust the volume of the selection:
 - Positive values boost the volume.
 - Negative values attenuate the volume.
 - A value of negative infinity mutes the selection (0%).
4. Click the **OK** button.

Effects

Acoustic Mirror

You can use the Acoustic Mirror plug-in to add the acoustic coloration of real environments and sound-altering devices to existing recordings. Depending on the acoustic signature applied, the Acoustic Mirror plug-in can simulate responses varying from large concert halls to the sound of vintage microphones.

Sound Forge Pro software includes an extensive library of extremely high-quality acoustic signatures (impulse responses) that you can use to simulate the acoustics of many different environments.

For information about using the effect, click the **?** button in the FX dialog.

Amplitude Modulation

Use the Amplitude Modulation command to apply a sinusoidal or square-shaped periodic gain to the input signal. The frequency of the gain waveform can be specified to create effects varying from a slow tremolo to unusual sound distortions.

For information about using the effect, click the **?** button in the FX dialog.

Chorus

From the Effects menu, choose **Chorus** to add a pitch-modulated and delayed version of the input signal to the unprocessed input signal. The effect simulates the variances in pitch and timing that occur naturally when two or more people try to play or sing the same thing at the same time.

For information about using the effect, click the **?** button in the FX dialog.

Delay/Echo

From the Effects menu, choose **Delay/Echo**, and then choose a command from the submenu to apply an echo effect to a selection.

Multi-Tap Delay: For information about using the effect, click the **?** button in the FX dialog.

Simple Delay: For information about using the effect, click the **?** button in the FX dialog.

Distortion

From the Effects menu, choose **Distortion** to tailor the gain at all input levels of a signal. You can create effects ranging from dramatic to subtle distortion, simple compression, expansion, and noise gates.

For information about using the effect, click the **?** button in the FX dialog.

Dynamics

From the Effects menu, choose **Dynamics**, and then choose a command from the submenu to modify the dynamic range of a selection.

Graphic Dynamics: For information about using the effect, click the **?** button in the FX dialog.

Multi-Band Dynamics: For information about using the effect, click the **?** button in the FX dialog.

Envelope

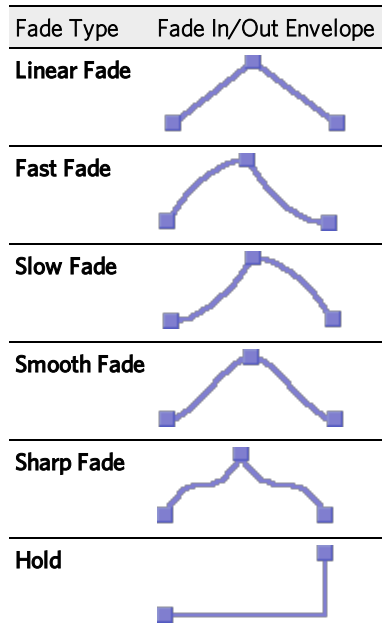
From the Effects menu, choose **Envelope** to apply an envelope to vary the amplitude of a waveform over time. Unlike the **Graphic Fade** command, which simply fades a waveform by a specific amount over time, the gain at each point is dynamically calculated to achieve the exact specified envelope.



For more information about using processing dialog controls, click [here](#).

Apply an amplitude envelope

1. From the Effects menu, choose **Envelope**.

2. Adjust the envelope to achieve the desired sound:
 - a. Drag the small envelope points up or down.
 - b. To create a new envelope point, double-click the envelope.
 - c. To delete an envelope point, right-click it and choose **Delete** from the shortcut menu.
 - d. To change the fade curve between two points, right-click an envelope segment and choose a command from the shortcut menu:




3. To move all envelope points, press Ctrl+A and drag when the envelope has focus (the cursor will be displayed as a ).
 -  You can create up to 16 envelope points. Click the **Reset Envelope** button to reset the graph to a simple ADSR (Attack, Decay, Sustain, Release) curve.
4. Select the **Smooth gain to minimize distortion on steep slopes** check box to prevent the gain from changing too quickly, which might result in unwanted distortion. Also, when this option is on, the gain will always begin at 0%.
5. Click the **OK** button.

Display the waveform

Choose a command from the **Show wave** drop-down list if you want to display the waveform in the envelope graph.

If you're working with a multichannel file, you can choose to view individual channels or the mixed waveform.

 The waveform is unavailable when the selection is greater than 300,000 samples.

Flange/Wah-Wah

From the Effects menu, choose **Flange/Wah-Wah** to apply flanging, phasing, and wah-wah effects to a sound.

For information about using the effect, click the **?** button in the FX dialog.

Gapper/Snipper

From the Effects menu, choose **Gapper/Snipper** to cut chunks from the sound file or insert silence in the sound file periodically at a set frequency.

For information about using the effect, click the **?** button in the FX dialog.

Noise Gate

From the Effects menu, choose **Noise Gate** to remove signals below a specified threshold. This effect is used to remove noise from silent breaks in a sound file.

For information about using the effect, click the **?** button in the FX dialog.

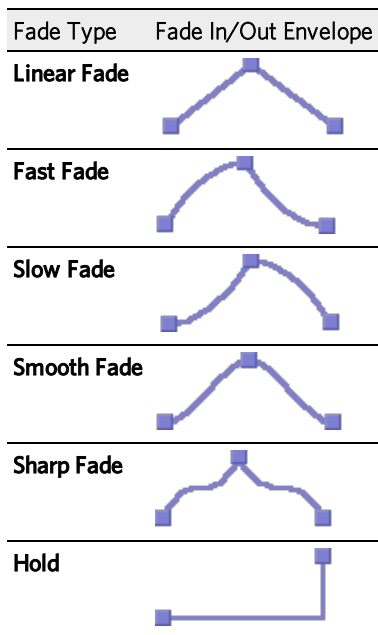
Pitch


From the Effects menu, choose **Pitch**, and then choose a command from the submenu to change the pitch of a selection.

Bend

The **Bend** command allows you to draw an envelope that increases or decreases the pitch of a sound file over time.

1. From the Effects menu, choose **Pitch**, and then choose **Bend** from the submenu.
2. Drag the **Range** slider to determine the maximum and minimum pitch change in semitones (half-steps). Example: A range of twelve half-steps (one octave) allows an increase or decrease of the pitch by an octave.
3. Adjust the envelope to achieve the desired sound:
 - Drag the small envelope points up or down.
 - To create a new envelope point, double-click the envelope.
 - To delete an envelope point, right-click it and choose **Delete** from the shortcut menu.
 - To change the fade curve between two points, right-click an envelope segment and choose a command from the shortcut menu:




- To move all envelope points, press **Ctrl+A** and drag when the envelope has focus (the cursor will be displayed as a .
 - You can create up to 16 envelope points. Click the **Reset Envelope** button to remove all but the outer two envelope points.
4. Select the **Preserve original duration** check box if you do not want pitch bending to change the size of the sound file. This setting works best when performing small pitch corrections (up to +/- 2 semitones).
 5. Click the **OK** button.

Displaying the waveform

Choose a command from the **Show wave** drop-down list if you want to display the waveform in the envelope graph.

If you're working with a multichannel file, you can choose to view individual channels or the mixed waveform.

 The waveform is unavailable when the selection is greater than 300,000 samples.

Shift

The **Shift** command allows you to change the pitch of a sound with or without preserving the duration of the selection.

For information about using the effect, click the **?** button in the FX dialog.

Resonant Filter

From the Effects menu, choose **Resonant Filter** to restrict the range of a sound using low-pass, band-pass, or high-pass filtering, and then boost and add oscillation to the resonant frequency.

For information about using the effect, click the **?** button in the FX dialog.

Reverb

From the Effects menu, choose **Reverb** to simulate various acoustic spaces. Reverb consists of early reflections, which are the first reflections that arrive back to your ear, and the reverb itself.

For information about using the effect, click the **?** button in the FX dialog.

Vibrato

From the Effects menu, choose **Vibrato** to apply periodic pitch modulation to a selection.

For information about using the effect, click the **?** button in the FX dialog.

Wave Hammer

The Wave Hammer DirectX plug-in is an audio mastering tool consisting of a classic compressor and a volume maximizer. These components rival the most expensive and world-renowned units in terms of audio quality and fidelity, yet are easy to use and seamlessly integrate in one user interface.

For information about using the effect, click the **?** button in the FX dialog.

Wave Hammer 2.0

From the Effects menu, choose **Wave Hammer 2.0** to edit the dynamics with up to four independent frequency bands. The entire signal is split into individual frequency bands in this case. The dynamics are then edited separately for each band.

For information about using the effect, click the **?** button in the FX dialog.

DeClicker / DeCrackler

From the Effects menu, choose **DeClicker / DeCrackler** to removes crackling and single clicking noises that are typical of scratched records. The DeCrackler algorithm was developed specifically to remove crackling noises, making it easier to remove crackling from old records.

For information about using the effect, click the **?** button in the FX dialog.

DeClipper

The **DeClipper** is a tool for removing overmodulation and distortions. Overmodulated passages are recalculated, or interpolated, based on the material immediately surrounding them.

For information about using the effect, click the **?** button in the FX dialog.

DeHisser

From the Effects menu, choose **DeHisser** for noise removal. The DeHisser eliminates regular, low-level "white" noise that is typically produced by recordings, microphones, pre-amplifiers, or transformers.


For information about using the effect, click the **?** button in the FX dialog.

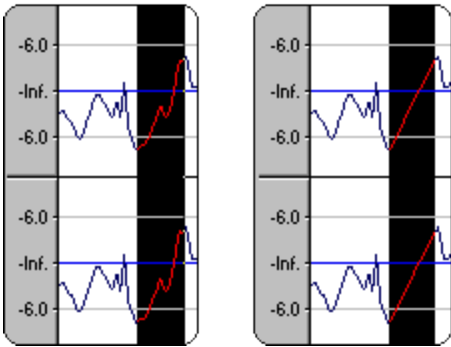
Repairing Glitches, Clicks, and Noise

You can use Sound Forge Pro software to repair glitches, clicks, and surface noise in sound files.

Interpolating Sound Data

From the Tools menu, choose **Repair**, and then choose **Interpolate** from the submenu to interpolate a region of sound based on the data at the beginning and end of the selection. This function is useful for repairing small glitches or clicks.

1. From the View menu, choose **Zoom Time**, and then choose **In Full** from the submenu.
2. Select the glitch. The selection should be very small (less than 2 ms in most cases).
 -  If no selection is made, a glitch of less than one millisecond is assumed, and the cursor position is treated as the middle of the glitch.
3. From the Tools menu, choose **Repair**, and then choose **Interpolate** from the submenu. The beginning and end of the selection are connected with a straight line.




 Use this method when a straight connect-the-dots technique is all that is required to remove the glitch. Otherwise, you may create another glitch.

Replacing Sound Data with Previous Data

From the Tools menu, choose **Repair**, and then choose **Replace** from the submenu to replace a region of sound with previous sound data. This function is useful for replacing regions of sound such as record scratches.

Replace a selection

1. **Select** the corrupted audio. For most cases, the selection should be between 5 and 50 milliseconds. The maximum allowed replace time is 0.5 seconds.
2. From the Tools menu, choose **Repair**, and then choose **Replace** from the submenu. The selected audio is replaced with the data preceding the selection, and the edges of the replaced audio are **crossfaded** to prevent glitching.
 -  Hold Ctrl while replacing data to replace the selected audio with the data following the selection.

Find and replace a glitch

1. From the Tools menu, choose **Find**.
2. Use the **Find** dialog to specify the type of glitch you want to fix, and then click the **OK** button.
3. From the Tools menu, choose **Repair**, and then choose **Replace** from the submenu. A 15-millisecond range of data surrounding the cursor is replaced with the preceding data, and the edges of the replaced audio are **crossfaded** to prevent glitching.


Copying Sound Data from Another Channel

From the Tools menu, choose **Repair**, and then choose **Copy Other Channel** from the submenu to repair a glitch or click in a single channel of a stereo pair. When a click or glitch occurs in only one channel, you can use the undamaged channel's audio to replace the data in the corrupted channel.

 This function works only with stereo files when both channels contain similar audio material and the unselected channel does not contain a glitch.

Copy data to replace a selection

1. Select the corrupted audio in a single channel of a stereo file. For most cases, the selection should be between 1 and 50 milliseconds. The selected area should be three or four times the length of the glitch.
2. From the Tools menu, choose **Repair**, and then choose **Copy Other Channel** from the submenu. The audio in the unselected channel is used to replace the current selection. A very short crossfade is applied to prevent glitching.

 If the glitch still exists, apply the function to a bigger selection surrounding the glitch. This ensures that the crossfade has ended by the time the glitch occurs.

Find and replace a glitch

1. From the Tools menu, choose **Find**.
2. Use the **Find** dialog to specify the type of glitch you want to find, and then click the **OK** button.
3. Press Tab to select the channel containing the click.
4. From the Tools menu, choose **Repair**, and then choose **Copy Other Channel** from the submenu. The audio in the unselected channel is used to replace five milliseconds before and after the cursor position.

Editing with SpectraLayers Pro

From the Tools menu, choose **Edit in SpectraLayers Pro** to open the current sound file in SpectraLayers Pro.

 If SpectraLayers Pro 2.0 is not installed, the command is not available. For more information, please see <http://www.magix-audio.com/us/spectrallayerspro>.

Edit a file in SpectraLayers Pro

1. Select a data window or drag the cursor in the data window or marker bar to make a time selection.
2. From the Tools menu, choose **Edit in SpectraLayers Pro**. SpectraLayers Pro starts, and the active data window is loaded as a layer in a new SpectraLayers project.
3. Edit your file as needed in SpectraLayers Pro. For information about using SpectraLayers Pro, please refer to the application help.
4. When you're done editing, close SpectraLayers Pro. You'll be prompted to export your changes back to Sound Forge Pro. Click **Yes**, and the Sound Forge Pro data window is updated to reflect any changes.

Send a file to a layer in SpectraLayers Pro

1. Select a data window or drag the cursor in the data window or marker bar to make a time selection.

2. From the Tools menu, choose **Send to SpectraLayers Pro**. If SpectraLayers Pro is running, the selection is added to the current project as a new layer. If SpectraLayers Pro is not running, the application starts, and the active data window is loaded as a layer in a new project.
3. Repeat step 2 as needed to build layers in your SpectraLayers Pro project.
4. Edit your file as needed in SpectraLayers Pro. For information about using SpectraLayers Pro, please refer to the application help.
5. When you're done editing, you can save your project in SpectraLayers Pro, render the mixed output, or use **Process > Send to Sound Forge Pro** to save your changes.

Scripting

From the View menu, choose **Script Editor** to toggle the display of the Script Editor window. You can use the Script Editor window to open, create, edit, or run scripts.

Scripting helps you streamline repetitive tasks and implement customized features. Our new Batch Converter, for example, was created using scripting.

Sound Forge Pro includes a number of scripts in the Tools > Scripting menu that you can use or modify as needed.

You can also write your own scripts using JavaScript, VBScript, or C# as well as scripts that have been compiled as DLLs.


Running Scripts

Use the Script Editor window or the Scripting submenu on the Tools menu to run [scripts](#).



Scripts can pose a security risk to your computer. A script has the power to delete files, read files, write files, execute programs, access the Internet, access files on your network, and so on. Always examine the contents of a script before running it. If you don't understand the script, do not run it unless it comes from a trusted source. In general, take the same precautions you would take for any program you download from the Internet or receive in an e-mail attachment.

Run a script from the Script Editor window

1. Click in the data window where you want to apply the script to establish focus.
2. From the View menu, choose **Script Editor** to display the Script Editor window if it isn't already displayed.
3. Click the **Open** button  in the Script Editor toolbar. The Open Script window is displayed.
4. Select the script file (.vb, .js, .cs, or .dll) you want to run. The contents of the script are displayed at the bottom of the Script Editor window.
5. If you need to pass an argument to the script, type it in the **Script Args** box. Arguments are specified as follows:
ArgName=ArgValue&ArgName2=ArgValue2. . .

For example, a script that uses an argument to indicate where files should be saved could use the following argument to save files to a ScriptOutput folder on your D:\ drive: **dir=d:\ScriptOutput**.

If your script can create a log file to record the results of a scripting operation, you could append that argument as follows: **dir=d:\ScriptOutput&logFileName=myLog.txt**. In this example, the ampersand (&) separates the two arguments, the first argument set the save folder, and the second argument sets the file name for the log file.

6. Click the **Run Script** button .

Run a script from the Scripting menu

1. Click in the data window where you want to apply the script to establish focus.
2. From the Tools menu, choose **Scripting**.
3. Choose a script from the submenu or choose **Run Script** from the submenu to browse to the script file (.vb, .js, .cs, or .dll) you want to run.

Run a script from the command line

In addition to running scripts from the Script Editor and the Scripting menu, you can run scripts directly from the command line using the following commands.

```
SCRIPT
```

Starts Sound Forge Pro and runs the specified script.

Example: "C:\Program Files\MAGIX\Sound Forge Pro 12.0\Forge120.exe" -SCRIPT:
"C:\Scripts\MyScript.cs"

```
SCRIPTARGS
```

Starts Sound Forge Pro and passes the specified arguments to a script.

Example: "C:\Program Files\MAGIX\Sound Forge Pro 12.0\Forge120.exe" -SCRIPTARGS:
"in\C:\Test\input.dls&out=C:\Test\Output.dls&repeat=2" -SCRIPT: "C:\Scripts\MyScript.cs"

```
EXIT
```

Exits Sound Forge Pro after running the specified script.

Example: "C:\Program Files\MAGIX\Sound Forge Pro 12.0\Forge120.exe" -SCRIPT:
"C:\Scripts\MyScript.cs" -EXIT

Learn more about script arguments

A script can accept arguments to dynamically change the behavior of a script. Arguments allow you to develop a single script that performs multiple functions controlled by the arguments sent to the script.

Each argument is a key/value pair. The key is a string that identifies the argument's value. Multiple arguments are delimited by an ampersand (&).

Example: key1=value1&key2=value2&key3=value3...

When you supply arguments to a script, the following static functions can be used to extract and format the parameters:

```
public static string GETARG(string key, string str) { string val =
Script.Args.ValueOf(key); if (val == null) val = str; return val; }

public static int GETARG(string key, int ii) { return Script.Args.AsInt(key,ii); }

public static Int64 GETARG(string key, Int64 cc) { return Script.Args.AsInt64
(key,cc); }

public static bool GETARG(string key, bool ff) { return Script.Args.AsBool(key,ff);
}

public static double GETARG(string key, double dd) { return Script.Args.AsDouble
(key,dd); }
```

The first argument to the GETARG functions specifies a key name that is used to identify the argument to be extracted. The second argument in the GETARG function is a default value to be returned if the function cannot find the key name. The second argument also determines which overloaded function the script will use and how the value will be formatted.

For example, consider a script that accepts three input parameters. The syntax for the arguments is as follows:

```
in=C:\Test\input.dls&out=C:\Test\output.dls&repeat=2
```

The script to handle the parameters would look as follows:

```
using System;
using System.IO;
using System.Collections;
using System.Runtime.InteropServices;
using System.Windows.Forms;
using System.Drawing;

using SoundForge;
using SoundForge.BatchConverter;

public class EntryPoint {
public string Begin(IScriptableApp app) {

string inFile = GETARG("in", "");
string outFile = GETARG("out", "" );
int count = GETARG("repeat", 0 );
```


Add scripts to the Scripting menu

When you start the program, Sound Forge Pro software looks at the Script Menu folder in the Sound Forge Pro program folder to determine which scripts appear in the Scripting submenu. This folder is c:\Program Files\MAGIX\Sound Forge Pro 12.0\Script Menu by default.

1. Add or delete scripts in the Script Menu folder to change the contents of the submenu.



To prevent duplication of script files, you can use shortcuts in the Script Menu folder.

2. From the **Tools** menu, choose **Scripting**, and then choose **Rescan Script Menu Folder** to update the menu.





If you want to display custom icons for scripts in the Scripting menu and toolbar, you can create icons as .png files in your Script Menu folder. For more information, please see [The Scripting Toolbar](#).

Editing or Creating Scripts

Use the Script Editor window to open, create, edit, or [run scripts](#).

Create a script

Sound Forge Pro scripting uses the Microsoft .NET framework for scripting. You can write scripts in [JScript](#), [Visual Basic .NET](#), or [C#](#).

1. From the View menu, choose **Script Editor** if the Script Editor window isn't already visible.
2. Create a new script template:
 - a. Click the ▾ next to the **New Script Template** button .
 - b. Choose the type of script you want to create.
 - c. Click the **New Script Template** button .

A new script is displayed in the Script Editor window with everything you need to get started.

3. Replace the `/*begin here*/` text with your script.

In the following sample JScript script, the text in green was added to the script template. When run, this script would add information to the **Summary** window for the active data window. Red text represents information that you would want to customize:

```
import System;
import System.Windows.Forms;
import SoundForge;

public class EntryPoint {
public function Begin(app : IScriptableApp) {

var file = app.CurrentFile;
if (null != file)
{

var sumy = file.Summary;
for (var fcc in sumy)
{
DPF("fcc=" + fcc + " " + sumy.Item(fcc) + "");
}

//MODIFY HERE - type your own information in the area below
sumy.Title = "Title";
sumy.Subject = "Subject";
sumy.Engineer = "Engineer";
sumy.Copyright = "Copyright";
sumy.Comments = "Comments";
sumy.CreationDate = "2005-01-05";
sumy.Genre = "Genre";
sumy.TrackNo = "TrackNo";
sumy.Album = "Album";
sumy.Artist = "Artist";
}



}

public function FromSoundForge(app : IScriptableApp) {
ForgeApp = app;
app.SetStatusText(String.Format("Script '{0}' is running.", Script.Name));
Begin(app);
app.SetStatusText(String.Format("Script '{0}' is done.", Script.Name));
}

public var ForgeApp : IScriptableApp = null;
public function DPF(sz) { ForgeApp.OutputText(sz);}
public function DPF(sz,o) { ForgeApp.OutputText(System.String.Format(sz,o)); }
public function DPF(sz,o,o2) { ForgeApp.OutputText(System.String.Format
(sz,o,o2)); }

public function DPF(sz,o,o2,o3) { ForgeApp.OutputText(System.String.Format
(sz,o,o2,o3)); }

} // class EntryPoint
```

4. Click the **Compile Script** button  to compile and test your script. Any errors are displayed at the bottom of the window.
5. Click the **Save** button  to choose the file name and location you want to use to save the script.

Edit an existing script

All you need to edit a script is the Script Editor window (and, or course, a working knowledge of [JScript](#), [Visual Basic .NET](#), or [C#](#) scripting). The scripts that are included with Sound Forge Pro software are fully commented to help you find and edit the




parameters you need.

1. From the View menu, choose **Script Editor** if the Script Editor window isn't already visible.
2. Click the **Open** button in the Script Editor window, choose the script you want to edit, and then click **Open**.

The contents of the script are displayed in the Script Editor window.



You cannot edit scripts that have been compiled as DLLs.

3. Edit the script as needed. The comments in the script will help you find the parameters you need to edit. Comments are indicated with double forward slashes: `//`.
4. Click the **Compile Script** button  to compile and test your edited script. Any errors are displayed at the bottom of the window.
5. Click the **Save** button  to replace the script you edited, or click the **Save As** button  if you want to save the edited script with a different name or in a different location.

The Scripting Toolbar

The Scripting toolbar allows you to open the [Script Editor](#) window and [run scripts](#) with a single click.

Run a script

1. Click in the data window where you want to apply the script to establish focus.
2. Click a button on the Scripting toolbar.



Hover over a button to show a ToolTip that displays the name of the script associated with a button.

Add or remove toolbar buttons

1. From the View menu, choose **Toolbars**. The Toolbars tab in the Preferences dialog is displayed.
2. Select Scripting in the toolbar list, and then click the **Customize** button. The Customize Toolbar dialog is displayed.
3. Use the controls in the Customize Toolbar dialog to add, remove, or rearrange the buttons on the selected toolbar. All scripts from the Script Menu folder are listed in the **Available tools** column.
 - Select a script in the **Available tools** column and click **Add** to add the script to the toolbar before the currently selected button.
 - Select a script in the **Current tools** column and click **Remove** to remove it from the toolbar.
 - Select a script in the **Current tools** column and click **Move Up** or **Move Down** to rearrange the buttons.
 - Click **Reset** to restore the toolbar to its default setting.
4. Click the **OK** button.



For more information about adding scripts to the Script Menu, please see [Running Scripts](#).

Create custom button images for scripts

If you want to display custom icons for scripts in the Scripting menu and toolbar, you can add .png files to your Script Menu folder.

1. Create a PNG file with the icon you want to use. Icons should be 16x16 pixels, and transparency is supported.
2. Save the PNG file in your Script Menu folder (typically **C:\Program Files\MAGIX\Sound Forge Pro 12.0\Script Menu**) using the same name as the script the icon should represent.

For example, to assign a custom icon to the HelloWorld.js script, the icon should be saved as HelloWorld.js.png.

3. The custom icons will be displayed in the Scripting menu and toolbar the next time you start the application.

Synthesis

From the Insert menu, choose **Synthesis** and then choose a command from the submenu to generate tones and waveforms.

Generating DTMF/MF Tones

You can use DTMF/MF Tones dialog to generate the standard dial tones used by telephone companies. To display this dialog, choose **Synthesis** from the Insert menu, and choose **DTMF/MF Tones** from the submenu.

1. From the Insert menu, choose **Synthesis**, and choose **DTMF/MF Tones** from the submenu.
2. In the **Dial string** box, type the phone number to be generated along with any necessary pause characters. Unknown characters will be ignored.
3. Drag the **Amplitude** fader to set the peak level of the waveform.
4. Click the radio button that corresponds to the type of tones you want to generate:
 - **DTMF**: Dual Tone Multi-Frequency signals are used by standard push-button telephones. They are generated using combinations of 679-, 770-, 852-, 941-, 1209-, 1336-, 1477-, and 1633-Hz sine waves.
 - **MF**: CCITT R1 signals are used internally by the telephone networks. They are generated by a combination of 700-, 900-, 1100-, 1300-, 1500-, and 1700-Hz sine waves.
5. In the **Single tone length** box, specify the duration of each tone.
6. In the **Break length** box, specify the duration of the silence between tones.
7. In the **Pause length** box, specify the duration of the silence that will be inserted when the **Pause character** is used.
- 💡 Select the **Fade the edges of each tone** check box to fade each tone in and out to prevent glitching.
8. In the **Pause character** box, specify the character that will cause a pause between successive tones in the dial string.
9. Choose a position from the **Insert new tone sequence at** drop-down list to determine where the generated waveform will be placed within the current data window.
10. Click the **OK** button.

For more information about using processing dialog controls, click [here](#).

FM Synthesis

From the Insert menu, choose **Synthesis**, and then choose **FM** from the submenu to create complex sounds from simple waveforms using frequency modulation (FM).

In frequency modulation, the frequency of a waveform (the carrier) is modulated by the output of another waveform (the modulator) to create a new waveform. If the frequency of the modulator is low, the carrier will be slowly de-tuned over time. However, if the frequency of the modulator is high, the carrier will be modulated so quickly that many additional frequencies, or sidebands, are created.

In Sound Forge Pro software, up to four waveforms (operators) can be used in a variety of configurations. Depending on the configuration, a waveform can be a carrier, a modulator, or a simple, unmodulated waveform.

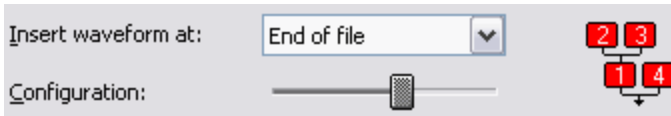
Generate a waveform

1. From the Insert menu, choose **Synthesis**, and choose **FM** from the submenu.
2. In the **Total output waveform length** box, specify the length (in seconds) of the generated waveform.

3. Choose a position from the **Insert waveform at** drop-down list to specify where the generated waveform will be placed within the current data window.
4. Drag the **Configuration** slider to determine the arrangement and number of operators to be used.
5. Modify each operator as desired.
6. Click the **OK** button.

Specify the number and arrangement of operators

When you drag the **Configuration** slider, a graphical representation of the arrangement and number of operators that will be used is displayed:

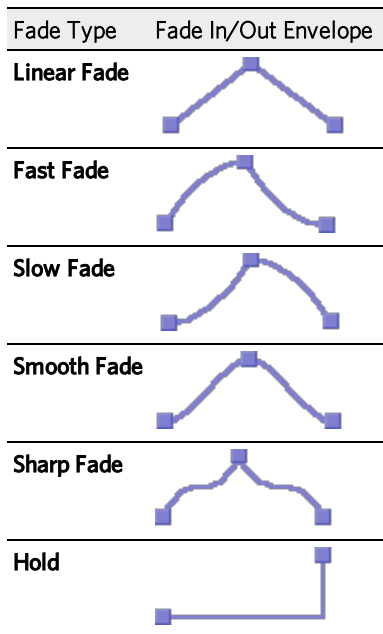




- The outputs of operators joined horizontally are simply mixed together. The outputs of the bottom operators are mixed together to form the final output. Mixing different simple waveforms is called *additive synthesis*.
- Operators joined vertically are FM carrier-modulator pairs. The bottom operator is the carrier, and the top operator is the modulator.
- Operators that have no other operator directly above are simple waveform generators.
- When three or more operators are stacked, the top operator modulates the operator below it, which modulates the following operator, and so on.

Modify an operator

1. Click a **Current operator** radio button to choose the operator that you want to modify.

2. Adjust the envelope graph to modify the amplitude of the operator over time:
 - Drag the small envelope points up or down.
 - To create a new envelope point, double-click the envelope.
 - To delete an envelope point, right-click it and choose **Delete** from the shortcut menu.
 - To change the fade curve between two points, right-click an envelope segment and choose a command from the shortcut menu:



 To move all envelope points, press Ctrl+A and drag when the envelope has focus (the cursor will be displayed as a .

3. Choose a waveform shape from the **Operator shape** drop-down list.
4. In the **Frequency** box, specify the frequency of the operator.

 Notes:

- If **Frequency** is set to 0.00, a DC (zero-frequency) waveform is produced regardless of the waveform specified.
 - When you choose **Filtered Noise** from the **Operator shape** drop-down list, **Frequency** determines the high-frequency content of the noise.
5. Drag the **Feedback** slider to determine the amount of the operator's output that is used to modulate itself. If the operator is also being modulated by another waveform, the feedback path and the modulator output are mixed together to modulate the carrier.
 6. Drag the **Amplitude** fader to determine the output gain that will be applied to the current operator after the amplitude envelope.
 7. If the operator is a modulator, this control, along with the envelope, determines the amount of frequency modulation applied to the carrier. If the amplitude of a modulator is high, very harsh sounds can result.

For more information about using processing dialog controls, click [here](#).

Simple Synthesis

From the Insert menu, choose **Synthesis**, and then choose **Simple** from the submenu to generate a simple waveform of a given shape, pitch, and length.

1. From the Insert menu, choose **Synthesis**, and then choose **Simple** from the submenu.
2. Choose a shape from the **Waveform shape** drop-down list to specify the shape of a single period of the waveform.
3. In the **Length** box, specify the length (in seconds) of the generated waveform.
4. In the **Start Frequency** box, specify the frequency of the waveform you want to generate or the starting frequency of the range you want to sweep.



Notes:

- **Aliasing** can occur with many of these waveforms when using high frequencies because they are not band-limited.
 - When you choose **Filtered noise** from the **Waveform shape** drop-down list, **Start Frequency** determines the low-pass cut-off frequency.
5. If you want to sweep a range of frequencies, select the **End Frequency** check box and specify an ending frequency in the box. Select the **Log Sweep** check box if you want to sweep the range logarithmically; when the check box is cleared, the sweep is linear.



The available frequency range is limited by your current **sampling rate**. The highest frequency available will be the **Nyquist frequency**.

6. Drag the **Amplitude** fader to set the peak level of the waveform.



When **Filtered Noise** is selected in the **Waveform shape** drop-down list, the amplitude is affected by the frequency.

7. Choose a position from the **Insert new waveform at** drop-down list to determine where the generated waveform will be placed within the current data window.
8. Click the **OK** button.

For more information about using processing dialog controls, click [here](#).





Sampling

With the Sampler Tool, you can use the powerful and easy-to-use sample-editing capabilities in Sound Forge Pro software to create and edit samples and then transfer them to your external and internal samplers.

Using Sound Forge Pro Software with a Sampler

From the Tools menu, choose **Sampler** to send data to and receive data from a sampler.

Set up an external sampler

1. Choose **Sampler** from the Tools menu to display the Sampler dialog.
2. Click the **Configure** button to display the Sampler Configuration dialog.
3. From the **Sampler** drop-down list, choose the sampler to which you wish to send and receive samples.
 -  If your sampler is not listed here, choose **SMDI or SDS capable sampler**.
4. Specify input/output settings for the sampler:
 - If your sampler uses MIDI/SDS transfer, click the **MIDI** radio button and choose input and output ports in the **MIDI Out** and **MIDI In** boxes.
 - If your sampler uses SCSI/SMDI transfer, click the **SCSI** radio button and select your sampler in the **Sampler** box.
 -  The **Sampler** box will list all devices connected to the selected SCSI host, including devices that are not samplers.
5. In the **Sample bias** box, specify a numbering offset that allows you to add or subtract a value to the **Logical send/receive samplenum** to compensate for differing sampler storage schemes.
 -  It is often easiest to set the **Sample bias** so that a **Logical send/receive sample number** of zero corresponds to the first available sample storage number in your sampler.
-  Perform steps 6 through 9 only if you selected the **MIDI** radio button in Step 4.
6. In the **MIDI channel** box, specify the MIDI channel through which sample data will be sent when using **SDS**.
7. Select the **Open loop** check box if you want to send SDS sample data immediately upon clicking the **Send Sample** button. This is an unconditional transfer of sample data (no handshake). For more information about open-loop transfer, click [here](#).

When this check box is selected, the sampler's MIDI output does not have to be connected to your computer's MIDI input. However, **Open loop** decreases sample dump speed and is more prone to transfer errors.
8. Select the **Send request when retrieving samples** check box if you want the Sampler tool to send a request (handshake) to the sampler before beginning an SDS sample transfer.
9. Select the **Wait for request when sending samples** check box if you want the Sampler tool to wait for a request (handshake) from the sampler before beginning an SDS sample transfer.
10. Click the **Save As** button and specify a preset name to save your settings.


Send or receive samples

Sending a sample will always send the entire contents of the active data window. Any selection contained in the waveform display is ignored. When receiving a sample, the entire contents of the active data window are replaced with the new sample data (a warning will be displayed before any data is replaced).

1. From the Tools menu, choose **Sampler**.
2. Choose a sampler from the **Configuration** drop-down list.
3. In the **Logical send/receive sample number** box, specify the number your sampler uses as its location reference for samples sent or received. This number can be biased for specific samplers with the **Sample bias** setting in the Sampler Configuration dialog.

The **Actual send/receive sample number** is displayed below the **Logical send/receive sample number**. The actual value is the sum of the logical value and the specified sample bias.

4. Click the **Send sample** or **Get sample** button to start the data transfer.

 The **MIDI unity note** and **Fine tune** values are for display only. Use the **Sampler Loops** window to modify the settings.

Determine sample bias

Sample bias is a numbering offset that allows you to add or subtract a value to the logical sample number to compensate for differing sampler storage schemes. This way, you can use sample numbers 0 through n for your samples no matter what sampler you are using.

Samplers that have factory-defined samples burned into their ROMs usually define a range of sample numbers for these samples. This range cannot be used to store and retrieve your own samples. These samplers will define one or more sample number ranges that are available for your own samples.

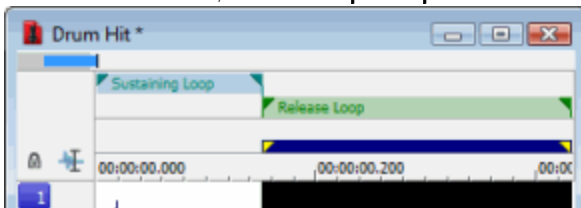
For example, the Akai S1000 uses sample numbers 0 through 3 to store its factory-defined samples. Sample numbers above 3 are available for user-defined samples, so a sample bias of 4 would allow you to use sample numbers 0 through n as the **Logical send/receive sample number** and the Sampler Tool will convert it to the **Actual send/receive sample number** automatically.




You can also use the sample bias to define different bases for multiple projects on which you are working. For example, if you are composing two different pieces that use different samples, you might want to create a sampler configuration for each of these projects. Within each configuration, you can define a different sample bias to keep your samples separated in the same sampler.

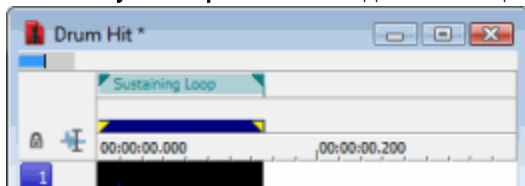
Creating or Editing Sample Information

From the Insert menu, choose **Sample Loop** to create a sample loop from the current time selection:



Create a sustaining loop


1. Create a **time selection** in a data window.
2. From the Insert menu, choose **Sample Loop** (or press Alt+L). A sustaining loop region is displayed in the data window, and the **Play as Sample** button  appears on the playbar.

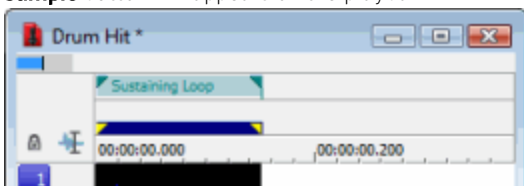


3. Right-click the sustaining loop and choose **Edit Sample Loop** from the shortcut menu (or press Alt+Shift+L). The **Sampler Loops window** appears.

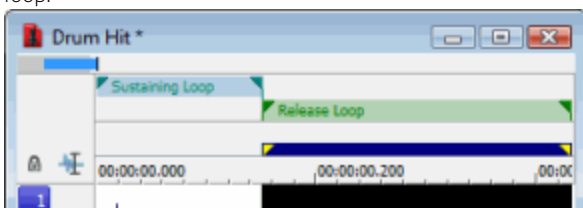
- Use the **Sustain count** box to indicate how many times the sustaining loop should be played. Click the value and choose **Custom** to type a number, or choose **Infinite** if you want the loop to repeat infinitely.


Create a sustaining loop with a release loop

- Create a **time selection** in a data window.
- From the Insert menu, choose **Sample Loop**. A sustaining loop region is displayed in the data window, and the **Play as Sample** button  appears on the playbar.




- Right-click the sustaining loop and choose **Edit Sample Loop** from the shortcut menu (or press Alt+Shift+L). The **Sampler Loops window** appears.
- Click the **Sustain count** value, choose **Custom** from the drop-down list, and type a number to indicate how many times the sustaining loop should be played.
- In the **Sample type** box, choose **Sustaining with Release**. A release loop is created for the same length as the sustaining loop.



- Edit the length of the release loop as needed. You can drag the release loop markers in the data window or edit the Start, End, or Length boxes in the Sampler Loops window.
- Type a value in the **Release count** box to indicate how many times the release loop should be played.
- Click the **Play as Sample** button  in the playbar.

The sustaining loop plays the number of times specified by its **Sustain count** setting, and then the release loop plays the number of times specified by its **Release count** setting.

Trigger the sample with MIDI

- From the View menu, choose **Metadata**, and then choose **Sampler Loops** from the submenu to display the **Sampler Loops window**.
- In the **MIDI unity note** box, click the down arrow  and choose a note and octave.

This MIDI note will cause a sampler to play the sound file at the pitch (sample rate) it was originally recorded.

- In the **Fine tune** box, type a value from 0 to 99.999 cents if you want to pitch shift the unity note up from 0 to 99.999 cents.

Sound Forge Pro software does not fine-tune the sound file when fine tuning is used, and not all samplers support the setting. This option is an informational setting that will be transmitted to a sampler via a sample-transfer procedure.

A sampler such as the K2000 can use this information to play back the sample. The K2000 should accurately display this information on Master/Sample/Misc. page as **Pitch Adjust**.

- If you want to add SMPTE offset information to your sample, double-click the **SMPTE offset** box and type a new value.

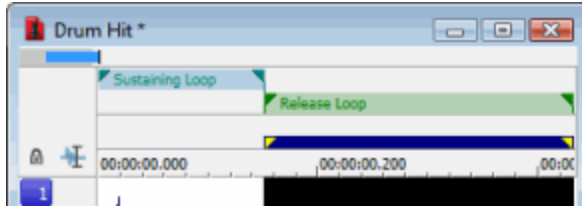
If you want to choose a different time format, click the down arrow ▼ in the **SMPTE format** column and choose a SMPTE format from the drop-down list.

Sound Forge Pro software ignores this offset value, and not all samplers can store a SMPTE offset value in the sample.

Edit an existing loop

After you've created a loop, you can edit it by moving the loop tags ▽ in a data window.

- Drag the beginning or ending tag to a new position to change the start, end, or length of a loop.
- To move a loop without changing its length, drag the bar between the loop markers:



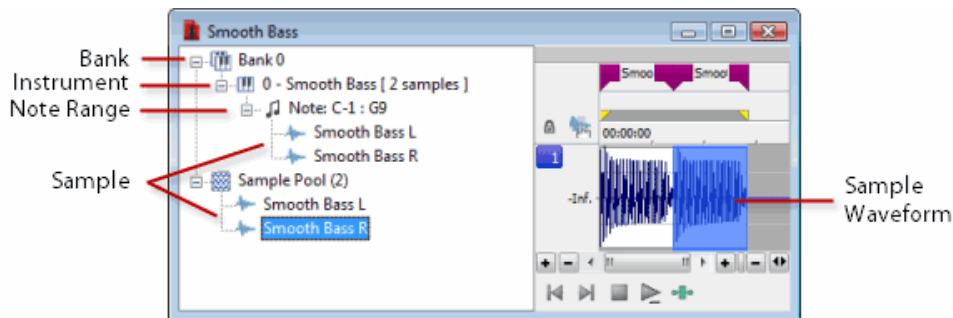
- Select a range of data, right-click a loop marker, and choose **Update from Selection** from the shortcut menu to move the marker tags to the beginning and end of your selection.

To edit the start, end, length, or play count for a loop, right-click the loop in the data window and choose **Edit Sample Loop** from the shortcut menu (or press Alt+Shift+L). The [Sampler Loops window](#) appears.

Processing Musical Instrument Files


Sound Forge Pro can open and save DLS, GigaStudio/GigaSampler, and SoundFont 2.0 musical instrument files, allowing you to add effects and processing to existing samples and edit individual samples.

When you open a musical instrument file, you'll notice some additions to the data window:



The left pane lists the banks, instruments, note ranges, and recorded samples in the instrument file. Click a bank or sample to select it in the waveform display.

Markers ▽ represent each sample in the waveform display.

 **File Properties** metadata cannot be edited for musical instrument files.

Open a musical instrument file


You can open musical instrument files just like any other file type:

- Drag a musical instrument file to the workspace.
- From the File menu, choose **Open**, and then use the Open dialog to browse to the file you want to open.
- Double-click an instrument file in the Sound Forge Pro Explorer window.

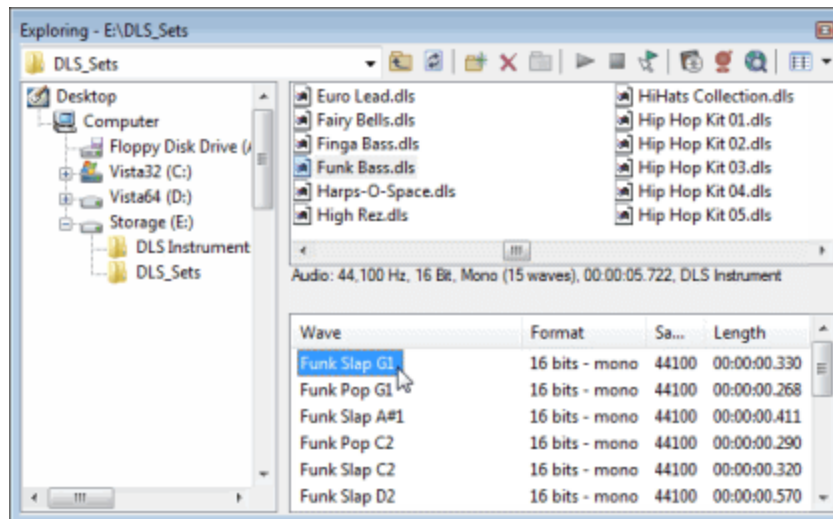
The following musical instrument file formats are supported:

- .dls: DLS level 1.0 and 2.0
- .sf2: SoundFont version 2.0
- .gig: GigaSampler/GigaStudio version 1/2/3

 Compressed and encrypted GigaSampler/GigaStudio samples are not supported.





If you want to open a sample's audio data, browse to an instrument file in the [Explorer window](#). Click the down arrow ▼ next to the **Views** button  and choose **Region View** from the menu.

Each wave is then displayed at the bottom of the Explorer window. You can double-click a wave to open it as a wave file:



Preview samples

Playback for musical instrument files behaves slightly differently than playback in a normal data window.

- If no samples are selected, click **Play All**  to play all samples in the data window. Click **Play**  to play all samples from the cursor position to the end of the data window.
- If you have samples selected, click **Play All**  to play all selected samples in the data window. Click **Play**  to play all selected samples from the cursor position to the end of the data window.

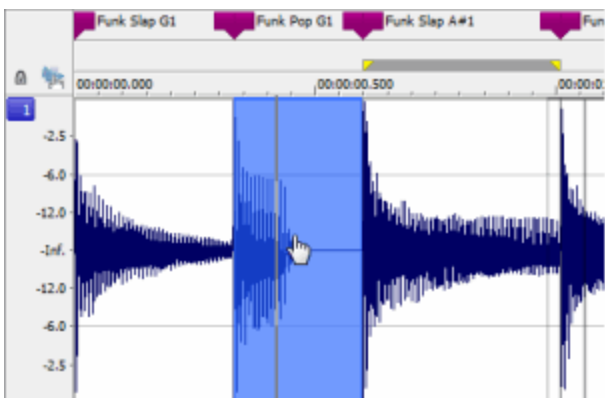
Select samples

Each sample in an instrument file is contained within an event in the data window. The data window selection determines which parts of the waveform will be processed.

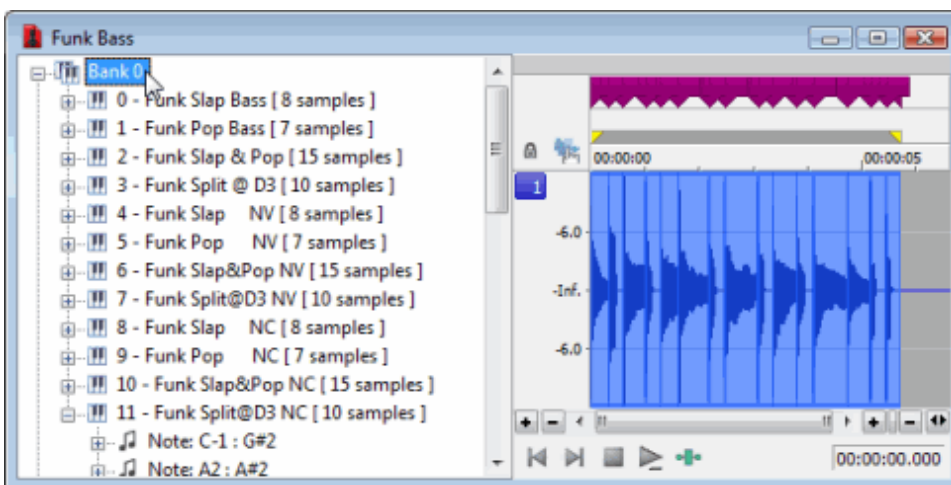
Event positions are locked; you cannot move events within the data window.

Effects and processes can be applied to individual events or multiple selected events.

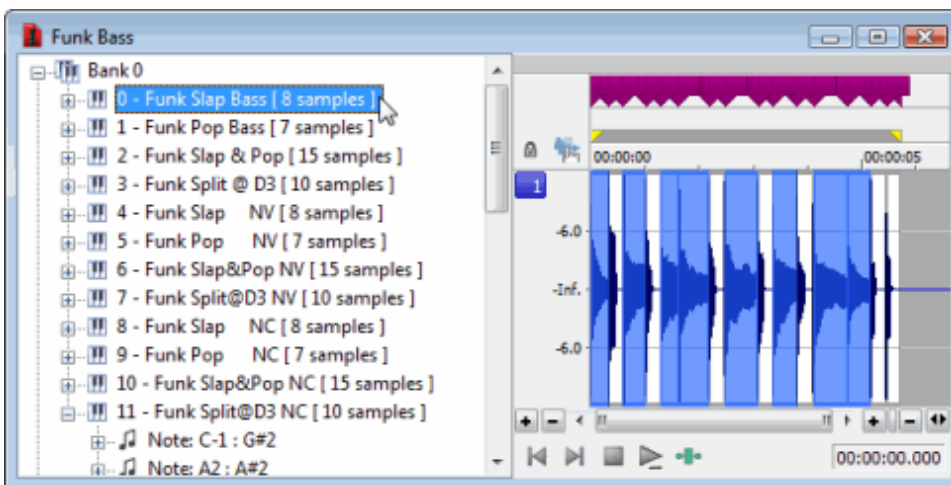
You can select an individual sample by clicking the event in the data window (hold Ctrl or Shift to select multiple samples):



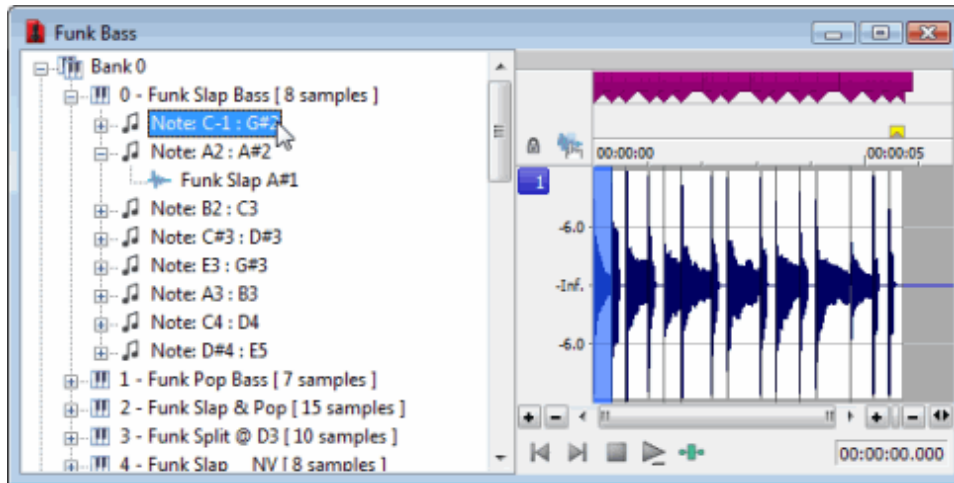
You can select all samples in a bank by clicking the bank in the left pane:



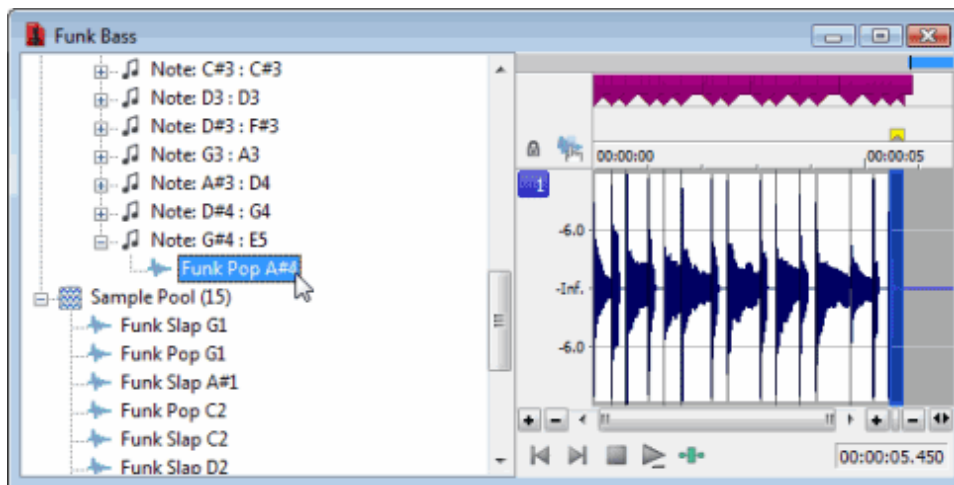
You can select all of an instrument's samples by clicking the instrument in the left pane:



You can select all samples within a note range by clicking the note range in the left pane:




You can select individual samples by expanding a note range or the Sample Pool list and clicking a sample in the left pane:



Process a selection

1. Select the samples you want to process. If no samples are selected, processing will be applied to all samples.
2. Choose a command from the Process, Effects, or FX Favorites menu.
3. Choose a preset from the **Preset** drop-down list or adjust the dialog controls as needed.

For more information, please see [Using Processing Dialogs](#).

 Plug-ins that can change the length of audio data (such as reverb or delay) will use Insert Tail Data mode. Tails will be added to the waveform, and audio to the right of the tail will be moved to accommodate the extra audio.

4. Click the **Preview** button to hear the effects of your processing settings. Select the **Bypass** check box to hear the unprocessed signal.
5. Click **OK**.

During processing, a progress meter is displayed at the bottom of the data window. You can cancel the operation at any time by clicking the **Cancel** button to the left of the progress meter, or you can press the Escape key.



Event selection is not exposed to scripts. When applying an effect to a file via [scripting](#), you can specify the current time/channel-selection (DoMenu) or a new time/channel-selection (DoEffect).

When processing musical instrument files, all events in the time/channel selection will be processed. If no selection exists or the entire file is selected, all events will be processed.

Edit samples

In addition to applying processing and effects, you can also edit the samples in an instrument file.

For example, if you need to remove a [glitch](#) or replace a sample in an instrument file, you can open an individual sample in a new editing window.

1. Select the sample you want to edit.
2. From the Edit menu, choose **Event**, and then choose **Edit** from the submenu.

The selected sample is opened in a new window. If you selected multiple samples in step 1, each sample is opened in a separate window.



Press E (or right-click a sample and choose **Edit** from the submenu) to open the edit window quickly.

3. Perform edits as needed.



Notes:

- If you want to replace sample data, you can [clear](#) the data in the edit window and [paste](#) data from another window.
 - Changes to bit depth, sample rate, or number of channels cannot be saved back to the original musical instrument file.
4. From the File menu, choose **Save** to close the edit window and save your changes back to the musical instrument file.

If you want to save the edited sample to a different format (other than a musical instrument file), you can use [Save As](#).

Save your changes

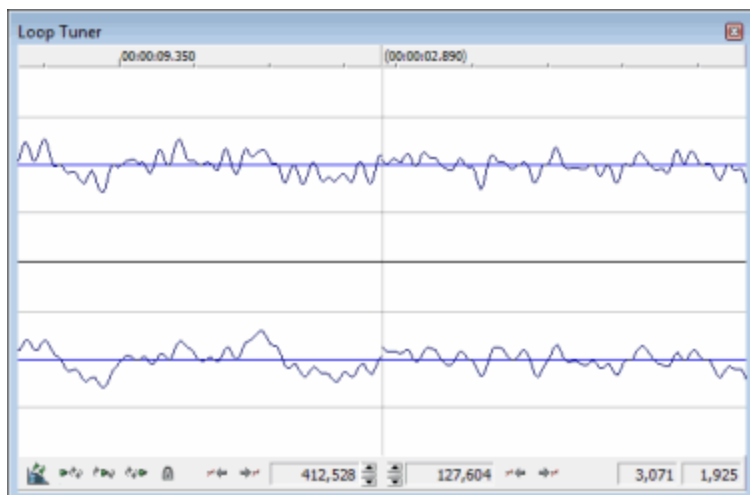
After you're finished processing a musical instrument file, you can use the [Save](#) or [Save As](#) commands to save your changes to the original file or to a new file.

Musical instrument files must be saved to the original format.

Loop Tuner

From the View menu, choose **Loop Tuner** to open or close the Loop Tuner window. You can use the Loop Tuner to adjust the starting and ending points of a loop (or selection) to create smooth transitions.

The Loop Tuner allows you to view both loop endpoints at once. The left-hand side of the Loop Tuner window shows the end of the loop, while the right-hand side shows the start of the loop. A seamless loop will not have any discontinuities; the waveform should look smooth as it goes from the end of the loop back to the start.



Learn more about looping techniques

Creating natural-sounding loops requires experimentation. Many factors can cause pops and glitches, but the following guidelines will help you to create loops with less trial and error.

Match endpoint amplitudes

It's most common for the endpoints of a loop to occur at **zero-crossings**.

Match endpoint waveform slopes

If the slope of a waveform changes drastically, an audible pop will be produced.

Match endpoint sound levels

The overall loudness within ~100 ms of the endpoints should be equal.


Avoid very short loops


If the loop is shorter than ~50 ms (1/20 Hz), you will most likely create a loop with a pitch not equal to the sample pitch.




You can experiment with pitch-tuning by creating short loops with a length of $1/\text{frequency}$. For example, if you had a sample pitch of 440 Hz (A5 on the MIDI keyboard), you can make the loop 2.27 ms. Pitched loops, however, do not sound like the original sample.


Play from the Loop Tuner

Click the **Play Pre-Loop** button  to play the sound data before the selected loop.

Click the **Play Loop** button  to play the selected loop. You can use the Loop Tuner to tune the loop during playback.

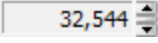
Click the **Play Post-Loop** button  to play the sound data after the selected loop.

Switch between sustaining and release loops

When your **Sample Type** is **Sustaining with Release**, you can click the **Loop Select** button  to switch between the sustaining and release loops in the Loop Tuner.



When the sustaining loop is selected, the button is displayed as .

Fine-tune loop endpoints

The **Loop End Position** and **Loop Start Position** boxes  display the current positions (in samples) of the endpoints. Use the spin controls to adjust the end points.

Move the end points to a zero-crossing


Each loop end window includes buttons to move the loop endpoint to the next or previous **zero-crossing**:

- Click the **Zero Crossing Left** button  to move the endpoint to the previous zero-crossing.
- Click the **Zero Crossing Right** button  to move the endpoint to the next zero-crossing.



To configure the zero-crossing finders, choose **Preferences** from the Options menu and click the **Editing** tab. You can modify the **Snap to zero-crossing slope**, **Zero-cross scan time**, and **Zero-cross level threshold** settings to determine how Sound Forge Pro software locates zero crossings.

Lock a loop length

Click the **Lock Loop Length** button  if you want to shift a loop's position without changing its length. When this button is selected, any operation you use to change a loop point affects both the start and end of the loop, therefore keeping the loop length constant.



This button also controls the **Lock Loop/Region Length** command on the Options menu.

Save loop points


If you want to save loop points in your file, select the **Save metadata with file** check box in the **Save As** dialog.

Crossfading Loops

From the Tools menu, choose **Crossfade Loop** to create loops in material that otherwise might not loop well. Mixing sound occurring before the loop start point into the end of the loop can make the transition from the end to the beginning of the loop much smoother.



Use the **Loop Tuner** before applying the **Crossfade Loop** command to match the loop ends as well as possible.

Item	Description
Loop to crossfade:	Click the appropriate radio button to select the sample loop that will be affected by the crossfade. Most samples only have one loop: the sustaining loop. If a sample contains two loops, the second loop is called the release loop.
Sustaining Release	
Loop graph	The graph shows you where the crossfade will occur. The three areas (from left to right) represent the sound before, inside, and following the loop points, and are displayed with different sloped lines. For example, when performing a Sustaining loop crossfade with no Post-Loop, you can see the loop data fade out as data from the Pre-Loop is mixed in to form a crossfade.
Loop	Select the check box and drag the slider to determine how much of the selected sample loop will be crossfaded. The end of the sample loop is crossfaded with the end of the region before the loop start to make the end of the loop blend smoothly with the beginning of the loop.
Post-Loop	Select the check box and drag the slider to determine how much of the region following the loop end is crossfaded. The region following the sample loop is blended with the beginning of the sample loop to make the transition from the end of the loop to the rest of the sample following the loop smoother.  Post-Loop crossfading is only necessary if the sampler will play beyond the loop points.
Preview mode	Choose a mode from the drop-down list to determine how the Preview button will work:

Loop the Loop

Plays the loop area only.

Play Loop through Post-Loop

Plays the loop once and then the Post-Loop.

Play as One Shot

Plays from the beginning of the file and uses the loop settings to determine how many times to loop each loop.

For more information about using processing dialog controls, click [here](#).

Using the MIDI Keyboard

From the View menu, choose **Keyboard** to open or close the MIDI Keyboard window. The keyboard allows you to send **MIDI note on** and **MIDI note off** commands to your sound card or sampler.

With the Sound Forge Pro MIDI keyboard, you can control internal or external synthesizers and samplers from Sound Forge Pro software. For example, you might want to test a sound in a sampler after sending (downloading) it from Sound Forge Pro software. You can also use the MIDI keyboard to listen to the different sounds on a synthesizer or in the synthesis section of your sound card.

Open the MIDI Keyboard

From the View menu, choose **Keyboard** to open or close the MIDI Keyboard window.

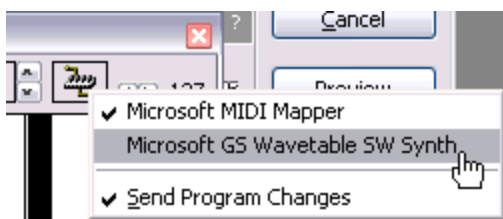
Resize the MIDI Keyboard


Like any other toolbar or shortcut menu window in Sound Forge Pro, you can resize the MIDI Keyboard window, move it, or dock it to any side of the Sound Forge Pro window.

When the cursor is over any edge of the window, the cursor is displayed as a \leftrightarrow . Drag to resize. Depending on how you resize the keyboard, the keys will be arranged horizontally or vertically.

Configuring the output device and channel

1. To select a MIDI device, click the **MIDI Out** button and choose a device from the menu:



2. Select the **Send Program Changes** command to select instruments in the device from the keyboard. Program changes are sent only when a key on the MIDI Keyboard is clicked.
3. Click the up and down arrows  to select the MIDI channel you want to use for the selected device. Most MIDI devices are configurable to accept MIDI commands on any channel.

Select instruments


The **Instrument** drop-down list contains instrument patches listed in the General MIDI standard. Choose an instrument from the drop-down list and click a key on the keyboard to play the patch.

 Notes:

- The **Send Program Changes** command must be selected if you want to be able to select instruments. Program changes are sent only when a key on the MIDI Keyboard is clicked.
- If your synthesizer does not use the General MIDI convention, choose a patch number instead of an instrument name.

Play the keyboard

Click the keys to play them:

- Choose **Note** from the **Chord structure** drop-down list to play a single note, or choose a chord structure or interval to play a chord (the key you click will be the chord's root).
- Drag the **Velocity** slider to set the MIDI output velocity.
- Click the arrow buttons  to change the range of the MIDI Keyboard to display higher or lower octaves.

Troubleshoot the MIDI Keyboard

If, after selecting the correct device, you still can't hear anything when you play on the keyboard, check the following:


- Set the MIDI output velocity to a high value (above 100).
- Set the MIDI input channel in your sound module to the same channel as the MIDI keyboard channel. Also, make sure the device is set to receive MIDI input.
- Check the device output volume level: is the mixer level for your sound card or the output volume of the sampler and speakers at a high enough setting?
- For external devices, check your MIDI cables.

MIDI Synchronization

The Musical Instrument Digital Interface (MIDI) is a set of commands that allow music software and hardware to communicate. MIDI is most often used for sending commands such as `Play Middle C Now`, but can also be used to send information such as `Current Time is: 00:00:01:23 SMPTE`, or even digital sound data (see [Sampling](#) for more information).

The most common way to use MIDI is to have a master device (such as a MIDI sequencer) to generate MIDI commands to a slave device (such as a synthesizer, which plays a note when instructed). If both were in separate hardware devices, you would run a MIDI cable from the sequencer's MIDI out port to the synthesizer's MIDI in port.

Generating MIDI Timecode

From the Options menu, choose **MIDI In/Out**, and then choose **Generate MIDI Timecode** from the submenu if you want to generate MIDI timecode (MTC) when you click **Play** .

MIDI timecode (MTC) is a standard timecode that most applications and some hardware devices will use to synchronize themselves.

You can specify a MIDI output port on the [MIDI/Sync](#) tab in the Preferences dialog.

Triggering from MIDI Timecode

From the Options menu, choose **MIDI In/Out**, and then choose **Trigger from MIDI Timecode** from the submenu if you want to trigger playback or recording by receiving timecode from another device.

When this option is selected, dialogs that specify MIDI triggers will also accept input from the MIDI input port, allowing easy entry of MIDI note and controller values. When this option is not selected, the MIDI triggers, Regions List triggers, and Playlist triggers specified will be ignored.

 You can specify a MIDI Input port on the [MIDI/Sync](#) tab in the Preferences dialog.

Trigger playback with MIDI timecode


You can use MIDI timecode to trigger Sound Forge Pro playback from another device.

1. From the Options menu, choose **Preferences**, and click the [MIDI/Sync](#) tab.
2. On the MIDI/Sync tab, choose the trigger device from the **Input** drop-down list and click the **OK** button.
3. From the Options menu, choose **MIDI In/Out**, and then choose **Trigger from MIDI Timecode** from the submenu to enable MIDI input.
4. From the View menu, choose **Toolbars**. Select the **Regions/Playlist** check box and click the **OK** button. The timecode is displayed in the [Regions/Playlist](#) toolbar when you start your MIDI device.
5. Create a [region](#) that includes the sound data that you want to trigger.
6. Add your region to the [Playlist](#).
7. In the Playlist window, choose **SMPTE: Play at Time** from the **Trigger** drop-down list and enter the time at which you want to start playback in the **SMPTE time** box.

Trigger recording with MIDI timecode

You can use MIDI timecode to trigger Sound Forge Pro recording to another device.


For more information, click [here](#).

 If **Trigger from MIDI Timecode** is not selected when you open the Record dialog, Sound Forge Pro software will turn it on temporarily when you choose the **Automatic: MIDI Timecode** recording mode to allow recording and turn it off again when you close the Record dialog.

Pre-Queuing Data for Synchronization

From the Options menu, choose **MIDI In/Out**, and then choose **Pre-Queue for MIDI Timecode** from the submenu if you want to open the wave device and preload data from the next region to be played in the [Playlist](#).

Pre-queuing helps ensure that audio will begin playing the moment the designated SMPTE time is detected by Sound Forge Pro software when [triggering](#) from MIDI timecode (MTC).

 This option is suspended when any other audio command is used such as **Play**, **Stop**, or **Record**.

Using MIDI Triggers

You can use MIDI triggers to control Sound Forge Pro functions using MIDI commands from external devices such as a MIDI keyboard or sequencer.


Configure an internal or external MIDI controller

1. From the Options menu, choose **Preferences**, and then click the [MIDI/Sync](#) tab.
2. On the MIDI/Sync tab, choose the trigger device from the **Input** drop-down list and click the **OK** button.
3. From the Options menu, choose **MIDI In/Out**, and then choose **Trigger from MIDI Timecode** from the submenu to enable MIDI input.
4. Use the MIDI Triggers dialog to configure the triggers you want to use. For more information, please see "Assign Sound Forge Pro events to MIDI triggers" in this help topic.


Assign Sound Forge Pro events to MIDI triggers

1. From the Options menu, choose **MIDI In/Out**, and then choose **Trigger from MIDI Timecode** from the submenu to enable MIDI input.
2. From the Options menu, choose **MIDI Triggers** to display the MIDI Triggers dialog.
3. Select the Sound Forge Pro function that you want to trigger in the list.
3. Click the radio button that corresponds to the type of trigger you want to use for the selected event:

Item	Description
None	Click to assign no MIDI trigger to the selected event or to remove an existing trigger.
Note	Click if you want to trigger the selected event with a MIDI note. Specify the MIDI channel to which the trigger is assigned in the Channel box, and specify the musical note that will trigger the event in the Note box.
Controller	Click if you want to trigger the selected event using a MIDI controller. Specify the MIDI channel to which the controller is assigned in the Channel box. Use the Controller box to specify which controller will trigger the event and specify a value in the Value box.

 You can automatically enter the values in the **Channel**, **Note**, **Controller**, and **Value** boxes. Select the **Enable MIDI Input Sync/Trigger** check box and press a key or controller on your MIDI device.

4. Click the **OK** button.

 MIDI triggers are different from triggers in the Playlist and Regions List. When using triggers in the Playlist, Regions List, or MIDI Triggers dialog, be aware that they can interact with each other to create unexpected results. Sound Forge Pro software first looks at the MIDI Triggers, then the Regions List, and then the Playlist when determining what to do when a MIDI command is detected.


Spectrum Analysis

The Spectrum Analysis tool allows you to examine the fundamental frequency and overtones present in a recording. To display the Spectrum Analysis window, choose **Spectrum Analysis** from the View menu.

Unlike a Sound Forge Pro data window, which represents audio in the time domain (amplitude vs. time), Spectrum Analysis allows you to examine sound by representing the sound in the frequency domain (amplitude vs. frequency). Data displayed in the frequency domain shows the amplitudes and frequencies of sine waves that, if mixed together, would sound very much like the original sound. Since it's relatively easy to remember how a sine wave sounds at different frequencies, it's possible to visualize how simple waveforms sound by looking at the spectrum of the sound.

Spectrum Analysis allows you to perform precise **Fast Fourier Transform (FFT)** analysis and displays the resulting data in a spectrum graph or a sonogram display. Both formats make it easy to navigate data and read audio frequency and position.


Viewing a Spectrum Graph

Click the **Normal Display** button  in the Spectrum Analysis window to display spectrum information as a normal spectrum graph.

The spectrum graph displays the amplitude (in dB) of each frequency component from 0 Hz to the **Nyquist frequency**. Frequency is displayed along the X (horizontal) axis, and amplitude is displayed along the Y (vertical) axis.



Generate spectrum information

1. **Select** the portion of the waveform you want to analyze. The sound or note you want to analyze should be in the center of the highlighted area.

 Analyzing long sections of audio can take a long time and decreases the time resolution, so your selection should be relatively short. Also, if the audio has a low amplitude level, you can boost it by using the **Volume** or **Normalize** functions.

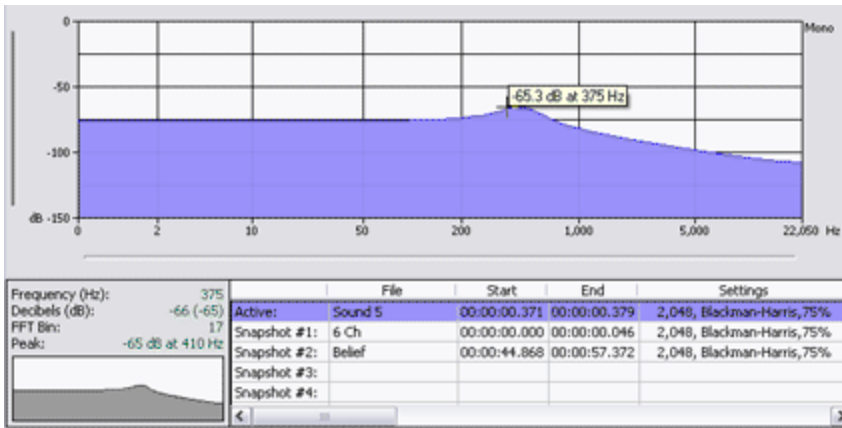
2. From the View menu, choose **Spectrum Analysis** to show the Spectrum Analysis window if it isn't already visible.
3. Use the toolbar at the top of the window to set your display options.

You can also click the **Settings** button  in the Spectrum Analysis window to set additional **options**.

 You can continue to make selections in the sound file with the Spectrum Analysis window open (just move the cursor or make selections as you normally would). Click the **Refresh** button  in the Spectrum Analysis toolbar to update the display. If no selection is made, analysis is performed on the samples immediately following the cursor position.

View amplitude, frequency, notes, and statistics

As you move the cursor through the spectrum graph, the amplitude and frequency values at the current position are displayed in a ToolTip next to the cursor and in the Statistics area at the bottom of the window:




Right-click the graph and choose **Show Position** from the shortcut menu to toggle the display of ToolTips. The setting for each graph in a multichannel file is independent.

If you want to display the nearest musical note equivalent of the cursor position in a Tooltip, right-click the graph and choose **Show Notes** from the shortcut menu:



Right-click the Spectrum Analysis window and choose **Show Statistics** from the shortcut menu to toggle the display of the Statistics area at the bottom of the Spectrum Analysis window.

Change the graph type

Click the down arrow next to the **Normal Display** button  and choose **Line Graph**, **Filled Graph**, or **Bar Graph** from the menu to change the type of graph displayed in the Spectrum Analysis window. A check mark is displayed next to the selected graph type.

 Some video drivers have problems displaying Filled Graph and Bar Graph modes. If you encounter problems such as incorrect shading or very slow drawing, use the **Line Graph** option or change video drivers.

If you're analyzing a multichannel file, you can click the down arrow next to the **Normal Display** button and choose **Single Graph** to see all channels in a single graph.

Right-click the graph and choose **Logarithmic** from the shortcut menu to toggle the x-axis between logarithmic and linear mode. In logarithmic mode, more of the graph is devoted to lower frequencies.


Change the zoom level of the graph

Zooming can be accomplished in several ways:

1. Drag on the graph to draw a box around the area you want to magnify. You can toggle through mouse selection mode by right-clicking while holding the left mouse button:
 - The first type is a vertical zoom window. This will allow you to zoom to a frequency range.
 - The second type is horizontal zoom window. This will allow you to zoom to an amplitude range.
 - The third type is a combination of vertical and horizontal zoom. This will allow you to zoom to a frequency and amplitude range.
2. Right-click the graph and choose **Zoom Out Full** to view the entire amplitude and frequency range.


- Right-click the graph and choose **Normalize dB** to set the Spectrum Graph amplitude range equal to the maximum and minimum values in the graph.

Navigate the graph

Right-click the graph and choose **Grab/Pan** from the shortcut menu. The cursor will be displayed as a , and you can drag horizontally or vertically to scroll through the graph.


When you are zoomed into a selection of the spectrum graph, you can drag the horizontal and vertical sliders to scroll through the graph. The thumbnail image in the lower-left corner of the Spectrum Analysis window will show you which part of the graph is being displayed.

Synchronize graphs in a multichannel file


If you are analyzing a multichannel file, click the **Sync** button  to synchronize the displays so you can view the same region of the FFT in all channels.

Create and compare snapshots of the Spectrum Analysis window

You can store up to four snapshots to compare multiple spectrum graphs. You can take snapshots from a single data window or from different data windows.

 Snapshots are not available in sonogram display or when the **Slices displayed** setting in the [Spectrum Settings](#) dialog is greater than 1.

Taking a snapshot


- Navigate to the portion of the graph you want to capture.
- Click the **Set** button , and then click a snapshot button in the Spectrum Analysis toolbar.

Available snapshots buttons are displayed in black, and buttons that are in use are displayed in blue and underlined.

Showing and hiding snapshots

Select a numbered button in the Spectrum Analysis toolbar to display a stored snapshot. All selected snapshots will be displayed in the Spectrum Analysis window at the same time.

Click a selected snapshot button to exclude it from the display.

Select the **Hide active plot** button  to hide the current spectrum so you can concentrate on your snapshots.

In the following example, snapshots 1 and 3 will be shown in the graph; snapshot 2 is hidden, and snapshot 4 is unused.



Erasing snapshots

You don't need to erase individual snapshots to update or replace them. Simply click the **Set** button, and then click a snapshot button in the Spectrum Analysis toolbar to update its image.

If you want to erase all snapshots, click the **Clear all snapshots** button .

Viewing snapshot statistics


Information about each snapshot is displayed at the bottom of the Spectrum Analysis window:


	File	Start	End	Settings	Peak
Active:	6 Ch	00:00:00.642	00:00:02.486	2,048, Blackman-Harris,75%	-24 dB at 172 Hz
Snapshot #1:	AMBIENT REALMS...	00:00:01.186	00:00:01.758	2,048, Blackman-Harris,75%	-30 dB at 754 Hz
Snapshot #2:	Belief	00:00:29.278	00:00:33.752	2,048, Blackman-Harris,75%	-33 dB at 129 Hz
Snapshot #3:					
Snapshot #4:					


Print the graph

Click the **Print** button  to print the contents of the Spectrum Analysis window, including the graph and statistics data.


Refresh the graph

Select the **Auto Refresh** button  if you want the Spectrum Analysis display to refresh automatically updated when you change your selection in the data window.

When the button is not selected, the display is not updated until you click the **Refresh** button .

If you want the graph to refresh automatically during playback or input monitoring, select the **Real Time Monitoring** button .

Turn on real-time input/output monitoring

Click the **Real Time Monitoring** button  to turn real-time spectrum analysis on or off. Click the down arrow next to the button and choose a command from the menu to specify whether you want to monitor your sound card's input or output:

- When you choose **Monitor Input**, Sound Forge Pro will monitor the recording devices selected on the Record page of the [Audio](#) tab in the Preferences dialog.
- When you choose **Monitor Output**, Sound Forge Pro will monitor the playback devices selected on the Playback page of Audio tab in the Preferences dialog.




When **Monitor Output** is selected, the post-processing signal is monitored when you start playback from the [Plug-In Chain](#).



Real-time spectrum analysis can require significant processing power. If the spectrum graph's refresh rate seems sluggish, set the display mode to Line Graph, decrease the FFT size, or turn off snapshots.

Viewing a Sonogram

Click the **Sonogram** button  in the Spectrum Analysis window to display spectrum information as a sonogram.


The sonogram displays time along the X (horizontal) axis and frequency along the Y (vertical) axis. The amplitude of each frequency is represented by the intensity of the color.

Generate a sonogram

1. **Select** the portion of the waveform you want to analyze. The sound or note you want to analyze should be in the center of the highlighted area.



Analyzing long sections of audio can take a long time and decreases the time resolution, so your selection should be relatively short. Also, if the audio has a low amplitude level, you can boost it by using the [Volume](#) or [Normalize](#) functions.

- From the View menu, choose **Spectrum Analysis** to show the Spectrum Analysis window if it isn't already visible.
- Click the **Sonogram** button  in the Spectrum Analysis window to display spectrum information as a sonogram.
- Use the toolbar at the top of the window to set your display options.

You can also click the **Settings** button  in the Spectrum Analysis window to set additional **options**.



You will often have to experiment with different parameters in the Spectrum Settings dialog to get the best graph possible. Try to narrow the frequency and amplitude ranges as much as possible to achieve large contrasts. If the graph is too chunky, increase the **Set sonogram resolution** setting to approximately 200. For more frequency resolution, increase the **FFT Size**. To decrease processing times, decrease the number of samplings or the FFT Size.

Adjust color and intensity

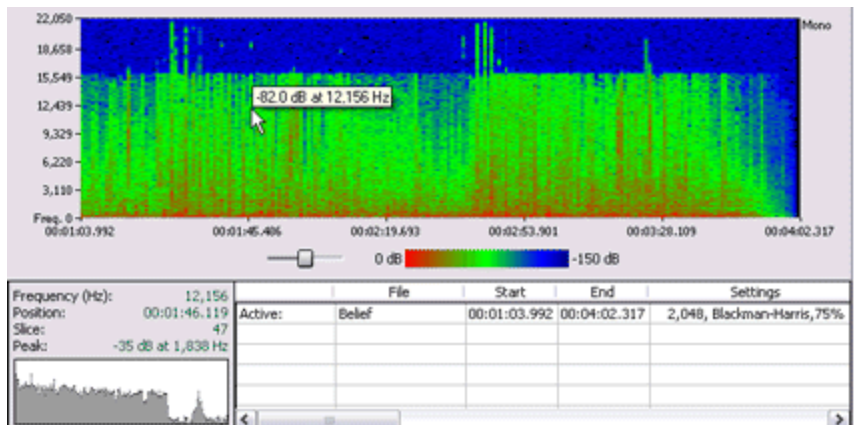
- Click the down arrow next to the **Sonogram** button  and choose **Color** or **Black and White** from the menu to specify whether you want to view a color or black-and-white sonogram.

A separate sonogram is displayed for each channel in the active data window.

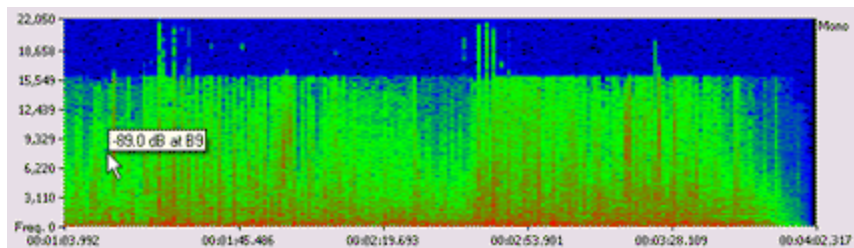
- Drag the slider below each sonogram to adjust the color intensity of the display. The bottom-right corner of the window will show the color scale in dB.

View frequency, amplitude, notes, and statistics

As you move the cursor through the sonogram, the amplitude and frequency values at the current position are displayed in a ToolTip next to the cursor and in the Statistics area at the bottom of the window:




If you want to display the nearest musical note equivalent of the cursor position in a ToolTip, right-click the graph and choose **Show Notes** from the shortcut menu:




Right-click the Spectrum Analysis window and choose **Show Statistics** from the shortcut menu to toggle the display of the Statistics area at the bottom of the Spectrum Analysis window.

Synchronize graphs in a multichannel file


If you are analyzing a multichannel file, click the **Sync** button  to synchronize the displays so you can view the same region of the FFT in all channels.

Use a sonogram to find the fundamental frequency of a sound


1. **Select** the portion of the waveform you want to analyze. The sound or note you want to analyze should be in the center of the highlighted area.
2. From the View menu, choose **Spectrum Analysis** to show the Spectrum Analysis window if it isn't already visible.
3. Click the **Sonogram** button  in the Spectrum Analysis window to display spectrum information as a sonogram.
4. Click the down arrow next to the **Sonogram** button and choose **Color** from the menu.

The sound you want to analyze should be displayed in shades of red. Hover over the center of the area to display the fundamental frequency.


If upper harmonics exist, they will be displayed as less intense red area above the fundamental, and will usually be multiples of the fundamental (a note at 440 Hz played on an instrument with fairly predictable or even harmonic content will have strong upper harmonics at 880kHz and 1.76kHz).


 After isolating a sound's fundamental frequency, you can use [equalization](#) to emphasize or attenuate the sound.

Print the graph


Click the **Print** button  to print the contents of the Spectrum Analysis window, including the graph and summary data.

Refresh the graph

Select the **Auto Refresh** button  if you want the Spectrum Analysis display to refresh automatically when you change your selection in the data window.


When the button is not selected, the display is not updated until you click the **Refresh** button .

Turn on real-time input monitoring

Click the **Real Time Monitoring** button  to turn real-time spectrum analysis on or off. Click the down arrow next to the button and choose a command from the menu to specify whether you want to monitor your sound card's input:

- When you choose **Monitor Input**, Sound Forge Pro will monitor the recording devices selected on the Record page of the [Audio](#) tab in the Preferences dialog.
- When you choose **Monitor Output**, a cursor is displayed in the sonogram to indicate the play position (real-time output monitoring is not available in sonogram display mode).

Changing Spectrum Analysis Settings

Click the **Settings** button  in the Spectrum Analysis window to display the Spectrum Settings dialog. This dialog contains controls to determine how spectral information is calculated and displayed.

Item	Description
FFT size	Choose a setting from the drop-down list to set the size in samples of the analysis window and number of discrete frequencies analyzed. Higher numbers produce increased frequency resolution at the expense of lower time resolution and longer computational time. The following example illustrates the results of 128-point and 2048-point FFT sizes on a 44,100 Hz sound file:

FFT Size	Time Analyzed (seconds)	Frequency Bands	Frequency Bandwidth (Hz)
128	0.003 (128/44100)	64 (128/2)	345 (44100/128)
2048	0.046 (2048/44100)	1024 (2048/2)	22 (44100/2048)

FFT overlap Specify the percentage of overlap between FFT analysis windows. Overlapping allows for more accurate analysis. Lower settings decrease the number of distinct analysis functions performed, which decreases processing time. High settings allow for more analysis, but can result in slow processing.

Smoothing window Choose a setting from the drop-down list to determine the window function applied to the input data before analysis. The window function affects the sharpness of peaks in an FFT graph and the leakage into neighboring frequencies. The effects of these windows can be easily seen by analyzing a single sine wave:

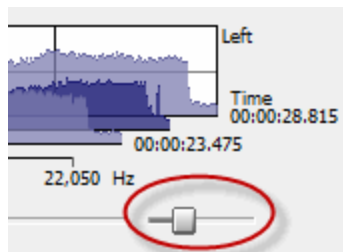
Blackman-Harris	Using the Blackman-Harris window results in the least sideband leakage at the expense of rounded graph peaks.
Hamming Hanning	Hamming and Hanning windows are commonly used in audio applications.
Rectangle	No window is applied. Using a rectangular window results in a very sharp peak but high leakage.
Triangle	A triangle window (also called a Bartlett or Parzen window) results in less leakage than the rectangle window.

Slices displayed The Spectrum Analysis window can display up to 64 spectrum graphs, each representing a point in time.

Type a value in the **Slices displayed** box to specify the number of FFT slices displayed. Each slice represents FFT size samples in time.

When displaying multiple slices, click the **Forward** or **Backward** radio button to determine whether slices are layered in chronological order. When **Forward** is selected, the first slice is displayed in the foreground; when **Backward** is selected, the last slice is displayed in the foreground.





In the spectrum graph, drag the **Slice** slider to show or hide graphs from the display.



Set sonogram resolution Select the **Set sonogram resolution** check box and specify the number of FFT samplings used in the sonogram. When this check box is not selected, the number of samplings is determined by the length of the selection and the **FFT overlap** setting.

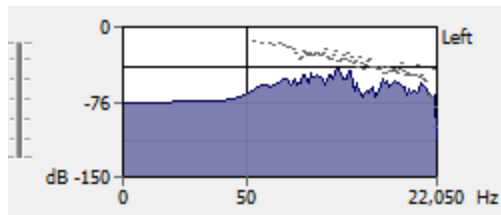
 Increasing the samplings increases the horizontal graph resolution but requires more processing time.

Display Range The Display Range controls allow you to adjust the range of each graph.

Channel	Choose a setting from the drop-down list to choose which graph you want to edit, or choose All Channels to edit all graphs.
Sync graphs	If you are analyzing a multichannel file, select the Sync graphs check box to synchronize the displays so you can view the same region of the FFT in all channels.
Logarithmic graphing	Select the check box to display the x-axis in logarithmic mode rather than linear mode. In logarithmic mode, more of the graph is devoted to lower frequencies.  Logarithmic graphing affects the display only when Normal Display  is selected.
Freq. Min	Specify the lowest frequency displayed in the graphs.  The Freq Min and Max settings affect the display only when Normal Display  is selected.
Max	Specify the highest frequency displayed in the graphs.
Ceiling	Specify the highest amplitude displayed in the graphs.
Floor	In the box, specify the lowest amplitude displayed in the graphs.

Hold peaks during monitoring

Select this check box if you want to mark the highest value of each frequency bin.



Maintain last monitored view

Select this check box if you want to maintain the state of the spectrum graph when you stop playback. If this check box is not selected, the graph will revert to the cursor position.


Customizing Sound Forge

Customizing Keyboard Shortcuts

From the Options menu, choose **Customize Keyboard** to customize the keyboard shortcuts available in the Sound Forge Pro interface.

The **Keyboard map** box displays the currently assigned shortcut keys. Click a tab in the middle of the dialog to choose which shortcuts you want to see.

Edit or create new shortcuts

1. Click a tab in the middle of the dialog to indicate the type of command you want to assign to a keyboard shortcut.
2. Select a command in the list.
 -  You can type a word in the **Show commands containing** box to filter the list of commands to display only commands that contain the word you typed.
3. Click the **Shortcut keys** box and press the key combination you want to assign to the selected command.
4. Click the **Add** button to assign the key combination in the **Shortcut keys** box to the selected command.

Save a keyboard map

Click the **Save as** button and type a name to save your current keyboard shortcuts to an .ini file **C:\Users\[user name]\AppData\Roaming\MAGIX\Sound Forge Pro\12.0**.

 The Application Data folder is not visible unless the **Show hidden files and folders** radio button is selected on the View tab of the Windows Folder Options control panel.

You can use this file as a backup or to share your keyboard shortcuts with other Sound Forge Pro users.

Delete a keyboard map

Choose a mapping from the **Keyboard map** drop-down list and click the **Delete** button to remove the selected keyboard mapping.


 You cannot delete the default Sound Forge Pro keyboard mapping.

Import or rename a keyboard map

Copy a Sound Forge Pro keyboard mapping .ini file to the following folder: **C:\Users\[user name]\AppData\Roaming\MAGIX\Sound Forge Pro\12.0**.

 The AppData folder is not visible unless the **Show hidden files and folders** radio button is selected on the View tab of the Windows Folder Options control panel.

The next time you start Sound Forge Pro, the new keyboard mapping will be available from the **Keyboard map** drop-down list in the Customize Keyboard dialog.


 If you want to edit the name used to identify a keyboard mapping in the Customize Keyboard dialog, open the .ini file in a text editor and change the **<Display Name>** portion of the **Name=<Display Name>** entry. Save the .ini file and restart Sound Forge Pro to use the new name.





Reset the default keyboard map



Choose **[Default]** from the **Keyboard map** drop-down list and click **OK** to restore the default configuration.

General Preferences

Use the General tab in the Preferences dialog to set miscellaneous Sound Forge Pro options. To display this tab, choose **Preferences** from the Options menu and click the **General** tab.

Option	Description
Open default Workspace on startup	If this check box is selected, files that were open when you last exited the program will be opened automatically.
Use Net Notify to stay informed about product updates	When this check box is selected, information from MAGIX will be displayed periodically at startup. Clear the check box to bypass the Net Notify dialog.
Show logo splash-screen on startup	When this check box is selected, the Sound Forge Pro splash screen will be displayed briefly upon startup.
Show a textured background on the Workspace	When this check box is selected, a stucco texture will be used for the application background.
Keep media files locked	Select this check box if you want to lock media files after you've opened them. Clear the check box if you want to unlock media files when you switch to another application.
Confirm on close	Select this check box if you want the application to present a confirmation message box before exiting.
Always open dropped files in new window	When this check box is selected, files are opened in new data windows when you drop files (or regions) on the Sound Forge Pro workspace. When the check box is cleared, you can drag files from the Explorer to an open data window to perform drag-and-drop mixing and pasting .
Always proxy compressed formats	Select this check box if you want to create an uncompressed proxy (.sfap0) file when you open a compressed file format. Selecting this check box can improve performance on slower computers or for formats that cannot be decompressed quickly for real-time playback.
Ignore fact chunk when opening compressed Wave files	When this check box is selected, the software will ignore fact chunks in compressed WAV files. Compressed WAV files use fact chunks to specify how many actual samples are represented in the file. If a compressed file is improperly authored, this may cause some of the compressed data to not be loaded. If you suspect that not all sound data is being loaded from a compressed file, try checking this option and reopening the file.  If you change the setting of this check box, please delete any proxy (.sfap0) files associated with compressed WAV files.
Remember last-used sample rate for .vox and .ivc files	Select this check box if you want the software to remember the last-used sample rate when you open a .vox file. When the check box is cleared, you will be prompted to choose a sample rate each time you open a .vox file.
Remember last-used settings for .raw files	Select this check box if you want the software to remember the last-used settings when you open .raw files. When the check box is cleared, you will be prompted to choose a settings each time you open a .raw file.
Hide new temporary files	Select this check box if you want to turn on the Hidden file attribute when creating new peak (.sfk) and proxy (.sfap0) files. In the Windows Control Panel, double-click Folder Options and select the View tab. Select the Show hidden files and folders radio button if you want to be able to see hidden files.
Delete new temporary files on close	Select this check box if you want to delete the peak (.sfk) and proxy (.sfap0) files associated with a media file when you close a data window.





Remember last-used Save As folder	Select this check box if you want to use the last folder where you saved a file when using Save As or Render As . The first time you save a file in Sound Forge Pro, the Documents folder is used. When the check box is cleared, files are saved to their current folder.
Allow Wave renders up to 4 GB	Select this check box to enable support for WAV files up to 4 GB. Clear the check box for compatibility with other software applications.
Warn when metadata cannot be saved in the file	Select this check box if you want to be prompted to save metadata to a separate file if it cannot be saved within the media file. When the check box is cleared, metadata will automatically be saved to a separate file if necessary.
Automatically reopen file after Save As	Select this check box if you want to automatically reopen files when you save to a different format. Changes in bit depth, channels, or compression format will result in reopening and will allow you to listen to any changes in sound quality. Clear the check box and select the Prompt to open new file after Save As check box if you want to be prompted to open the saved file in a new data window. When both check boxes are cleared, Sound Forge Pro software does nothing after saving to a different format. If you're saving a file to several compressed formats, clearing these check boxes prevents you from having to reopen the file after saving each format.
Prompt to open new file after Save As	When the Automatically reopen files after Save As check box is cleared, select this check box if you want the application to prompt you to open the destination file to a new data window after saving a sound file to a different format. Opening the file in a new data window will allow you to hear any changes in quality between the original file and the result of the Save As operation.
Allow Undo past Save	When this check box is selected, your undo history is maintained until you close the data window (or exit the application) so you can undo edit operations even if you've saved your file. When this check box is selected, quick file saving may not be available.  If you want to be able to undo edit operations even after closing and reopening your file, save a Sound Forge Pro project .
Show shuttle controls on Data Window transport	When this check box is selected, Rewind and Forward buttons will appear on each data window's transport controls.
Show record controls on Data Window transport	When this check box is selected, Arm  and Record  buttons will appear on each data window's transport controls.
Show waveform while recording	When this check box is selected, the waveform is drawn while you're recording audio .
Show free storage space on Status Bar	When this check box is selected, the total amount of free disk space available on your specified temporary drive is displayed on the status bar. Use the Temporary files and record folder box at the bottom of the General tab to set the folder that will be used for temporary files and recorded data.
Spacebar and F12 Play/Pause instead of Play/Stop	Select this check box if you want the F12 and spacebar keyboard shortcuts to toggle between Play and Pause mode. In this mode, the cursor will maintain its position.
Default to slow scroll when drag selecting	In some very fast computers, automatic scrolling while selecting is too fast to use accurately. When this option is turned on, drag-selecting will cause a slow scroll.  Click the right mouse button while selecting to toggle slow scrolling.

Allow Ctrl+drag style cursor scrub in data windows	<p>When this check box is selected, you can hold Ctrl while dragging the cursor to scrub in data windows.</p> <ol style="list-style-type: none"> 1. Hover over the cursor and press Ctrl. The mouse pointer is displayed as a  when you click. 2. Drag left or right to scrub playback.
Allow Ctrl+drag style zoom in data windows	<p>When this check box is selected, you can hold Ctrl and drag in a data window to zoom to a selection.</p> <p> When the check box is selected, you can still use Ctrl+drag to paste a selection; press and hold the Ctrl key after you start dragging the selection.</p>
Prompt for marker and region names	<p>When this check box is selected, an edit box is displayed so you can name markers and regions as you place them.</p>
Warn when Paste or Mix formats do not match	<p>Select this check box if you want to be warned before pasting or mixing data that has different sample rates or bit depths.</p> <p>Pasting or mixing data of different formats may produce unintended results.</p>
Autoupdate BWF Origination Time Reference	<p>Select this check box if you want to update OriginationTimeRef metadata when adding or deleting sound data at the beginning of a Broadcast Wave Format file. When the check box is cleared, OriginationTimeRef metadata is unaffected when you add or delete sound data at the beginning of the file.</p> <p>For more information about Broadcast Wave Format metadata, please see Broadcast Wave Information.</p>
Auto-power MIDI keyboard window	<p>Select this check box if you want to open the MIDI device assigned to the MIDI keyboard (if it is not already open) when you click a key on the MIDI keyboard. You may want to turn off this option if you are using the same MIDI output device for MIDI synchronization or for your sequencer.</p> <p>If this option is turned off, you need to click the On button on the keyboard prior to using it to send notes.</p>
Allow floating windows to dock	<p>When this check box is selected, windows will automatically be docked when you drag them to the edges of the Sound Forge Pro workspace. You can hold the Ctrl key while dragging a window to prevent it from docking.</p> <p>When this check box is cleared, windows will not dock unless you hold the Ctrl key.</p>
Recently used file list	<p>Select the check box if you want to display a list of recently used files on the File menu. Use the edit box to specify the number of files you want to display.</p> <p>If you do not want to display recently used files on the File menu, clear this check box.</p>
Temporary files and record folder	<p>Specify a folder for storing temporary files and recorded audio, or click the Browse button to specify a new folder.</p> <p>Using temporary file space allows you to edit very large files and keeps Sound Forge Pro from using large portions of RAM on your computer. Your temporary directory must have enough space to accommodate the total size of all files you plan to edit along with space for any clipboard data and undo buffers.</p> <p>If you change the temporary storage folder, you will have to restart Sound Forge Pro for the change to take effect.</p>

Display Preferences

Use the Display tab in the Preferences dialog to specify options for adjusting the appearance of the Sound Forge Pro window. To display this tab, choose **Preferences** from the Options menu and click the **Display** tab.

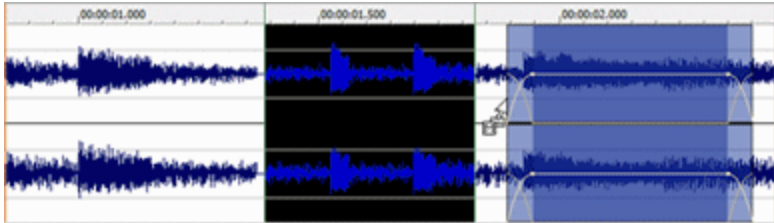
Item	Description
Default sound file window height	Drag the slider to specify the default data window height for a sound file. This magnification level is used when you load a sound file or create a new window.
Default video strip height	Drag the slider to specify the default height of the video strip when you open a video file.
Peak ratio	Choose a ratio from the drop-down list to specify the zoom ratio above which the application will use a peak



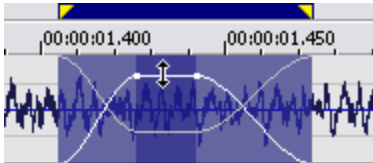
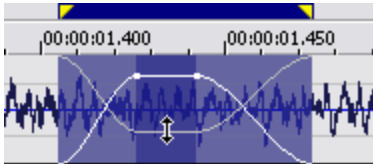
default for new files	<p>file instead of the original file to draw the waveform.</p> <p>If you notice problems with waveform scrolling, try decreasing this setting so it is less than your current zoom ratio.</p> <p>To calculate the size of the resulting peak files, divide the size of the file by the peak ratio. For example, a 100 MB sound file will need a 0.39 MB (100/256) peak file when using 1:256.</p>
Normal zoom ratio	<p>Choose a zoom ratio from the drop-down list to specify the default horizontal magnification. This magnification level is used when you load a sound file, create a new window, or use the Zoom Normal command.</p> <p>High values show more data, and small values show more detail.</p>
Custom zoom ratio 1	<p>Choose a zoom ratio from the drop-down list to specify a custom level of horizontal magnification.</p> <p>This zoom ratio will be use when you do any of the following:</p> <ul style="list-style-type: none"> • Click the Custom Zoom 1  or Custom Zoom 2  button on the Navigation toolbar.
Custom zoom ratio 2	<ul style="list-style-type: none"> • From the View menu, choose Zoom Time, and then choose a Custom Zoom command from the submenu. • Right-click in a data window, choose Zoom from the shortcut menu, and then choose a Custom Zoom command from the submenu.
Tabs for maximized data windows	<p>Choose a setting from the drop-down list to choose whether you want to display tabs to help you browse maximized data windows:</p> <ul style="list-style-type: none"> • Choose None if you do not want to display tabs. You can navigate data windows by choosing a window from the Window menu or by pressing Ctrl+Tab. • Choose Top to display tabs above the waveform display. • Choose Bottom to display tabs below the waveform display. <p>When tabs are displayed, you can click a data window's tab to bring it to the foreground.</p> <p>When you have multiple data windows open and maximized, you can drag files to a specific data window: while dragging a file or selection hover over a data window's tab to bring it to the foreground. You can then drop the file or selection in the desired data window.</p>
Color preference for	<p>The color preferences section allows you set a custom color for a variety of graphics within the Sound Forge Pro interface.</p> <ol style="list-style-type: none"> 1. Choose a screen element from the Color preference for drop-down list. 2. Set the color of the selected item: <ul style="list-style-type: none"> • Drag the Hue slider to change the color of the selected item. • Drag the Saturation and Brightness sliders to adjust the intensity of the selected color. <ul style="list-style-type: none">  When adjusting the display color for channel waveforms, the Saturation and Brightness sliders are not available. To adjust saturation and brightness for all channels, choose Wave: All Channels from the Color preference for drop-down list and then adjust the controls. • Click the Default button to restore a custom color to the default setting. 3. Click the OK button.
Icon color saturation	<p>Drag the slider to adjust the color intensity of icons in the Sound Forge Pro window. Drag to the left to decrease the color saturation, or drag to the right to increase it.</p>
Icon color tint	<p>Drag the slider to adjust the amount of tinting that is applied to the icons in the Sound Forge Pro window. Drag the slider to the right to add an average of the title bar colors to the icons. Drag to the left to decrease the amount of tinting applied.</p> <p> You can use the Display Properties control panel to change your active window title bar colors.</p>

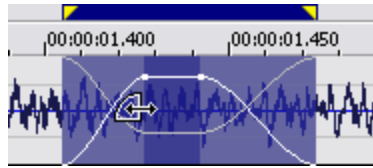
- In Windows Vista, open the Personalization control panel and then click Window Color and Appearance. Then click the **Advanced** button and choose **Active Title Bar** from the **Item** drop-down list.
- In Windows 7, open the Personalization control panel and then choose **Active Title Bar** from the **Item** drop-down list.


Editing Preferences

Use the **Editing** tab in the Preferences dialog to specify preferences for editing and undo operations. To display this tab, choose **Preferences** from the Options menu and click the **Editing** tab.

Item	Description
Disable triple-clicking to select all sound file data	<p>Select this check box if you don't want to select all data when you triple-click in a data window. You might want to select this option if triple-clicks are falsely detected when you make a selection and then try to perform a drag operation. Otherwise, decrease Windows' double-click threshold time.</p> <p>When this check box is cleared, you can triple-click anywhere in a data window to select all data.</p>
Disable auto-snapping below 1:4 zoom ratios	<p>Select this check box if you do not want selections to snap to time or zero-crossings when the data window zoom ratio is less than 1:4.</p> <p>This is useful if you commonly zoom in fully to adjust selection points manually yet still want to use automatic snapping when zoomed out.</p>
Force loop bar to match selection	<p>Select this check box if you want the loop region to always match the current time selection. Clicking to position the cursor in a data window will clear the loop region. When no loop region exists and looped playback is enabled, the entire data window will play looped. When the check box is selected, the behavior is similar to Sound Forge Pro 8.0.</p> <p>Clear the check box if you want to be able to position the cursor without clearing the loop region.</p>
Update loop bar on Mark In/Out	<p>Select this check box if you want the loop bar in a data window to be updated when you mark the beginning or end of a selection. When the check box is cleared, the loop bar isn't updated until after you've marked both ends of the selection.</p> <p>This check box is not available when Force loop bar to match selection is selected.</p>
Auto-crossfade Mix with selection	<p>When this check box is selected, the Fade In and Fade Out settings for the Mix tool will pay attention to the destination selection and file length when mixing between files. In the following example, notice how the Fade in and Fade Out curves are adjusted when we drag a selection from one data window to another and move the selection through an existing selection in the destination window:</p> 
Drag & drop auto rise delay	<p>Drag this slider to specify the time before a window underneath the cursor becomes active during drag-and-drop operations.</p>

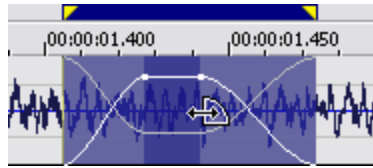
Snap to zero-crossing slope	Use this drop-down list to specify how zero-crossings are detected when you choose Snap to Zero :	
	Negative Slope	Zero-crossings are detected only on a negative slope.
	Any Crossing	Zero-crossings are detected on both positive and negative slopes.
	Positive Slope	Zero-crossings are detected only on a positive slope.
	 ont-size: 7.0pt;"> It is usually best to use either Positive Slope or Negative Slope so that noticeable pops and clicks are not generated by cutting data.	
Zero-cross scan time	Specify the maximum time (in samples) that will be used to search for the next zero-crossing.	
Zero-cross level threshold	Specify the sample value below which data will be considered a zero-crossing.	
	 ont-size: 7.0pt;"> Setting this value above zero can compensate for DC offset. However, if possible, you should remove DC offset first.	
Pencil tool maximum zoom ratio	Choose a setting from the drop-down list to specify the maximum zoom ratio at which the Pencil tool will be available.	
JKL / shuttle speed	Choose a setting from the drop-down list to set the speed that will be used for scrubbing the timeline with the JKL keys or with a multimedia controller.	
Global media cache	Specify the amount of RAM you want Sound Forge Pro to reserve for media recently read from or written to disk. Reserving excessive amounts of RAM may decrease overall performance.	
	To turn off the cache, choose 0.	
Default FX crossfade	Sets the default wet/dry mix and fade in/out curves that will be used in processing dialogs .	
	Wet Gain	Type a value in the box (or use the spinner) to set the level of the processed signal that will be mixed into the output.
	Changing this setting has the same effect as dragging the sustain portion of the wet gain envelope in the data window:	
		
Dry Gain	Type a value in the box (or use the spinner) to set the level of the unprocessed signal that will be mixed into the output.	
Changing this setting has the same effect as dragging the sustain portion of the dry gain envelope in the data window:		
		
Fade In	Type a value in the box (or use the spinner) to set the length of the fade in between the unprocessed and processed signal.	
Changing this setting has the same effect as dragging the attack portion of the envelope in the data window:		




Click the **Fade Curves** button  and choose a curve type from the menu to set the speed of the fade in.

Fade Out Type a value in the box (or use the spinner) to set the length of the fade out between the processed and unprocessed signal.

Changing this setting has the same effect as dragging the release portion of the envelope in the data window:



Click the **Fade Curves** button  and choose a curve type from the menu to set the speed of the fade out.

Labeling Preferences

From the Options menu, choose **Preferences**, and then click the Labels tab to modify the default names that are assigned to data windows, regions, and markers.

Item	Description
Window labels	
New window prefix	Select this check box and type a prefix in the box if you want Sound Forge Pro to display a name in the title bar when you create a new data window or choose Create a new window for each take from the Mode drop-down list in the Record dialog. Clear the check box if you do not want to include a prefix (if you want to number windows only, for example)
Use counter and start at	Select this check box check box and type a number in the box if you want Sound Forge Pro to number new data windows when you create a new data window or choose Create a new window for each take from the Mode drop-down list in the Record dialog.
Insert leading zeros in field width of	Select this check box and specify a field width if you want to use leading zeros in window names. For example, if you specify a field width of 3, windows numbered 1 to 99 would be numbered 001 to 099.
Region labels	
Label Regions	Select this check box if you want to display text labels for regions in the data window when you insert regions or choose Multiple takes creating regions from the Mode drop-down list in the Record dialog.
Prefix	Type a name in the box to set the label that will be used for regions.
Use counter and start at	Select this check box and type a number in the box if you want to number new regions.
Insert leading zeros in field width of	Select this check box and specify a field width if you want to use leading zeros in region names. For example, if you specify a field width of 3, regions numbered 1 to 99 would be numbered 001 to 099.
Marker labels	
Label Markers	Select this check box if you want to display text labels for markers in the data window when you insert markers.

Prefix	Type a name in the box to set the label that will be used for markers.
Use counter and start at	Select this check box and type a number in the box if you want to number new markers.
Insert leading zeros in field width of	Select this check box and specify a field width if you want to use leading zeros in marker names. For example, if you specify a field width of 3, markers numbered 1 to 99 would be numbered 001 to 099.

File Type Preferences

From the Options menu, choose **Preferences** and click the File Types tab to indicate which types of files you want to associate with Sound Forge Pro. When a file is associated with Sound Forge Pro, you can double-click a sound file in the Windows Explorer and it will open for editing.

1. Select a file type from the list. The **File association details** box displays information about the selected file type, as well as the current association.
2. Select the check box for each sound file format you want to associate with Sound Forge Pro, or clear the check box to remove a file association.
3. Click the **OK** button.

MIDI/Sync Preferences


Use the **MIDI/Sync** tab in the Preferences dialog to specify preferences for MIDI and synchronization. To display this tab, choose **Preferences** from the Options menu and click the **MIDI/Sync** tab.

Item	Description
Output	Choose a MIDI device from the drop-down list to specify the MIDI output device for synchronization when Generate MIDI Timecode is enabled.
Input	Choose a MIDI device from the drop-down list to specify the MIDI input device for synchronization and triggering when Trigger from MIDI Timecode is enabled. This is the device through which Sound Forge Pro will receive all MIDI triggering and synchronization input, including SMPTE/MTC, MIDI triggers, and Regions/Playlist triggers.
Bound record time on SMPTE record sync	When this check box is selected, Sound Forge Pro software will not allow recording beyond the specified end time. This ensures that your record length is exact regardless of any inaccurate timecode.
Use internal timer for SMPTE generation	Select this check box if you want to use the internal timer for SMPTE generation rather than position values reported by the sound card driver. Since many sound cards do not report their position accurately, it is usually better to use the internal timer for SMPTE generation. Choose a value from the Internal timer resolution drop-down list to specify the internal timer accuracy used for generating SMPTE. Low values produce more accurate SMPTE generation, but may also decrease system performance.
Use free-wheel for SMPTE loss	Select this check box to stop playback if the incoming MIDI timecode signal stops. When this check box is not selected, Sound Forge Pro playback will continue until the user stops playback manually. In the Free-wheel time box, specify the amount of time that Sound Forge Pro playback will continue after the incoming MIDI timecode signal stops. If timecode starts again during this time, playback will continue. In the Free-wheel slack box, specify how fast the software should expect timecode updates before going into Free-wheel mode. If you have a fast computer, this value can be set to a lower value if you want to stop playback immediately when timecode is interrupted.
Apply offset to generated SMPTE	Select this check box to specify an offset that will be added to the time displayed in the Sound Forge Pro play counter. For example, if you want to generate MIDI timecode starting at 01:00:00:00, instead of inserting 1 hour of silence at the beginning of your sound file, you can specify that amount in this box.

When using Record Sync, you'll often want to set this value to the **Enable MTC/SMPTE Input Synchronization Start** time. The Sound Forge Pro ruler and play counter will not display this offset.

Preview Preferences

Use the Previews tab in the Preferences dialog to specify options for previewing files. To display this tab, choose **Preferences** from the Options menu and click the Previews tab.

Item	Description
Limit non-realtime previews to	<p>Select this check box and specify the length of audio that will be used when generating a preview. Low values decrease the amount of time needed to generate a preview when tuning effects or processing values.</p> <p>This value is used for non-realtime effects or when the Real-time check box is cleared in a processing dialog.</p>
Pre-roll	Select this check box and specify how many seconds of unprocessed audio will be played before the processed selection. Use this to listen to the transition from unprocessed to processed data.
Post-roll	Select this check box and specify how many seconds of unprocessed audio will be played after the processed selection. Use this to listen to the transition from processed to unprocessed data.
Reactive Previewing	<p>Select this check box to automatically recalculate and play back the preview buffer if the parameters of an effect change. This allows for immediate feedback of the effects of a change.</p> <p>This option is most useful when using a fast computer, limiting preview times, and not using processor-intensive effects.</p>
Audio event locator	<p>Use the Pre-roll and Loop time settings to control how the audio event locator plays audio:</p> <ul style="list-style-type: none"> • In the Pre-roll box, specify the amount of data played prior to the cursor position. • In the Loop time box, specify the amount of time that will loop when you stop the cursor while clicking and dragging in the overview bar. <p>To use the audio event locator, hold Ctrl, click the overview bar, and drag the mouse. Similar to a scrub control, playback follows mouse movement and loops around the cursor position when the mouse is still. Playback stops when the mouse button is released.</p>
Cut preview configuration	<p>Use the Pre-roll and Post-roll settings to control the amount of data that is played back when you choose Preview Cut/Cursor from the Transport menu:</p> <ul style="list-style-type: none"> • In the Pre-roll box, specify the amount of data played prior to the selection or cursor position. • In the Post-roll box, specify the amount of data played after the selection or cursor position.
Play Looped adjust pre-roll	<p>When Loop Playback  mode is turned on and you make a selection during playback, playback is pre-rolled from the end of the selection to help you tune long loops.</p> <p>Specify the number of seconds before the end of the selection that you would like to pre-roll.</p>
Playlist pre-roll	Enter a value in the edit box or use the up and down arrows to specify the amount of pre-roll that will be used when playing entries in the Playlist/Cutlist window. This allows you to easily hear the transition from one region to another without having to play all the way through the first region.

Status Preferences

From the Options menu, choose **Preferences**, and then select the Status tab to specify preferences for displaying information in the status bar.

Item	Description
Default frames per second	<p>The default frame rate used to calculate frame values.</p> <p>Frame values are useful when trying to synchronize sound with animation. Most animation players specify a playback frame rate at which video frames are shown to the user. If you are using an animation that has a frame rate of 15.0 frames per second, you would set the frame rate to 15.0. When status values are displayed,</p>

	they will be shown in values of frames. This allows you to find the frame to which a given point in the sound file corresponds.
Default beats per measure	The number of beats in each measure for displaying in measures and beats. For example, 2/4 time would have two beats per measure. This setting will also be used in the Edit Tempo window.
Default beats per minute	The number of beats per minute, i.e. the tempo of a song for displaying lengths. This setting will also be used in the Edit Tempo window.
RMS level scan time	The amount of sound data surrounding the cursor used to calculate the RMS level in the Levels toolbar.
Peak level scan time	The amount of sound data surrounding the cursor used when searching for a peak level to display in the Levels toolbar.
0 VU (+4 dBu) level	Choose a setting from the drop-down list or type a value in the box to calibrate the VU/PPM meters to their associated levels on the peak meters. VU meters display sound in dB VU, where 0 VU is a reference level, and there is headroom above 0 VU. The Sound Forge Pro peak meters display peaks in dB FS (decibels relative to full scale). In digital audio, there is no headroom above 0 dB FS. Choosing a setting from this drop-down list subtracts a nominal dB value from the VU meters so that a signal displayed on the VU meters remains slightly below 0 dB on the peak meters.
VU meter integration time	Type a value in the box to set the amount of data surrounding the cursor that will be used to calculate levels in the VU meters. This setting has no effect on the PPM scales, which use fixed integration times: <ul style="list-style-type: none"> • UK PPM: 10 ms • EBU PPM: 10 ms • DIN PPM: 5 ms • Nordic PPM: 5 ms
Enable surround processing for files with 6 channels	Select this check box if you want to treat audio with six channels as surround audio when measuring loudness (a gain of -1.5 dB is applied to the left and right surround channels). When the check box is cleared, all channels contribute equally to the loudness measurement.
Open editor when new loudness log is generated	Select this check box if you want to automatically open loudness log files in your default text editor when you choose Tools > Generate Loudness Log .

Toolbar Preferences

Use the Toolbars tab in the Preferences dialog to specify which toolbars you want to display.

Perform either of the following actions to display this tab:

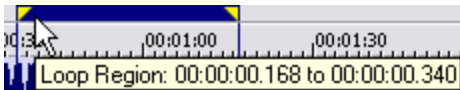
- Choose **Preferences** from the Options menu and click the Toolbars tab.
- From the View menu, choose **Toolbars**.

Display or hide toolbars

Select the check box to display a toolbar; clear a check box to hide a toolbar.

Display or hide ToolTips

Select the **Show ToolTips** check box if you want to display pop-up descriptions when the mouse is held over certain items:




Customize a toolbar

1. Select the check box for the toolbars you want to customize.
2. Click the **Customize** button. The Customize Toolbar dialog is displayed.
3. Use the controls in the Customize Toolbar dialog to add, remove, or rearrange the buttons on the selected toolbar:
 - a. Select a button in the **Available tools** column and click **Add** to add the button to the toolbar before the currently selected button.
 - b. Select a button in the **Current tools** column and click **Remove** to remove the button from the toolbar.
 - c. Select a button in the **Current tools** column and click **Move Up** or **Move Down** to rearrange the buttons.
4. Click **Reset** to restore the toolbar to its default setting.
5. Click the **OK** button.

CD Settings Preferences


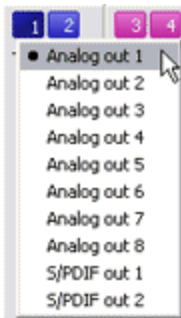
From the Options menu, choose **Preferences** and select the CD Settings tab to specify settings for burning and extracting audio from CDs.

Item	Description
Use strict Red Book specification for DAO validation	<p>Select this check box if you want to be notified prior to burning a disc-at-once CD if anything about your CD project is against strict Red Book standards.</p> <p>These warnings are not critical, and in most cases you will not write an unreadable disc if you proceed. Clearing this check box will not suppress critical warnings that will result in an unreadable disc.</p>
Use SPTI direct for CD burning	Select this check box if you want to use SPTI (SCSI Pass-Through Interface) to communicate with your CD burning drive.
Overwrite CD Text autodetection results	<p>If the software incorrectly detects that your CD recorder is not able to write CD Text, select this check box to turn on CD Text writing for your drive.</p> <p> Please check the documentation provided with your CD recorder to determine whether the drive is able to write CD Text.</p>
Include wide SCSI devices when searching for drives	<p>Select this check box if you want to scan for wide SCSI CD drives when you attempt to extract data from or burn CDs.</p> <p>When the check box is cleared, the application will not scan for wide SCSI devices, which can increase compatibility with some USB device drivers that incorrectly identify themselves as wide SCSI.</p>
Skip drive database; autodetect drive capabilities on startup	<p>When the check box is cleared, an internal configuration file is used to determine your drive's capabilities.</p> <p>If you encounter problems burning CDs, select this check box, and your drive to determine its capabilities when the application starts.</p>
Automatically detect CD length	<p>Select this check box if you want to automatically detect the length of your blank CDs when you insert them in your drive.</p> <p>When this check box is cleared, the Default CD length (minutes) setting is used, and you can click the CD Time Remaining box in the status bar to update the available time on a CD.</p>

Prepend up to 2 seconds of silence for DAO burning	When this check box is selected, the default pause time is inserted when you create disc-at-once CD tracks .
Default time between CD tracks (seconds)	Type a value in the edit box to specify the length of time that is inserted between disc-at-once CD tracks .
Default CD length (minutes)	Type the default length for CD media. This length is used if the software has not yet scanned your CD drive or if no CD is in your drive. This length is used to calculate the amount of time remaining on the disc that is displayed in the status bar.
Default All	Restores all CD preferences to the default settings.

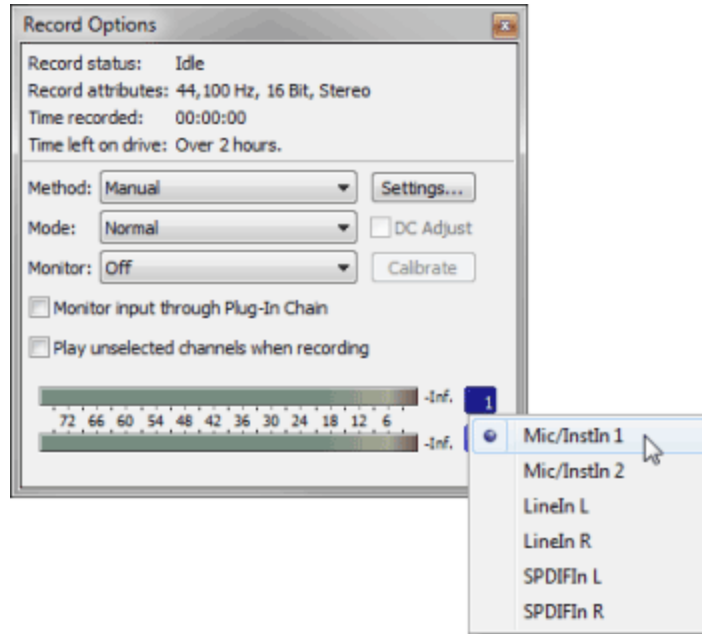
Preferences - Audio Tab

From the Options menu, choose **Preferences** and select the Audio tab to specify playback and recording options. Click the **Advanced** button to access the advanced audio preferences.

Item	Description
Audio Device Type	Choose a driver type from the drop-down list. <ul style="list-style-type: none"> • Microsoft Sound Mapper: The default setting. Allows the Sound Mapper to choose appropriate playback and recording devices. • Windows Classic Wave Driver: Allows you to choose a specific audio device using a classic Wave driver. • ASIO: Allows you to choose a specific audio device using a low-latency ASIO driver.
Playback	Click the Playback tab to adjust playback routing and buffering settings.
Playback device routing	The Channel and Device columns indicate which audio output will be used to play each channel in a multichannel file. To assign a channel to a different output, click the Device entry and choose a new output from the drop-down list. <p> To change a channel's output device using the Channel Meters window, click the channel number and choose a new output port from the menu:</p> 
Playback buffering (seconds)	Specifies the total amount of buffering that is used during playback. <p>The larger the number, the more buffering is performed during playback. This value must be as low as possible without gapping. To set it, start at .25 and play back a typical song. If the playback gaps, try increasing this slider in small increments until the gapping goes away.</p> <p>If you simply cannot get playback to be free of gapping, you need to install more RAM in your computer so you can increase buffering, buy a faster access hard drive, or minimize the number of audio plug-ins you are trying to use simultaneously.</p>
Recording	Click the Record tab to adjust record input routing and buffering settings.
Recording device routing	The Channel and Device columns indicate which audio output will be used to record each channel in a multichannel file. To assign a channel to a different input, click the Device entry and choose a new input from the drop-down list.



To change a channel's input in the Record Options window, click the channel number and choose a new input port from the menu.



Record buffering (seconds)	Specifies the total amount of buffering that is used during recording. If you use your computer for other tasks while recording, increasing this setting can reduce the likelihood of those tasks interrupting recording.
Advanced	Click this button to open the Advanced Audio Configuration dialog. For more information, see " Advanced Audio Configuration " below
Default All	Click to restore the Audio tab to the default settings.

Advanced Audio Configuration

The Advanced Audio Configuration dialog allows you to view information about and adjust settings for audio device selected in the **Audio device type** drop-down list on the [Audio](#) tab of the Preferences dialog.

To display the dialog, select a device from the **Audio device type** drop-down list, click **Apply**, and then click **Advanced**.

Microsoft Sound Mapper or Windows Classic Wave Driver

Item	Description
Audio devices	This list contains all of the audio devices that are installed in your computer. Select a device from the list to set the options below for that device.
Interpolate position	When this check box is selected, the software will attempt to compensate for inaccurate devices by interpolating the playback or recording position. If you notice that your playback cursor is offset from what you are hearing, enable this option for the playback device.
Position bias	If the position of playback or recording does not match what you hear after you enable Interpolate position , you can attempt to compensate using the Position bias slider. Moving this slider will offset the position forward or backward to compensate for the inaccuracies of the device.
Do not pre-roll buffers before starting playback	When this check box is selected, the software will not create buffers prior to starting playback. Some devices do not behave properly if this check box is cleared. If your audio stutters when you start playback try selecting this check box.
Audio buffers	Drag the slider to set the number of audio buffers that will be used. Adjusting this setting can decrease



	gapping or help you synchronize the input and output.
Buffer size	<p>Choose a setting from the drop-down list to indicate the buffer size you want to use. Choose MME to use the Playback buffering setting on the Audio tab in the Preferences dialog.</p> <p>For example, if you choose MME from the Buffer size drop-down, set the Audio buffers slider to 5, and set Playback buffering to 0.35 seconds, five 0.07-second buffers are created.</p> <p>If you choose 1024 from the Buffer size drop-down and set the Audio buffers slider to 5, five 1024-byte buffers are created.</p>
Priority	<p>Choose a setting from the drop-down list to set the priority that is assigned to your audio buffers.</p> <p>Increasing the buffers' priority can help you attain smoother playback, but it can also adversely affect other processes.</p>

ASIO

When an ASIO driver is selected, the Advanced Audio Configuration dialog displays information about the settings for the selected driver. Click the **Configure** button to open the driver manufacturer's configuration applet and adjust settings.

Video Preferences

Use the Video tab in the Preferences dialog to specify preferences for displaying video. To display this tab, choose **Preferences** from the Options menu and click the Video tab.

Item	Description
Frame numbering on thumbnails	<p>Determines how individual frame information, located in a box at the lower left-hand corner of each frame, will be displayed in the video strip when frame numbering is turned on.</p> <p>The frame information box can include Frame Numbers or Media Timecode.</p>
Allow pulldown removal when opening 24p DV	<p>Select this check box if you want to remove pulldown when you open 24 fps progressive-scan DV video files.</p> <p>When the check box is cleared, Sound Forge Pro software will read 24p video as 29.97 fps interlaced video (60i).</p>
Deinterlace method	<p>Choose a setting from the drop-down list to determine how Sound Forge Pro software separates the two fields that make up a video frame when you render to a progressive format:</p> <p>Blend Fields: Maintains the data in the two fields by blending them together. This method can produce a smooth, motion-blurred image.</p> <p>Interpolate: Deletes one field and uses the remaining field to interpolate the deleted lines. This produces sharper images than Blend Fields but can introduce jagged motion or stair-stepping artifacts.</p>
Resample source video when rendering to a higher frame rate	<p>Select this check box if you want to interpolate video frames when you render to a frame rate that is greater than the source file's frame rate.</p>
External monitor device	<p>Choose a device from the drop-down list to configure an IEEE-1394 device for use with an external monitor. Sound Forge Pro will send your video output to this device when you click the Preview on External Monitor button  in the Video Preview window.</p> <p> Audio is not output to the external monitor.</p>

Preferences - VST Effects

From the Options menu, choose **Preferences** and select the VST Effects tab to indicate where your VST plug-ins are installed and which plug-ins you want to make available to Sound Forge Pro software.



After adding new VST effects, you can use either of the following methods to add them to the FX Favorites menu:

- From the FX Favorites menu, choose **Recreate by Plug-In Name** to clear the current FX Favorites structure and create new folders based on the first word in the plug-ins' names.
- From the FX Favorites menu, choose **Organize**. In the Organize Favorites dialog, drag your new plug-ins from the VST folder to the desired folder in the FX Favorites portion of the tree view on the left side of the dialog.


Item	Description
Default VST search folder	This is the folder where the application looks for VST effects during startup.
Alternate VST search folder 1	Enter a path in the edit box or click Browse to indicate where the application can find VST effects.
Alternate VST search folder 2	
Select VST effects to be available as audio plug-ins	Select the check box for each VST plug-in that you want to make available in Sound Forge Pro software. Clear a check box to exclude the plug-in.

Shortcuts

The following sections contain information about the shortcuts you can use to make editing in Sound Forge Pro software quicker and easier.

Keyboard Shortcuts

From the Help menu, choose **Keyboard Shortcuts** to view the shortcut keys that are available in Sound Forge Pro. The available shortcut keys are arranged in tables according to function.

 The following shortcuts represent the default configuration. Your system may differ if you've used the [Customize Keyboard](#) dialog to customize your keyboard shortcuts.

Project File Shortcuts

Command	Keyboard Shortcut
Create a new data window	Ctrl+N
Create a new data window without displaying the New Window dialog	Ctrl+Shift+N
Open a sound file or project	Ctrl+O
Save modified sound data back to the file	Ctrl+S
Display File Properties window	Alt+Enter
Close the active data window	Ctrl+W
Exit Sound Forge Pro	Alt+F4

Magnification and View Shortcuts

Command	Keyboard Shortcut
Set input focus to the waveform display in the active window	Alt+0
Show/set input focus to the Explorer window	Alt+1
Show/set input focus to the File Properties window	Alt+2
Show/set input focus to the Video Preview window	Alt+3
Show/set input focus to the Time Display window	Alt+4
Show/set input focus to the Channel Meters window	Alt+5
Show/set input focus to the Loudness Meters window	Alt+6
Show/set input focus to the Hardware Meters window	Alt+7
Show/set input focus to the Undo/Redo History window	Alt+8
Show/set input focus to the Spectrum Analysis window	Alt+9
Show/set input focus to the Plug-In Chain window	Ctrl+Alt+0
Show/set input focus to the Plug-In Manager window	Ctrl+Alt+1
Show/set input focus to the MIDI Keyboard window	Ctrl+Alt+2
Show/set input focus to the Script Editor window	Ctrl+Alt+3
Show/set input focus to the Loop Tuner window	Ctrl+Alt+4
Show/set input focus to the Record Options window	Ctrl+Alt+5

Show/set input focus to the Regions List	Ctrl+Alt+M, then press 0
Show/set input focus to the Playlist/Cutlist window	Ctrl+Alt+M, then press 1
Show/set input focus to the Track List window	Ctrl+Alt+M, then press 2
Show/set input focus to the ACID Properties window	Ctrl+Alt+M, then press 3
Show/set input focus to the Broadcast Wave window	Ctrl+Alt+M, then press 4
Show/set input focus to the CD Information window	Ctrl+Alt+M, then press 5
Show/set input focus to the Sampler Loops window	Ctrl+Alt+M, then press 6
Show/set input focus to the Summary Information window	Ctrl+Alt+M, then press 7
Tile the data windows vertically	Shift+F4
Restore the Sound Forge Pro application window	Alt+F5
Recall window layout	Alt+Shift+D, then press 0-9
Save window layout	Ctrl+Alt+D, then press 0-9
Load default window layout	Alt+Shift+D, then press D
Load Stereo Recording window layout	Alt+Shift+D, then press R
Load Red Book authoring window layout	Alt+Shift+D, then press B
Load 5.1-channel video window layout	Alt+Shift+D, then press V
Cascade the data windows	Shift+F5
Restore the active data window	Ctrl+F5
Toggle playback scrolling on and off	F6
Toggle smooth playback scrolling on and off	Shift+F6
Go to the next data window	Ctrl+F6
Go to the previous data window	Ctrl+Shift+F6
Maximize all data windows	Ctrl+F10
Maximize the Sound Forge Pro application window	Alt+F10
Show/hide windows docked at the bottom of the workspace	F11
Show/hide windows docked at the sides of the workspace	Shift+F11
Show/hide all docked windows (excluding floating window docks)	Ctrl+F11
Maximize the width of the active data window	Ctrl+Enter

Data Window Shortcuts

Command	Keyboard Shortcut
Select previous/next editing tool	D/Shift+D
Select normal edit tool	Ctrl+D
Select all data in the active window	Ctrl+A
Copy the selected data onto the clipboard	Ctrl+C
Paste the clipboard contents into a new data window	Ctrl+E
Mix data from the clipboard with the active window	Ctrl+M
Trim (crop) to the current selection	Ctrl+T
Paste data from the clipboard into the active window	Ctrl+V
Enable locking markers, regions, and envelope points to selection	Ctrl+L



Move (cut) the selected data onto the clipboard	Ctrl+X
Repeat last process, effect, or tool	Ctrl+Y
Undo the last action	Ctrl+Z
Redo the last undone action	Ctrl+Shift+Z
Clear (delete) the selected data; nothing will be placed on the clipboard	Delete
 If the Treat as Cutlist command (available in the Edit menu, Playlist/Cutlist submenu) is selected, deleting a selection creates a region in the Cutlist window, but does not remove the selection.	
Place a command marker at the current cursor position	C
Place a marker at the current cursor position	M
Place a region at the current cursor position	R
Place a region at the current cursor position (when the Event tool  is selected)	Ctrl+Alt+R
Enable snapping	F8
Toggle auto snap to grid	Ctrl+F8
Toggle auto snap to markers	Shift+F8
Toggle auto snap to event edges	Ctrl+Shift+F8
Toggle auto snap to zero crossings	Ctrl+B
Insert/show/hide volume envelope	V
Insert/remove volume envelope	Shift+V
Insert/show/hide pan envelope	P
Insert/remove pan envelope	Shift+P
Create a loop from the current selection without displaying the Sampler Loops window	Alt+L
Create a loop from the current selection	Alt+Shift+L
Stop or cancel the current action (including playback)	Esc
Split event at cursor position (when the Event tool  is selected)	S
Split selected events at region boundaries (when the Event tool  is selected)	Ctrl+Alt+T

Cursor Movement Shortcuts

Command	Keyboard Shortcut
Move one pixel right/left	Right/Left Arrow
Go to end of file	Ctrl+Right Arrow
Go to the next region, loop or marker boundary (if regions, loops, or markers exist in the file)	
Go to beginning of file	Ctrl+Left Arrow
Go to the previous region, loop or marker boundary (if regions, loops, or markers exist in the file)	
Move one video frame right/left (available only if the data window contains	Alt+Right/Left Arrow


a video file)	
Move one sample right/left	Ctrl+Alt+Right/Left Arrow
Show the Go To dialog	Ctrl+G
Go to the first sample visible in the waveform display (or beginning of selection)	Home
Go to the first sample in the data window	Ctrl+Home
Go to the last sample visible in the waveform display (or end of selection)	End
Go to the last sample in the data window	Ctrl+End
Move 10% of the current view prior to the cursor position	Page Up
Move 100% of the current view prior to the cursor position	Ctrl+Page Up
Move 10% of the current view past the cursor position	Page Down
Move 100% of the current view past the cursor position	Ctrl+Page Down
Center the cursor in the waveform display	\ or .
Go to the next sample	+ (numeric keypad)
Move 10 samples past the current cursor	Ctrl+numeric keypad +
Go to the previous sample	- (numeric keypad)
Move 10 samples prior to the current cursor	Ctrl+numeric keypad -

Data Selection Shortcuts

Command	Keyboard Shortcut
Show the Set Selection dialog	Ctrl+Shift+D
Select from the cursor to the next/previous screen pixel Select next/previous event (when the Event tool  is selected)	Shift+Right/Left Arrow
Select from the cursor to the next/previous sample	Shift+Ctrl+Alt+Right/Left Arrow
Select from the cursor to the next/previous video frame (available only if the data window contains a video file)	Shift+Alt+Right/Left Arrow
Select from the cursor to the first sample visible in the waveform display	Shift+Home
Select from the cursor to the last sample visible in the waveform display	Shift+End
Select from the cursor to the first sample in the data window	Ctrl+Shift+Home
Select from the cursor to the last sample in the data window	Ctrl+Shift+End
Select from the cursor to 10% of the current view prior to the cursor position	Shift+Page Up
Select from the cursor to 10% of the current view past the cursor position	Shift+Page Down
Select 100% of the current view prior to the cursor position	Shift+Ctrl+Page Up
Select 100% of the current view past the cursor position	Shift+Ctrl+Page Down
Select from the cursor to the end of the file Select from the cursor to the next region, loop or marker boundary (if regions, loops, or markers exist in the file) Extend selection to the next/previous event (when the Event tool  is selected)	Ctrl+Shift+Right Arrow

Select from the cursor to the beginning of the file	Ctrl+Shift+Left Arrow
Select from the cursor to the previous region, loop or marker boundary (if regions, loops, or markers exist in the file)	
Select from the cursor to the next sample	Shift+numeric keypad +
Select from the cursor to the previous sample	Shift+numeric keypad -
Select 10 samples past the current cursor	Shift+Ctrl+numeric keypad +
Select 10 samples prior to the current cursor	Shift+Ctrl+numeric keypad -
Snap to grid	T
Snap edge to grid	Shift+T
Snap to next zero crossing	Z
Snap edge to next zero crossing	Shift+Z
Switch the selection through the channels in a multichannel file	Tab/Shift+Tab
Shift current selection to the left by the length of the selection	<
Shift current selection to the right by the length of the selection	>
Cut the current selection length in half	;
Double the current selection length	'
Rotate audio	:
Restore previous five time selections	Backspace
Toggle last selection/cursor position	S or /
Create a loop from the current selection	Alt+L
Create a loop from the current selection without displaying the Sampler Loops window	Alt+Shift+L

Navigation and Playback Shortcuts

Command	Keyboard Shortcut
Save a view in cell <Number> where <Number> ranges from 1 to 8	Ctrl+Shift+<Number>
Restore a view using cell <Number> where <Number> ranges from 1 to 8	Ctrl+<Number>
Move cursor to corresponding marker or select corresponding region	0-9 keys (not numeric keypad)
Increase time magnification (zoom in)	Up Arrow or mouse wheel up
Decrease time magnification (zoom out)	Down Arrow or mouse wheel down
Increase level magnification	Shift+Up Arrow
Decrease level magnification	Shift+Down Arrow
Zoom to selection if a selection exists; otherwise Zoom In Full Zoom event (when the Event tool  is selected)	Ctrl+Up Arrow
Zoom normal (zooms to default zoom ratio set in Preferences)	Ctrl+Down Arrow
Display custom zoom ratio 1	1 (numeric keypad)
Display custom zoom ratio 2	2 (numeric keypad)
Pan data window up/down if zoomed in vertically	Ctrl+Shift+Up/Down Arrow
Switch cursor to opposite end of selection	5 (numeric keypad)

Set Mark In at the current cursor position	I
Set Mark Out at the current cursor position	O
Arm for recording	Ctrl+Shift+A
Start/stop recording	Ctrl+R
Toggle looped playback	Q
Play or Stop the contents of the data window in default mode	Spacebar or F12
Play All	Shift+Spacebar or Shift+F12
Play/Pause	Enter or Ctrl+F12
Switch play mode through Normal, Play as Sample, and Play as Cutlist playback modes	X
Stop playback	Esc
Seek cursor on playback	F
Preview cut (skip selection on playback with pre-roll)	Ctrl+K
Play to cursor with pre-roll	Ctrl+Shift+K
Scrub playback	J, K, or L
Toggle playback scrolling on and off	F6
Toggle smooth playback scrolling on and off	Shift+F6
Generate MIDI timecode	F7
Trigger from MIDI timecode	Ctrl+F7

Event Tool Shortcuts

Command	Keyboard Shortcut
Select the previous/next editing tool	D or Shift+D
Split events at cursor	S
Show/hide fade lengths between events	Ctrl+Shift+T
Toggle automatic crossfades on/off	Ctrl+Shift+X
Select the next event	Shift+Right Arrow
Select the previous event	Shift+Left Arrow
Select the first event	Shift+Home
Select the last event	Shift+End
Extend selection to the next event	Ctrl+Shift+Right Arrow
Extend selection to the previous event	Ctrl+Shift+Left Arrow
Extend the selection to the first event	Shift+Ctrl+Home
Extend the selection to the last event	Shift+Ctrl+End
Auto ripple events	Ctrl+Shift+R

Plug-In Chain Shortcuts

 The following keyboard shortcuts are available when the **Plug-In Chain** window has focus.

Command	Keyboard Shortcut
Preview	Ctrl+P
Process selection	Ctrl+Shift+P
Bypass plug-in	Ctrl+B
Bypass plug-in chain	Ctrl+Shift+B
Save chain preset	Ctrl+S
Toggle Ignore/Mix/Insert Tail Data options	Ctrl+T
Add plug-ins to chain	Ctrl+E
Remove selected plug-ins	Ctrl+Delete
Select the next plug-in in the chain	Down Arrow
Select the previous plug-in in the chain	Up Arrow
Show the plug-in window	Ctrl+D
Show or hide the effect automation parameters	Ctrl+H
Show or hide envelope in data window	Shift+D
Enable or disable envelope	Shift+E
Select all plug-ins or effect automation parameters	Ctrl+A

Regions List Shortcuts

Command	Keyboard Shortcut
Play or stop the active marker or region	Spacebar
Edit the active marker or region	Enter
Delete the active marker or region	Delete
Create region from the current selection	Ctrl+I
Replicate selected region.	Ctrl+D
Update region to match selection	Ctrl+U

Playlist/Cutlist Shortcuts

Command	Keyboard Shortcut
Play or stop the active playlist entry	Space bar
Edit the active playlist entry	Enter
Delete the active playlist entry	Delete
Add one to the active playlist entry play count	+ (plus sign) (not numeric keypad)
Subtract one from the active playlist entry play count	- (minus sign) (not numeric keypad)
Add or remove a stop point on the active playlist entry	Ctrl+E Ctrl+8
Toggle pre-roll on and off for the playlist	Ctrl+P / (forward slash) (not numeric keypad)



Add selected Regions List item to Playlist	Ctrl+I
Replicate selected playlist region.	Ctrl+D

Script Editor Shortcuts





Command	Keyboard Shortcut
Create a new script	Ctrl+N
Open a script	Ctrl+O
Run script	Ctrl+R
Compile script	Ctrl+Shift+R
Save script	Ctrl+S
Find next instance of last-searched text	F3
Find previous instance of last-searched text	Shift+F3
Find next instance of the selected text	Ctrl+F3
Find previous instance of the selected text	Ctrl+Shift+F3

Drag-and-Drop Shortcuts

Drag-and-drop allows you to quickly perform operations crossing between open data windows, the Playlist/Cutlist window, the Regions List, and the time ruler.

Command	Function
Drag to New	To create a new file from the current selection, drag the selection to an open area of the Sound Forge Pro desktop.  You can also drag regions from the Regions List to the desktop.
Drag Mix	To mix a selection, drag the selection from the source to the place where you want to mix the selected data. You can drag the selection to the same data window or another data window.
Drag Paste	To paste a selection, hold Ctrl and drag the selection from the source to the place where you want to paste the selected data. You can drag the selection to the same data window or another data window.
Drag to Regions List	To add the current selection to the Regions List, drag it to the Regions List. You can also drag regions from the Regions List to the Playlist.
Drag to Playlist	To add a region from the Regions List to a playlist, drag it from the waveform display or the Regions List to the Playlist/Cutlist window. You can also drag regions within a playlist to rearrange the playback order.
Drag to Time Ruler	To create a region, drag the current selection to the time ruler.
Drag to Track List	To create a disc-at-once CD track, drag a selection to the Track List window.
Drag CD Track	From the Options menu, choose Drag-and-Drop Editing , and choose CD Track from the submenu if you want to create disc-at-once tracks during drag-and-drop editing. Choosing this command has the same effect as toggle-clicking the right mouse button while dragging until the cursor is displayed as a  .

Mouse Shortcuts

Command	Function
Select All	<p>Double-click the waveform display to select the entire sound file.</p> <p>Triple-click when regions, loops or markers are present (if the Disable triple-clicking to select all sound file data check box on the Editing tab in the Preferences dialog is cleared) .</p>
Zoom Time and Level	<p>Double-click the level ruler to zoom the current selection vertically and horizontally. If no selection exists, the entire waveform display data is zoomed.</p> <p>Double-click again to zoom out to the full amplitude and to the normal horizontal magnification.</p>
Return Control Value to Default	Double-click a slider, fader, or spinner to reset it to its default value.
Fine Tune Control Value	To fine tune a trackbar, fader, or spinner, hold the right and left mouse buttons (or hold the Ctrl key) when dragging.
Preview	Shift-click the Preview button to hear the original sound. This is equivalent to enabling the Bypass check box.
Main Status Bar	<p>Double-click the Sample Rate, Sample Size, or Channels box at the bottom of the Sound Forge Pro window to edit their values.</p> <div style="border: 1px solid gray; padding: 2px; display: inline-block; margin: 5px;"> 44,100 Hz 16-bit Stereo 00:00:20.07 7566.5 MB </div>
Selection Status Bar	<p>Double-click the Selection Start (leftmost) box in a data window to type a new value.</p> <p>Double-click the Selection End or Selection Length box to type a new value.</p> <div style="border: 1px solid gray; padding: 2px; display: inline-block; margin: 5px;"> 00:00:06.010 00:00:06.022 00:00:00.011 </div>
Go To Marker	Click a marker tag  to move the cursor to the marker's position.
Set Selection to Region/Loop	Double-click a region  or loop tag  in the ruler to change the current selection to the region or loop end points.
Play Normal Button (on playbar)	Ctrl+click the Play Normal button  to Preview Cut (skip selection) on playback. Ctrl+Shift+click to play to cursor with pre-roll.
Slow and Fast Selection Scroll Toggle	When making a selection past the end or beginning of the waveform display, click the right mouse button (while holding down the left mouse button) to toggle between fast scrolling and slow scrolling.
Zoom in horizontally	Rotate the mouse wheel forward.
Zoom out horizontally	Rotate the mouse wheel back.
Zoom in/out vertically	Ctrl + rotate the mouse wheel forward or back.
Scroll left/right 10% of the current view prior	Shift + rotate the mouse wheel forward or back.
Move cursor left or right (move current selection point if selection exists)	Ctrl + Shift + rotate the mouse wheel forward or back.

Appendix

The following topics contain topics that . . .well. . . don't fit neatly into any category, but we thought you'd want to know about them anyway.

Sound Forge Pro and the Microsoft Audio Compression Manager

The Microsoft Audio Compression Manager (ACM) is a standard interface for audio compression in Windows. This interface allows applications such as Sound Forge Pro software to use compression algorithms provided by other companies.

Sound Forge Pro software fully supports audio compression through the ACM. This enables you to use any ACM-compatible compression. The best part of this support is you don't have to learn anything new to use it! Sound Forge Pro software transparently opens compressed .wav files and provides all available compression formats for .wav files in the [Save As](#) dialog.

Audio data compression and decompression

The first piece of the ACM allows you to compress and decompress audio data. Audio compression is used to decrease the amount of data required to represent a sound; this ultimately results in smaller sound files. However, there are drawbacks to using audio compression on your sound files:

- Most audio compression algorithms will degrade the quality of the sound. This is referred to as lossy compression since information contained in the sound is lost when it is compressed. The amount of sound degradation is dependent on the compression algorithm.
- Audio compression requires more processing time than uncompressed data. The amount of processing time is dependent on the algorithm, as well as your hardware setup. As a result, opening and saving compressed files will usually take longer than uncompressed files.
- Compressed files are not as portable as uncompressed files. If you are distributing files in a compressed format, you must ensure the person receiving the files can use them. Also, not all audio software can use compressed .wav files, which could make using other programs with Sound Forge Pro software inconvenient.

In Sound Forge Pro software, any compressed .wav file can be opened as long as a compatible ACM driver is installed and enabled. If there is no compatible ACM driver available for a compressed .wav file, Sound Forge Pro software will inform you of the problem when you try to open it.

Saving compressed .wav files is as simple as choosing the compression algorithm in the **Format** drop-down list of the [Save As](#) dialog. Once a file has been saved as compressed, Sound Forge Pro software will always save changes to the file using the selected compression algorithm; you do not need to reselect the compression format each time you save. However, you can change the compression format or revert to an uncompressed format at any time with the [Save As](#) dialog.

Transparent playback and recording of non-hardware-supported audio files

The Microsoft Sound Mapper allows audio data formats that are not directly supported by your sound card to be played and recorded. Sound Forge Pro software lets you use the Sound Mapper by selecting it for playback and recording on the [Audio](#) tab of the Preferences dialog.

Using the Sound Mapper with uncompressed files

The primary use of the Sound Mapper for uncompressed sound files is for your convenience. You don't have to convert the sound to a supported format before you listen to it:

- If, for example, you have a sound file that is recorded at a nonstandard sample rate such as 22,257 Hz, and the closest sample rate that your sound card supports is 22,050 Hz, then the sound file normally cannot be played. You would have to change the sample rate of the file to 22,050 Hz before you could play it. However, changing the sample rate (without resampling) would cause the sound to play at a lower pitch. Using the Sound Mapper, you can play this sound file correctly without resampling the file first. The Sound Mapper will map the sound to the best format possible and perform the resampling in real time.


- The Sound Mapper will allow you to play 16- or 24-bit sounds on an 8-bit sound card, play stereo sounds on a mono sound card, and record stereo files on a mono-only sound card. However, when you use the Sound Mapper to record in stereo from a mono source, the mono input of your sound card is simply duplicated in both channels--the Sound Mapper cannot create something that is better than what the sound card can supply.

Using the Sound Mapper with compressed files

The Sound Mapper allows you to play (and sometimes record) compressed sound files even on sound cards that do not directly support compression so you can play a sound file that is compressed with Microsoft ADPCM or the DSP Group's TrueSpeech without decompressing the file first.—

The Sound Mapper cannot always record compressed sound files because compressing sound data can be very processor intensive: the amount of time required is dependent on the compression algorithm and how it is implemented. Decompressing sound data is almost always faster than compressing the same sound data.

Sound Forge Pro software does not play and record compressed sound files directly. Rather, all compression and decompression is performed while opening and saving the sound files. Sound Forge Pro software saves compressed sound files using the best quality possible something that cannot always be done in real time. Saving compressed sound files with Sound Forge Pro software will usually sound better than those recorded with audio compression.—

 Notes:

- The Open dialog allows you to preview compressed .wav files if you have an appropriate ACM driver installed. However, you must have your [Default playback device](#) set to the Sound Mapper for this to work.
- When saving uncompressed audio data to a compressed format with the [Save As](#) dialog, it is a good idea to close the file and reopen it after saving. Since Sound Forge Pro software performs the compression and decompression during saving and loading you will not be able to hear what the file sounds like with compression until after you've saved and reloaded the file.

Troubleshooting

Troubleshooting Playback or Recording Problems

When playing files from my SCSI drive, why does the sound have a warbling effect?

When playing files from a SCSI drive that is connected to a SCSI controller that utilizes a DMA channel (such as an older ISA controller) you may experience a warbling effect in the sound playback. This can occur if your sound card uses DMA and its DMA channel is set to a higher number than your SCSI controller.

To fix this problem, set the DMA channel used by your sound card to a lower number than that used by your SCSI controller. For example, if your SCSI controller is set to DMA channel 5 and your sound card is set to DMA channel 7, try reconfiguring them so the sound card uses DMA channel 5 and your SCSI controller uses DMA channel 7.

When I start Sound Forge Pro software my Play and/or Record buttons are unavailable. Why can't I play or record?

When Sound Forge Pro software starts, it checks to see if you have a wave playback and record device installed in your system. If you don't, it makes the appropriate operations unavailable.

If you are sure that you have a sound card installed in your system, check the [Audio](#) tab in the Preferences dialog. The setting in the **Audio device type** drop-down list determines the playback and record device Sound Forge Pro software will use. By default, Sound Forge Pro software uses the Wave Mapper (it may also be called the Sound Mapper) device which should automatically pick an appropriate device for use by Sound Forge Pro software. If the playback or recording device is set to **(None)**, Sound Forge Pro can not execute the corresponding operation.

I have sound files that won't play on my system. Sound Forge Pro software loads the files; why won't it play them?

Sound Forge Pro software allows you to load many different types of sound files, including those that your system may not be capable of playing. There are a variety of reasons that your sound card may not be capable of playing a file:

- Some sound cards only allow playback and recording at specific sample rates. Typically these rates are limited to 11,025, 22,050, and 44,100 Hz. If you try to play a file that is 32,000 Hz, the sound card will not allow you to play it.
- If you have an older sound card that supports only mono playback, simply [convert](#) any stereo files to mono and you will be able to play them.
- If you have an older sound card, it may only support 8-bit playback. If this is the case simply [change](#) the bit depth of the file to 8 bits.

Why doesn't Sound Forge Pro software respond to levels from my microphone or my CD Player?

Most sound cards come with multiple inputs from which you can record sound. These may include microphone, CD, auxiliary, MIDI, and line inputs. Although some cards record from all of these inputs at the same time, many cards require you to choose a recording device (also known as the input source). These cards come with software that allows you to pick which device is the input source. Please refer to your sound card manual to determine how to set the input source.

Most sound cards also come with some kind of application that controls the input level of the recording device. You may need to increase the level of your input sources in order to record from them. Again, please refer to your sound card manual to learn how to adjust these levels.

When I record or play files, I hear small clicks in the sound.

When Sound Forge Pro software is recording or playing audio data, it moves large amounts of data between your hard drive and your sound card. If Sound Forge Pro software can't move the data fast enough, you will hear small gaps between blocks of data that typically sound like clicks or puttering. Please see [Optimizing Sound Forge Pro](#) for information about reducing the overhead during the time Sound Forge Pro software is moving sound data.

If you experience gapping or glitching when recording multichannel audio, try increasing your buffer size. You can increase the **Record buffering** setting on the [Audio](#) tab of the Preferences dialog or click the **Advanced** button on the Audio tab of the Preferences dialog to increase your device's buffers.

When I record (or play) data at high sample rates, I can't stop playback by clicking the Stop button.

Sound Forge Pro software works to prevent gaps during recording and playback. As a result, there may be delays between the time that you click the **Stop** button and the time that playback actually stops. Note that you can always press and hold the Escape key to stop record or playback no matter how bad the situation is. Just be a little patient and wait a few seconds. These delays are usually only observed when one or more components of your system can not keep up with the data rate. Typical faults are:

- Very slow (older) hard drives.
- Poorly written sound card drivers.
- Setting your storage directory to a slow device such as a network drive or a compressed hard drive.

If at all possible, use the fastest uncompressed storage device available with Sound Forge Pro software. For more information on configuring your system, please see [Optimizing Sound Forge Pro](#).

When playing sound files with sample rates above 44,100 Hz on my Turtle Beach Multisound or Tahiti, my system crashes.

This is caused by a bug in the Turtle Beach Multisound and Tahiti sound card drivers. Contact Turtle Beach for updated

drivers.

When playing sound files at 8,000 Hz on my Turtle Beach Multisound, the play pointer moves but I don't hear any output.

This is caused by a bug in the Turtle Beach Multisound driver. Contact Turtle Beach for updated drivers.

When playing sound files at rates other than 11,025 Hz, 22,050 Hz, or 44,100 Hz, the pitch is wrong.

Some sound drivers incorrectly play sounds with sample rates that are not supported by the sound card hardware. For example, a sound that is supposed to play at 13,000 Hz might be played at 11,025 Hz instead. This will cause the pitch to be lower and the playback time to be slower than it should be.

Contact your sound card manufacturer for updated drivers.

Troubleshooting File Support Problems

When saving files as Macintosh AIFF and transferring them to my Macintosh, why doesn't the Macintosh recognize them as sound files?

The Macintosh uses special information within its operating system to keep track of the types of files it can access. Sound Forge Pro software can save the audio data in the correct file format, but it can't tell the Macintosh what type it is.

To do this, you must use a program on the Macintosh (such as ResEdit) to change the file's type. You simply need to set the **Type** field to AIFF for the Macintosh to recognize the file as a sound file.

Why won't Sound Forge Pro open my compressed files like Microsoft ADPCM?

Sound Forge Pro software has built-in support for the [Microsoft Audio Compression Manager \(ACM\)](#). This allows you to open files that are compressed with a variety of algorithms including Microsoft ADPCM, IMA ADPCM, and other third-party compression schemes such as the DSP Group's TrueSpeech.

If you can't open a Microsoft ADPCM file, you may not have the Microsoft ADPCM driver installed and enabled for the ACM.

After converting .wav files to Redbook audio using the software that came with my compact disc recorder, there are audible clicks at the end of the track.

Not all software for converting .wav files to Redbook audio handles the file structure correctly. Some software simply skips the first 44 bytes of data in the file and then considers everything else in the file to be audio data. This means that if you have saved Summary Information, Sampler Information, or Regions and Playlist data in the .wav file, it will be interpreted as audio data.

If you are experiencing this problem, simply use the [Save As](#) command in Sound Forge Pro to save a new .wav file with the **Save metadata with file** check box cleared.

My compact disc recorder uses a file type with an .rbk extension. What is an .rbk file and can I open it with Sound Forge Pro?

You can open an existing RBK file as the file [raw](#) file type in Sound Forge Pro's Open dialog box. Remember that you will have to swap the channels if you want to maintain the correct left/right channel settings.

RBK files are simply raw PCM sound data files. These files are used by some compact disc recorders to store Redbook audio onto a compact disc. RBK files are data only and contain no other information. They are stored as 16-bit, stereo data with a sample rate of 44,100 Hz. There are a number of things that make them different than a normal 16-bit raw file:

- The channels are stored in reverse order.
- The data is stored in Big Endian format (Motorola).
- The data length of the file has to be a multiple of 2,352 bytes (1 CD sector). The size of a CD sector is calculated as follows:

1 second of 44.1k, 16 bit, stereo audio = 176,400 bytes

CD audio has 75 sectors of data for each 1 second of audio

Sector size = $176,400/75 = 2,352$ bytes

Troubleshooting Effects Problems

After applying an effect to a file, why is there a loss in volume level?

Most **effects** that can alter the volume level of a file have two faders, **Dry Out** and **Effect Out** (where **Effect** is the name of the specific effect).

In **processing dialogs**, you can click the **More** button to display **Wet Gain** and **Dry Gain** controls at the bottom of the dialog.

These controls should be adjusted for the proper balance of processed and unprocessed sound and also determine the combined volume level. For example, if you run an effect with both controls set to 40% and the level after processing is too low, simply raise both faders an equal amount to raise the final level. However, take care to keep the output signal from clipping.

Why do some effects take so long to process?

Some processing functions used by Sound Forge Pro software are very math intensive. Examples include EQ, Pitch Shift (without preserving duration), and Reverb. This means that millions of integer and floating-point arithmetic operations must be performed for each second of sampled data. The speed of processing these functions is directly dependent upon your CPU's ability to perform floating-point operations.

We recommend that you break the files into smaller ones and then mix the smaller files together after you are done processing.

One way to prevent disk-related editing delays is to use the Regions List and Playlist to make all arrangements **nondestructively** and then use the **Convert to New** function on your Playlist. Another useful feature in the full version of Sound Forge Pro software is the **Preview Cut** command: you can use this function to verify your **Cut** and **Clear** operations before actually changing the file.

Troubleshooting Sampling and Sequencing Problems

Depending on the performance of your system (and your sequencer) you may experience SMPTE sync drop-out problems. This is typically due to too many processes occurring than your computer is capable of maintaining. For example, if you have wave playback, synchronization messages, sequencing, and more occurring at the same time, you may experience sync drop-out.

To compensate for this, many sequencers allow you to set a freewheel time, and you can adjust the freewheel time on the **MIDI/Sync** tab in the Preferences dialog. This is a slack time between SMPTE messages during which the sequencer will continue to play even if SMPTE/MTC messages are being missed. By increasing the freewheel time, you allow Sound Forge Pro software and your sequencer to be less tightly dependent on SMPTE messages, but this may also decrease your synchronization accuracy. Start with a small freewheel time and, if you experience sync drop-out problems, increase the freewheel time until the drop-outs go away.

MIDI/SDS Troubleshooting

When using **MIDI/SDS** to send or receive samples, you should usually leave the **Open loop** check box on the **Sampler Configuration** dialog cleared. Open-loop transfer decreases sample dump speed and is more prone to transfer errors.

When to use open-loop transfers

You may want to use open-loop transfer in the following situations:

- Your sampler does not support closed-loop transfers (handshaking).
- You don't have enough cables to connect both the MIDI in and MIDI out ports.

Troubleshooting hardware setup problems

You can use open-loop transfer to diagnose SDS hardware setup problems. If the **Sampler tool** will not transfer data to (or from) your sampler, select on **Open loop** check box on the **Sampler Configuration** dialog to see if single-cable transfers work. If open-loop transfers work but closed-loop transfers do not, you may have one of the following problems:

- Your sampler does not support closed-loop transfers (handshaking).
- Your MIDI cable or connection for MIDI input (send) or MIDI output (receive) to your computer is faulty.
- Your MIDI card is not receiving MIDI input (send) or sending MIDI output (receive). Interrupt conflicts are a common problem for MIDI input.

SCSI/MIDI Troubleshooting

Here are some of the common problems encountered with SCSI and samplers.

Conflicting SCSI IDs

When connecting devices on a SCSI chain, each device must have a unique device identifier (ID). SCSI allows you to set up to eight unique ID values from 0 to 7. Device ID 7 is used for the internal SCSI controller card, which leaves IDs 0 through 6 available for other devices. If you have a bootable SCSI hard drive, its ID must be set to 0.

Typical SCSI configuration:

ID	Device
0	Hard drive
1	CD-ROM drive
2-6	Available for use by samplers
7	SCSI controller card

Occasional transfer failures

If you occasionally receive messages such as **The SCSI device is not responding** or **A problem was encountered while transferring the sample**, reselect your host from the **SCSI host** drop-down list on the **Sampler Configuration** dialog. Doing this causes a series of SCSI commands to be executed that will resolve the problem in many cases. If this fails to work, power down and restart all equipment.

If these error messages are displayed frequently, you may have a more serious problem. The following sections discuss several possibilities.

The sampler is recognized but doesn't transfer reliably

The following is a list of causes for unreliable SCSI transfers.

Synchronous transfer mode

Some samplers (such as the Kurzweil K2000) do not operate properly if there is a SCSI device set to synchronous transfer mode on the same SCSI chain. SCSI hard drives and CD-ROMs often have the option of using a synchronous transfer mode. If there is a host vs. device synchronous transfer option, make sure you select **Host**. Refer to your SCSI device manuals for more information.

SCSI termination

If your SCSI chain is not properly terminated, you may experience unreliable SCSI transfers. Refer to your SCSI card and SCSI device manuals for more information.

SCSI cables

SCSI cables that are very long or not properly shielded can cause unreliable operation. Keep in mind that SCSI cables are not as forgiving as MIDI cables and very long cables will not work reliably. Also beware of using cables that are not certified SCSI cables; the extra money spent on a true shielded SCSI cable can save you endless hours of frustration.

Adaptec 1540/1542CF doesn't recognize a sampler

If the Adaptec 1540/1542CF controller won't recognize your sampler, you may need to make a change in the controller's configuration.

Some samplers do not want to operate when the **Reset SCSI Bus at Power-On** option of the Adaptec controller is enabled. This is the default operation for the 1540/1542CF and you will have to disable this option to allow your system to work with your sampler.

My SCSI/SMDI-compatible menu isn't displayed

Check for correct SCSI termination, and ensure that multiple devices on the SCSI chain do not use the same SCSI ID. If you've already done this and have an Adaptec SCSI card, you may need to update the mini-port drivers in your system.

For updated mini-port drivers, please refer to the [Adaptec](#) Web site.

Glossary

ABC DEF HIL MNO PQR STU WZ

-A-

A-Law

A-Law is a compounded compression algorithm for voice signals defined by the Geneva Recommendations (G.711). The G.711 recommendation defines A-Law as a method of encoding 16-bit PCM signals into a nonlinear 8-bit format. The algorithm is commonly used in United States telecommunications. A-Law is very similar to μ -Law; however, each uses a slightly different coder and decoder.

Acoustic Signature

The acoustic signature of a system is data containing all of the sound characteristics of a system. This includes such things as reverb time, frequency response and other timbral qualities. Impulse files used by Acoustic Mirror can be thought of as acoustic signatures.

Activation Number

This number is based on the [Computer ID](#) number of the computer on which Sound Forge Pro software is installed. Each computer has a unique number, similar to a license plate. An activation number is created based on that number. When you register the software, MAGIX will generate an activation number for you. Once the activation number is entered, the software will not time out. Since the activation number is based on the Computer ID, it is important that you have Sound Forge Pro software installed on the computer where you will be using it.

ActiveX

A Microsoft technology that enables different programs to share information. ActiveX extends Microsoft Windows-based architecture to include Internet and corporate intranet features and capabilities. Developers use it to build user interactivity into programs and World Wide Web pages.

Adaptive Delta Pulse Code Modulation (ADPCM)

A method of compressing audio data. Although the theory for compression using ADPCM is standard, there are many different algorithms employed. For example, Microsoft's ADPCM algorithm is not compatible with the International Multimedia Association's (IMA) approved ADPCM.

Advanced Streaming Format (ASF)

See [Windows Media Format](#).

Aliasing

A type of distortion that occurs when digitally recording high frequencies with a low sample rate. For example, in a motion picture, when a car's wheels appear to slowly spin backward while the car is quickly moving forward, you are seeing the effects of aliasing. Similarly, when you try to record a frequency greater than one half of the sampling rate (the [Nyquist Frequency](#)), instead of hearing a high pitch, you may hear a low-frequency rumble.

To prevent aliasing, an anti-aliasing filter is used to remove high frequencies before recording. Once the sound has been recorded, aliasing distortion is impossible to remove without also removing other frequencies from the sound. This same anti-aliasing filter must be applied when resampling to a lower sample rate.

Amplitude Modulation

Amplitude Modulation (AM) is a process whereby the amplitude (loudness) of a sound is varied over time. When varied slowly, a tremolo effect occurs. If the frequency of modulation is high, many side frequencies are created that can strongly alter the timbre of a sound.

Analog

When discussing audio, this term refers to a method of reproducing a sound wave with voltage fluctuations that are analogous to the pressure fluctuations of the sound wave. This is different from digital recording in that these fluctuations are infinitely varying rather than discrete changes at sample time. See [Quantization](#).

Attack

The attack of a sound is the initial portion of the sound. Percussive sounds (drums, piano, guitar plucks) are said to have a fast attack. This means that the sound reaches its maximum amplitude in a very short time. Sounds that slowly swell up in volume (soft strings and wind sounds) are said to have a slow attack.

Audio Compression Manager (ACM)

The Audio Compression Manager, from Microsoft, is a standard interface for audio compression and signal processing for Windows. The ACM can be used by Windows programs to compress and decompress [.wav](#) files.

Audio Event Locator

The Audio Event Locator is similar to a scrub function. However, rather than playing the sound file at a slow speed, it loops playback around the cursor position. This position can be selected by dragging the cursor around in the Sound Forge Pro Overview window.

Audio Interchange File Format (AIFF)

An audio file format developed by Apple Computer.

ASX File

ASF Stream Redirector file. See [Redirector file](#).

Attenuation

A decrease in the level of a signal.

-B-

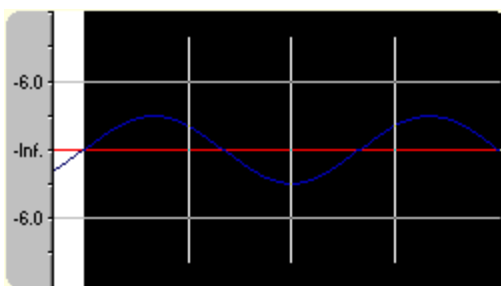
Bandwidth

When discussing audio equalization, each frequency band has a width associated with it that determines the range of frequencies that are affected by the EQ. An EQ band with a wide bandwidth will affect a wider range of frequencies than one with a narrow bandwidth.

When discussing network connections, bandwidth refers to the rate of signals transmitted or the amount of data that can be transmitted in a fixed amount of time (stated in bits/second): a 56 Kbps network connection is capable of receiving 56,000 bits of data per second.

Baseline

The baseline of a waveform is also referred to as the zero-amplitude axis or negative infinity. In the following image, the red line represents the baseline.



Beats Per Minute (BPM)

The tempo of a piece of music can be written as a number of beats in one minute. If the tempo is 60 BPM, a single beat will occur once every second.

Bit

The most elementary unit in digital systems. Its value can only be 1 or 0, corresponding to a voltage in an electronic circuit. Bits are used to represent values in the binary numbering system. As an example, the 8-bit binary number 10011010 represents the unsigned value of 154 in the decimal system. In digital sampling, a binary number is used to store individual sound levels, called samples.

Bit Depth

The number of bits used to represent a single sample. For example, 8- or 16-bit are common sample sizes. While 8-bit samples take up less memory (and hard disk space), they are inherently noisier than 16- or 24-bit samples.

Buffer

Memory used as an intermediate repository in which data is temporarily held while waiting to be transferred between two locations. A buffer ensures that there is an uninterrupted flow of data between computers. Media players may need to rebuffer when there is network congestion.

Bus

A virtual pathway where signals from tracks and effects are mixed. A bus's output is a physical audio device in the computer from which the signal will be heard.

Byte

Refers to a set of 8 bits. An 8-bit sample requires one byte of memory to store, while a 16-bit sample takes two bytes of memory to store

-C-**Channel Converter**

The Channel Converter is a function that converts files from mono to stereo and stereo to mono with independent level control of the new channels. This function can also create interesting effects by converting stereo files to stereo with various levels and inversion of channels.

Channel Meters

The Channel Meters in Sound Forge Pro software display the peak output levels of the sound file currently playing. These meters have selectable resolution and options to hold peaks and valleys.

Chorus

Chorusing is an effect created by combining a signal with a modulating, delayed copy of itself. This effect creates the illusion of multiple sources creating the same sound.

Clipboard

The clipboard is where sample data is saved when you cut or copy it from a data window. You can then paste, mix, or crossfade the sample data stored on the clipboard with another data window. This sample data can also be used by other Windows applications that support Sound data on the clipboard, such as Sound Recorder.

Clipping

Occurs when the amplitude of a sound is above the maximum allowed recording level. In digital systems, clipping is seen as a clamping of the data to a maximum value, such as 32,767 in 16-bit data. Clipping causes sound to distort.

Codec

Coder/Decoder: refers to any technology for compressing and decompressing data. The term *codec* can refer to software, hardware, or a combination of both technologies.

Compression Ratio (audio)

A compression ratio controls the ratio of input to output levels above a specific threshold. This ratio determines how much a signal has to rise above the threshold for every 1 dB of increase in the output. For example, with a ratio of 3:1, the input level must increase by three decibels to produce a one-decibel output-level increase:

Threshold = -10 dB
Compression Ratio = 3:1
Input = -7 dB
Output = -9 dB


Because the input is 3 dB louder than the threshold and the compression ratio is 3:1, the resulting signal is 1 dB louder than the threshold.

Compression Ratio (file size)

The ratio of the size of the original uncompressed file to the compressed contents. For example, a 3:1 compression ratio means that the compressed file is one-third the size of the original.

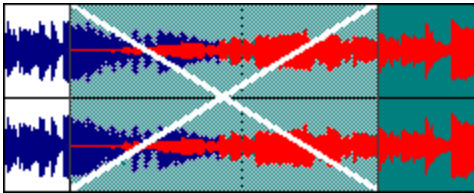
Computer ID

Each computer has a unique number, similar to a license plate. An **activation number** is created based on that number. Since the activation number is based on the Computer ID, it is important that you have Sound Forge Pro software installed on the computer where you will be using it. The Computer ID is automatically detected and provided to you when you install the software.

 The Computer ID is used for registration purposes only. It doesn't give MAGIX access to any personal information and can't be used for any purpose other than for generating a unique activation number for you to use the software.

Crossfade

Mixing two pieces of audio by fading one out as the other fades in:



Crossfade Loop

Sometimes a sample loop cannot be easily created from the given source material. In these instances, a crossfade can be applied to the beginning and end of the loop to aid in the smooth transition between the two. The Crossfade Loop function provides a method of creating sampling loops in material that is otherwise difficult to loop.

Cutoff frequency

The cutoff frequency of a filter is the frequency at which the filter changes its response. For example, in a low-pass filter, frequencies greater than the cutoff frequency are attenuated, while frequencies less than the cutoff frequency are not affected.

-D-

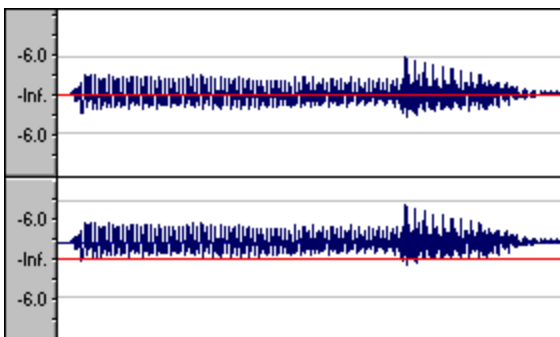
Data Window

Each opened sound file has its own data window. At the top of each data window is a title bar displaying either the title of the sample or the name of the file. Also in each data window are the waveform display, time and level rulers, playbar and other tools that give you information and allow you to navigate throughout the entire sound file.

DC Offset

DC offset occurs when hardware, such as a sound card, adds DC current to a recorded audio signal. This current results in a recorded waveform that is not centered around the baseline (-infinity). Glitches and other unexpected results can occur when sound effects are applied to files that contain DC offsets. Sound Forge Pro software can compensate for this DC offset by adding a constant value to the samples in the sound file.

In the following example, the red line represents the baseline. The lower waveform exhibits DC offset; note that the waveform is centered approximately 2 dB above the baseline.



Decibel (dB)

A unit used to represent a ratio between two numbers using a logarithmic scale. For example, when comparing the numbers 14 and 7, you could say 14 is two times greater than the number 7; or you could say 14 is 6 dB greater than the number 7. Where did we pull that 6 dB from? Engineers use the equation $\text{dB} = 20 \times \log (V1/V2)$ when comparing two instantaneous values. Decibels are commonly used when dealing with sound because the ear perceives loudness in a logarithmic scale.

In Sound Forge Pro software, most measurements are given in decibels. For example, if you want to double the amplitude of a sound, you apply a 6 dB gain. A sample value of 32,767 (maximum positive sample value for 16-bit sound) can be referred to as having a value of 0 dB. Likewise, a sample value of 16,384 can be referred to having a value of -6 dB.

Device Driver

A program that enables Windows to connect different hardware and software. For example, a sound card device driver is used by Windows software to control sound card recording and playback.

Destructive Editing

Destructive editing is the type of editing whereby all cuts, deletes, mixes and other processes are actually processed to the sound file. Any time you delete a section of a sound file in Sound Forge Pro software, the sound file on disk is actually rewritten without the deleted section. This is different than [nondestructive editing](#).

Digital Rights Management (DRM)

A system for delivering songs, videos, and other media over the Internet in a file format that protects copyrighted material. Current proposals include some form of certificates that validate copyright ownership and restrict unauthorized redistribution.

Digital Signal Processing (DSP)

A general term describing anything that alters digital data. Signal processors have existed for a very long time (tone controls, distortion boxes, wah-wah pedals) in the analog (electrical) domain. Digital Signal Processors alter the data after it has been digitized by using a combination of programming and mathematical techniques. DSP techniques are used to perform many effects such as equalization and reverb simulation.

Since most DSP is performed with simple arithmetic operations (additions and multiplications), both your computer's processor and specialized DSP chips can be used to perform any DSP operation. The difference is that DSP chips are optimized specifically for mathematical functions while your computer's microprocessor is not. This results in a difference in processing speed.

DirectX

A set of Application Program Interfaces designed by Microsoft for multimedia development. A DirectX plug-in, such as the Vegas Noise Reduction DirectX Plug-In, uses the DirectX Media Streaming Services (DMSS) API. Because DMSS is a standard API, a DirectX plug-in can be used in any application that supports DMSS.

Dithering

Dithering is the practice of adding noise to a signal to mask [quantization noise](#).

Drag and Drop

A quick way to perform certain operations using the mouse. To drag and drop, you click and hold a highlighted selection, drag it (hold the left mouse button down and move the mouse) and drop it (let go of the mouse button) at another position on the screen.

Dynamic Range

The difference between the maximum and minimum signal levels. It can refer to a musical performance (high-volume vs. low-volume signals) or to electrical equipment (peak level before distortion vs. noise floor).

-E-**Endian (Little and Big)**

Little and Big Endian describe the ordering of multi-byte data that is used by a computer's microprocessor. Little Endian specifies that data is stored in a low-to-high byte format; this ordering is used by the Intel microprocessors. Big Endian specifies that data is stored in a high-to-low byte format; this ordering is used by the Motorola microprocessors.

Equalization (EQ)

Equalizing a sound file is a process by which certain frequency bands are raised or lowered in level.

-F-**Fast Fourier Transform (FFT) Analysis**

A Fourier Transform is the mathematical method used to convert a waveform from the Time Domain to the Frequency Domain.

Since the Fourier Transform is computationally intensive, it is common to use a technique called a Fast Fourier Transform (FFT) to perform spectral analysis. The FFT uses mathematical shortcuts to lower the processing time at the expense of putting limitations on the analysis size.

The analysis size, also referred to as the FFT size, indicates the number of samples from the sound signal used in the analysis and also determines the number of discrete frequency bands. When a high number of frequency bands are used, the bands have a smaller bandwidth, which allows for more accurate frequency readings.

File Associations

This dialog allows you to associate sound file extensions (such as .wav, .au, .snd, etc.) with Sound Forge Pro software. This dialog is opened from the File tab of the Preferences dialog.

File Format

A file format specifies the way in which data is stored. In Windows, the most common audio file format is the Microsoft .wav format. For information on the different file formats supported by Sound Forge Pro software, click [here](#).

Frame Rate

Audio uses frame rates only for the purposes of synchronizing to video or other audio. To synchronize with audio, a rate of 30 non-drop is typically used. To synchronize with video, 30 drop is usually used.

Frequency Modulation (FM)

Frequency Modulation (FM) is a process by which the frequency (pitch) of a sound is varied over time. Subaudio frequency modulation results in pitch-bending effects (vibrato). Frequency modulation within audio band frequencies (20 Hz - 20,000 Hz) creates many different side-band frequencies that drastically alter the timbre of the sound.

Frequency Modulation (FM) Synthesis

This type of synthesis relies on the principles of Frequency Modulation. The FM Synthesis tool allows you to use frequency modulation (FM) and additive synthesis to create complex sounds from simple waveforms.

In frequency modulation, the frequency of a waveform (the carrier) is modulated by the output of another waveform (the modulator) to create a new waveform. If the frequency of the modulator is low, the carrier will be slowly detuned over time. However, if the frequency of the modulator is high, the carrier will be modulated so quickly that many additional frequencies, or sidebands, are created.

In Sound Forge Pro software, up to four waveforms (operators) can be used in a variety of configurations. Depending on the configuration, an operator can be a carrier, a modulator, or a simple, unmodulated waveform.

Frequency Spectrum

The frequency spectrum of a signal refers to its range of frequencies. In audio, the audible frequency range is between 20 Hz and 20,000 Hz. The frequency spectrum sometimes refers to the distribution of these frequencies. For example, bass-heavy sounds have a large frequency content in the low end (20 Hz - 200 Hz) of the spectrum.

-H-**Head-Related Transfer Function (HRTF)**

Sounds are perceived differently depending on the direction the sound comes from. This occurs because of the echoes bouncing from your shoulders and nose and the shape of your ears. A head-related transfer function contains the frequency and phase response information required to make a sound appear to originate from a certain direction in 3-dimensional space.

Hertz (Hz)

The unit of measurement for frequency or cycles per second (CPS).

High-Pass Filter

A high-pass filter attenuates all frequencies below a cutoff frequency. It is usually used to remove low-frequency rumble from audio files.

-I-**Insertion Point**

The insertion point (also referred to as the cursor position) is analogous to the cursor in a word processor. It is where markers or commands may be inserted depending on the operation. The insertion point appears as a vertical flashing black line and can be moved by clicking the left mouse button anywhere in the data window.

Inverse Telecine (IVTC)

Telecine is the process of converting 24 fps (cinema) source to 30 fps video (television) by adding **pull-down** fields. Inverse telecine, then, is the process of converting 30 fps (television) video to 24 fps (cinema) by removing pull-down.

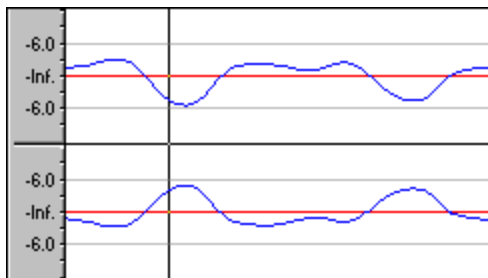
InterVoice Sound File Support

The InterVoice sound file format (.IVC), commonly used in telephony applications, is now supported and includes G.711 μ -Law and A-Law, G.721 ADPCM (32 kb/s) and G.723 ADPCM (24 kb/s) data formats.

Invert Data

Inverting sound data reverses the polarity of a waveform around its baseline. Inverting a waveform does not change the sound of a file; however, when you mix different sound files, phase cancellation can occur, producing a "hollow" sound. Inverting one of the files can prevent phase cancellation.

In the following example, the red line represents the baseline, and the lower waveform is the inverted image of the upper waveform.

**-L-****Limiting**

Limiting is essentially a hard **compressor**. Limiting is often used to keep signals from going above a certain level, but can also be applied to create heavily compressed effects. Limiting should only be performed on peaks; if the Threshold level is set too low, heavy distortion will occur.

Loop

Loops are small audio clips that are designed to create a repeating beat or pattern. Loops are usually one to four measures long.

Low-Pass Filter

A low-pass filter attenuates all frequencies above a cutoff frequency. Low-pass filters can be used as anti-alias filters or for general tonal shaping.

-M-**Marker**

A marker is an anchored, accessible reference point in a file. Markers are stored in the Regions List and can be used for quick navigation.

Media Control Interface (MCI)

A standard way for Windows programs to communicate with multimedia devices such as sound cards and CD players. If a device has an MCI device driver, it can easily be controlled by most multimedia Windows software.

Microsoft Sound Mapper

The Sound Mapper is a special device that attempts to select the most appropriate sound card (map) on which to play a sound, or it will translate the sound into a format that can be played on your sound card.

Mid-Side recording

Mid-side (MS) recording is a microphone technique in which one mic is pointed directly towards the source to record the center (mid) channel, and the other mic is pointed 90 degrees away from the source to record the stereo image. For proper playback on most systems, MS recordings must be converted to your standard left/right (also called AB) track.

MIDI (Musical Instrument Device Interface)

MIDI is a standard language of control messages that provides for communication between any MIDI-compliant devices. Anything from synthesizers to lights to factory equipment can be controlled via MIDI. Sound Forge Pro software uses MIDI to trigger sound file playback, transfer audio data to samplers and synchronize to external software or gear.

MIDI Channels

MIDI allows for 16 discrete channels for sending data. When dealing with MIDI triggers, Sound Forge Pro software needs to know what MIDI channel to look at for receiving the trigger. The channel this information is sent to in Sound Forge Pro software depends on the device sending the MIDI messages.

MIDI Clock

A MIDI device-specific timing reference. It is not absolute time like MIDI Time Code (MTC); instead it is a tempo-dependent number of "ticks" per quarter note. MIDI clock is convenient for synchronizing devices that need to perform tempo changes mid-song.

MIDI Controllers

MIDI controllers are a specific type of MIDI message. Sound Forge Pro software can use MIDI controllers to trigger events and playback of sound files. Consult your MIDI sending device to see what controller messages it sends.

MIDI Notes

MIDI notes are a specific type of MIDI message. Sound Forge Pro software can use MIDI notes to trigger events and playback of sound files. Any MIDI sequencer or controller will send MIDI notes.

MIDI Port

A MIDI port is the physical MIDI connection on a piece of MIDI hardware. This port can be a MIDI in, out or through. Your computer must have a MIDI-capable card to output MIDI time code to an external device or to receive MIDI time code from an external device.

MIDI Time Code (MTC)

MTC is an addendum to the MIDI 1.0 specification and provides a way to specify absolute time for synchronizing MIDI-capable applications. MTC is essentially a MIDI representation of SMPTE time code.

Mix

Mixing allows multiple sound files to be blended into one file at user-defined relative levels.

Multiple-Bit-Rate Encoding

Multiple-bit-rate encoding allows you to create a single file that contains streams for several bit rates. A multiple-bit-rate file can accommodate users with different Internet connection speeds, or these files can automatically change to a different bit rate to compensate for network congestion without interrupting playback.



To take advantage of multiple-bit-rate encoding, you must publish your media files to a Windows Media server or a RealServerG2.

Musical Instrument Device Interface (MIDI)

A standard language of control messages that provides for communication between any MIDI-compliant devices. Anything from synthesizers to lights to factory equipment can be controlled via MIDI. Sound Forge Pro software uses MIDI for synchronization purposes.

Noise-shaping

Noise-shaping is a technique which can minimize the audibility of quantization noise by shifting its frequency spectrum. For example, in 44,100 Hz audio quantization noise is shifted towards the Nyquist Frequency of 22,050 Hz.

Nondestructive Editing

This type of editing involves a pointer-based system of keeping track of edits. When you delete a section of audio in a nondestructive system, the audio on disk is not actually deleted. Instead, a set of pointers is established to tell the program to skip the deleted section during playback.

Normalize

Refers to raising the volume so that the highest level sample in the file reaches a user-defined level. Use normalization to make sure you are using all of the dynamic range available to you.

Nyquist Frequency

The Nyquist Frequency (or Nyquist Rate) is one half of the sample rate and represents the highest frequency that can be recorded using the sample rate without aliasing. For example, the Nyquist Frequency of 44,100 Hz is 22,050 Hz. Any frequencies higher than 22,050 Hz will produce aliasing distortion in the sample if no anti-aliasing filter is used while recording.

-O-**Object Linking and Embedding (OLE)**

OLE is a technology developed by Microsoft to allow independent applications to behave as though they are tightly integrated. This allows objects such as Sound Forge Pro audio files to be integrated into other applications such as a Microsoft Word document.

Overview

The Overview is the area on the data window directly under the title bar. The entire length of the overview represents the entire sound file. Cursor, selection, and position information is shown relative to the entire length of the sound file.

One-Shot

One-shots are RAM-based audio clips that are not designed to loop. Things such as cymbal crashes and sound bites could be considered one-shots. Longer files can be treated as one-shots if your computer has sufficient memory.

-P-**Pan**

To place a mono or stereo sound source perceptually between two or more speakers.

Pause Time

Pause time is the space between CD tracks. This space may contain silence — as in a standard commercially produced CD — or can contain audio — as in a live performance captured on CD.

The Red Book standard calls for two seconds of pause time, but you can edit the default pause time on the [CD Settings](#) tab of the Preferences dialog.

Peak Data File

The file created by Sound Forge Pro software when a file is opened for the first time. This file stores the information regarding the graphic display of the waveform so that opening a file is almost instantaneous. This file is stored in the directory where the audio file resides and has an .sfk extension. If this file is not in the same directory as the audio file or is deleted, it will be recalculated the next time you open the file.

Pixel Aspect

The pixel aspect determines whether the pixels are square (1.0) which refers to computers, or rectangular (settings other than 1.000) which typically refers to televisions. The pixel aspect ratio is unrelated to the frame's aspect ratio.

Playlist

The Playlist is a list of regions set to play in a specific order. The Playlist allows for nondestructive editing and rearranging of a sound file quickly and easily. Multiple versions of the playlist can be saved in an external playlist file for easy comparison.

Pre-roll/Post-roll

Pre-roll is the amount of time elapsed before an event occurs. Post-roll is the amount of time after the event. Pre and post-roll have various uses in Sound Forge Pro software. Pre-roll can be added to a crossfade preview to listen to the sound before the crossfade begins to give context to it. Pre-roll can also be used in the Playlist to hear previous regions when playback is initiated from the middle of the Playlist.

Preset

A preset calls up a bulk setting of a function in Sound Forge Pro software. If you like the way you adjusted the EQ but do not want to have to spend the time getting it back for later use, save it as a preset. All presets show up in the drop-down list on the top of most function dialogs in Sound Forge Pro software.

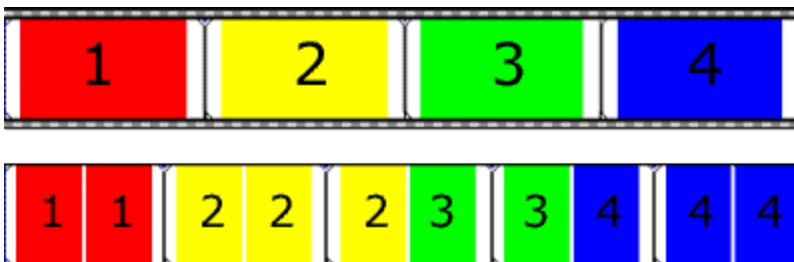
Punch-In

Punching-in during recording means automatically starting and stopping recording at user-specified times.

Pull-down

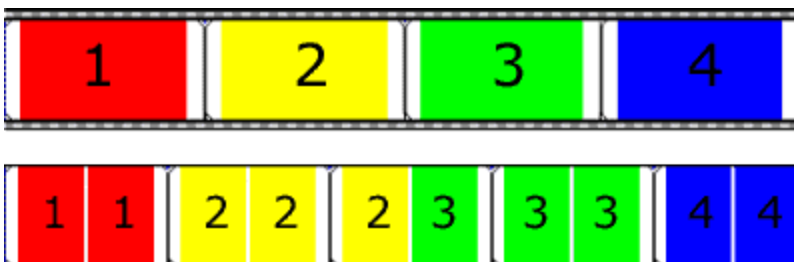
In [telecine](#) conversion, fields are added to convert 24 fps film to 30 fps video.

In 2-3 pull-down, for example, the first frame is scanned into two fields, the second frame is scanned into three fields, and so on for the duration of the film. 2-3 pull-down is the standard for NTSC broadcasts of 24p material. Use 2-3 pull-down when printing to tape, but not when you intend to use the rendered video as source media. Removing 2-3 pull-down is inefficient because the pull-down fields that are created for frame 3 span two frames:



24 fps film (top) and resulting NTSC video with 2-3 pull-down fields (bottom)

Use 2-3-3-2 pull-down when you plan to use your rendered video as source media. When removing 2-3-3-2 pull-down, Sound Forge Pro software simply discards frame three and merges the pull-down fields in the remaining frames:



24 fps film (top) and resulting NTSC video with 2-3-3-2 pull-down fields (bottom)

Pulse Code Modulation (PCM)

PCM is the most common representation of uncompressed audio signals. This method of coding yields the highest fidelity possible when using digital storage. PCM is the standard format for .wav and .aif files.

-Q-

Q Subcode

Compact disc players use the Q channel to display the music playing time. The Q channel is broken down into three modes:

- **Mode 1:** Contains the running times from both the beginning of the disc (total disc time) and the beginning of the track (track relative time).
- **Mode 2:** Identifies the track number, who recorded the track, where it was recorded and in what year.
- **Mode 3:** Identifies UPC media catalog number for the disc.

A special mode of Q data is stored within the lead-in area. This Q data contains information on two- or four- channel format, copy protection, and pre-emphasis.

Quantization

Quantization is the process by which measurements are rounded to discrete values. Specifically with respect to audio, quantization is a function of the analog-to-digital conversion process. The continuous variation of the voltages of an analog audio signal are quantized to discrete amplitude values represented by digital, binary numbers. The number of bits available to describe these values determines the resolution or accuracy of quantization. For example, if you have 8-bit analog-to-digital converters, the varying analog voltage must be quantized to 1 of 256 discrete values; a 16-bit converter has 65,536 values.

Quantization Noise

Quantization noise is a result of describing an analog signal in discrete digital terms (see quantization). This noise is most easily heard in low-resolution digital sounds that have low bit depths and sounds like a *shhhh*-type sound while the audio is playing. It becomes more apparent when the signal is at low levels, such as during a fade out.

-R-

Reactive Preview

Reactive previews allow for the adjustment of parameters in a function dialog while the preview is playing. When a parameter is changed, the preview will automatically rebuild and continue playback.

Real-Time Streaming Protocol (RTSP)

A proposed standard for controlling broadcast of streaming media. RTSP was submitted by a body of companies including RealNetworks and Netscape.

Redirector File

A metafile that provides information to a media player about streaming media files. To start a streaming media presentation, a Web page will include a link to a redirector file. Linking to a redirector file allows a file to stream; if you link to the media file, it will be downloaded before playback begins.

Windows Media redirector files use the .asx or .wax extension.

Region

A region in Sound Forge Pro software is a subsection of a sound file. You can define any number of regions in a sound file which are stored in the Regions List.

Regions List

The Regions List is simply the list containing all of the regions and markers defined within the sound file. From this list you can preview and edit the regions as well as drag them to the Playlist or to the desktop to create new files from them.

Resample

The act of recalculating samples in a sound file at a different rate than the file was originally recorded. If a sample is resampled at a lower rate, sample points are removed from the sound file, decreasing its size, but also decreasing its available frequency range. Resampling to a higher sample rate, Sound Forge Pro software will interpolate extra sample points in the sound file. This increases the size of the sound file, but does not increase the quality. When downsampling, be aware of [aliasing](#).

Root Mean Square (RMS)

The Root Mean Square (RMS) of a sound is a measurement of the intensity of the sound over a period of time. The RMS level of a sound corresponds to the loudness perceived by a listener when measured over small intervals of time.

Ruler, Level

The level ruler is the area on a data window to the left of the waveform display. It shows the vertical axis units as a percentage or in decibels.

Ruler, Time

The time ruler is the area on a data window above the waveform display. It shows the horizontal axis units as well as marker, region, and loop tags.

Ruler Tags

Ruler tags are the small tab-shaped controls on the time ruler that represent the location of markers, regions, and loop points in the waveform display.

-S-

Sample

The word *sample* is used in many different (and often confusing) ways when talking about digital sound. Here are some of the different meanings:

- A discrete point in time which a sound signal is divided into when digitizing. For example, an audio CD-ROM contains 44,100 samples per second. Each sample is really only a number that contains the amplitude value of a waveform measured over time.
- A sound that has been recorded in a digital format; used by musicians who make short recordings of musical instruments to be used for composition and performance of music or sound effects. These recordings are called samples. In this Help system, we try to use *sound file* instead of *sample* whenever referring to a digital recording.
- The act of recording sound digitally, i.e. to sample an instrument means to digitize and store it.

Sample Dump

A sample dump is the process of transferring sample data between music equipment. Because of the large amounts of data required to store digital sound, sample dumps may take a very long time when using the MIDI Sample Dump Standard (SDS). However, when using the faster SCSI MIDI Device Interface (SMDI) protocol, sample dumps can be performed many times faster.

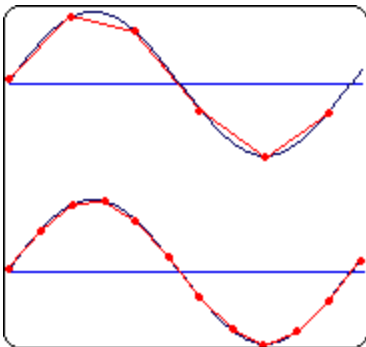
Sample Dump Standard (SDS)

The MIDI Sample Dump Standard is a way to transfer samples between music equipment. Samples transferred with SDS are sent across MIDI cables at the MIDI data rate of 31,250 Hz baud. SMDI is a much faster sample transfer method for musicians.

Sample Rate

The Sample Rate (also referred to as the Sampling Rate or Sampling Frequency) is the number of samples per second used to store a sound. High sample rates, such as 44,100 Hz provide higher fidelity than lower sample rates, such as 11,025 Hz. However, more storage space is required when using higher sample rates.

In the following example, each red dot represents one sample. Because the lower waveform is represented by twice as many samples as the top waveform, the samples are able to better approximate the original waveform.



Sample Size

See [Bit Depth](#).

Sample Value

The Sample Value (also referred to as sample amplitude) is the number stored by a single sample. The number stored by a single sample:

- In 32-bit audio, these values range from -2147483648 to 2147483647.
- In 24-bit audio, they range from -8388608 to 8388607.
- In 16-bit audio, they range from -32768 to 32767.
- In 8-bit audio, they range from -128 to 127.

The maximum allowed sample value is often referred to as 100% or 0 dB.

Sampler

A sampler is a device that records sounds digitally. Although, in theory, your sound card is a sampler, the term usually refers to a device used to trigger and play back samples while changing the sample pitch.

Secure Digital Music Initiative (SDMI)

The Secure Digital Music Initiative (SDMI) is a consortium of recording industry and technology companies organized to develop standards for the secure distribution of digital music. The SDMI specification will answer consumer demand for convenient accessibility to quality digital music, enable copyright protection for artists' work, and enable technology and music companies to build successful businesses.

SCSI MIDI Device Interface (SMDI)

SMDI is a standardized protocol for music equipment communication. Instead of using the slower standard MIDI serial protocol, it uses a SCSI bus for transferring information. Because of its speed, SMDI is often used for sample dumps.

Shortcut Menu

A context-sensitive menu that appears when you click on certain areas of the screen. The functions available in the shortcut menu depend on the object being clicked on as well as the state of the program. As with any menu, you can select an item from the shortcut menu to perform an operation. Shortcut menus are used frequently in Sound Forge Pro software for quick access to many commands.

Sign-Bit

Data that has positive and negative values and uses zero to represent silence. Unlike the signed format, twos complement is not used. Instead, negative values are represented by setting the highest bit of the binary number to one without complementing all other bits. This is a format option when opening and saving RAW sound files.

Signed

Data that has positive and negative twos complement values and uses zero to represent silence. This is a format option when opening and saving raw sound files.

Signal-to-Noise Ratio

The signal-to-noise ratio (SNR) is a measurement of the difference between a recorded signal and noise levels. A high SNR is always the goal.

The maximum signal-to-noise ratio of digital audio is determined by the number of bits per sample. In 16-bit audio, the signal to noise ratio is 96 dB, while in 8-bit audio its 48 dB. However, in practice this SNR is never achieved, especially when using low-end electronics.

Small Computer Systems Interface (SCSI)

SCSI is a standard interface protocol for connecting devices to your computer. The SCSI bus can accept up to seven devices at a time including CD ROM drives, hard drives and samplers.

Society of Motion Picture and Television Engineers (SMPTE)

SMPTE time code is used to synchronize time between devices. The time code is calculated in hours:minutes:second:frames, where frames are fractions of a second based on the frame rate. Frame rates for SMPTE time code are 24, 25, 29.97 and 30 frames per second.

Sound Card

The sound card is the audio interface between your computer and the outside world. It is responsible for converting analog signals to digital and vice-versa. There are many sound cards available on the market today, covering the spectrum of quality and price. Sound Forge Pro software will work with any Windows-compatible sound card.

Status Format

The status format is the format by which Sound Forge Pro software displays the time ruler and selection times. These include: Time, Seconds, Frames, Audio CD Time, and all Standard SMPTE frame rates. The status format is set for each sound file individually.

Streaming

A method of data transfer in which a file is played while it is downloading. Streaming technologies allow Internet users to receive data as a steady, continuous stream after a brief buffering period. Without streaming, users would have to download files completely before playback.

-T-

Telecine

The process of creating 30 fps video (television) from 24 fps film (cinema). See [inverse telecine](#) and [pulldown](#).

Tempo

Tempo is the rhythmic rate of a musical composition, usually specified in beats per minute (BPM).

Threshold

A threshold determines the level at which the signal processor begins acting on the signal. During normalization, levels above this threshold are attenuated.

Time Format

The format by which Sound Forge Pro software displays the time ruler and selection times. These can include: Time, Seconds, Frames and all standard SMPTE frame rates.

Trim/Crop

Trim/Crop is a function that will delete all data in a sound file outside of the current selection. This is a necessary function when dealing with samples to be played by a sampler to get rid of blank time at the beginning and ending of samples.

-U-

μ -Law

μ -Law (mu-Law) is a companded compression algorithm for voice signals defined by the Geneva Recommendations (G.711). The G.711 recommendation defines μ -Law as a method of encoding 16-bit PCM signals into a nonlinear 8-bit format. The algorithm is commonly used in European and Asian telecommunications. μ -Law is very similar to A-Law, however, each uses a slightly different coder and decoder.

Undo Buffer

This is the temporary file created before you do any processing to a sound file. This undo buffer allows you to rewrite previous versions of the sound file if you decide you don't like changes you've made to the sound file. This undo buffer is erased when the file is closed or the **Clear Undo History** command is selected.

Undo/Redo

These commands allow you to change a project back to a previous state, when you don't like the changes you have made, or reapply the changes after you have undone them.

Undo/Redo History

This is a list of all of the functions that have been done to a file that are available to be undone or redone. Undo/Redo History gives you the ability to undo or redo multiple functions as well as preview the functions for quick review of the processed and unprocessed material. This list can be displayed from within the View menu.

Unsigned

Data that has only positive values and uses half the maximum value to represent silence. This is a format option when opening and saving raw sound files.

-W-

Wave

An digital audio standard developed by Microsoft and IBM. One minute of uncompressed audio requires 10 MB of storage.

Waveform

A waveform is the visual representation of wave-like phenomena, such as sound or light. For example, when the amplitude of sound pressure is graphed over time, pressure variations usually form a smooth waveform.

Waveform Display

Each event shows a graph of the sound data waveform. The vertical axis corresponds to the amplitude of the wave. For 24-bit audio, they range from -8388608 to 8388607. For 16-bit sounds, the amplitude range is -32,768 to +32,767. For 8-bit sounds, the range is -128 to +127. The horizontal axis corresponds to time, with the leftmost point being the start of the waveform. In memory, the horizontal axis corresponds to the number of samples from the start of the sound file.

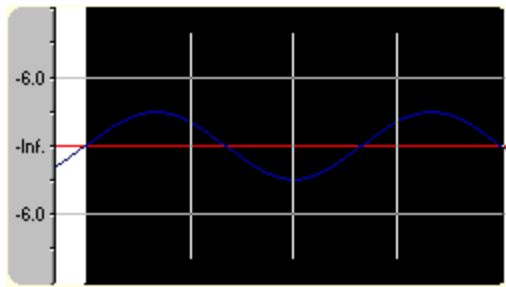
Windows Media Format

Microsoft's Windows Media file format that can handle audio and video presentations and other data such as scripts, URL flips, images and HTML tags.

-Z-

Zero-Crossing

A zero-crossing is the point where a fluctuating signal crosses the baseline.



By making edits at zero-crossings with the same slope, the chance of creating glitches is minimized.

Zipper Noise

Zipper noise occurs when you apply a changing gain to a signal, such as when fading out. If the gain does not change in small enough increments, zipper noise can become very noticeable. Fades are accomplished using 64-bit arithmetic, thereby creating no audible zipper noise.

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