VERSION **2**

SONY

Sound Forge™ Pro
MAC

User Manual

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Apple QuickTime

Apple Macintosh Audio Interchange File Format (AIFF) file format.

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Chapter 1

The Sound Forge Pro interface

The Sound Forge Pro interface is easy to use and can be customized for your workflow.

An overview of Sound Forge Pro

The Sound Forge Pro window is divided into five main areas that allow you to edit multiple sound files at once while providing easy access to the tools you need.

The main toolbar

- Click the **Record** button to record a new sound file. For more information, see "Recording a new file" on page 89.
- Use the File controls to create a new file, open a file, or save a file. For more information, see "Working with files in Sound Forge Pro" on page 17.
- Use the Transport controls to start, pause, or stop playback in the active editor. For more information, see "Using transport controls" on page 95.
- The activity view in the center of the toolbar displays the current cursor position and displays status information when you perform a task.
- The Editor controls allow you to display multiple files at once in a single tabbed view, a horizontal tabbed view, or a vertical tabbed view. For more information, see "Opening multiple files in the editor" on page 19.
- The Panes controls allow you to show or hide the side and bottom tool areas to optimize the workspace. For more information, see "Arranging editing views" on page 11.
- The Views control allows you to show and hide tools and choose where each tool will be displayed.

If you want to hide the toolbar, choose **View** > **Hide Toolbar**. If you want to restore the toolbar, choose **View** > **Show Toolbar**.

The editing toolbar

Showing or hiding the editing toolbar

Choose **View** > **Show Editing Toolbar** to show the Editing toolbar, which you can customize to include frequently used functions.

When the toolbar is visible, choose **View** > **Hide Editing Toolbar** to hide it.

Customizing the editing toolbar

If you want to hide the toolbar, choose **View** > **Hide Editing Toolbar**.

If you want to customize the contents of the Editing toolbar, choose **View** > **Customize Editing Toolbar**. You can then drag buttons from the button palette to add them to the toolbar or drag buttons from the toolbar to the palette to remove them.

Add spaces and separators as needed to group related buttons. Spring spaces allow you to align buttons or groups of buttons. For example, if you added three buttons to the editing toolbar with a spring space before and after the second button, button 1 would be left justified, button 2 would be centered, and button 3 would be right justified.

When the Customize Editing Toolbar palette is displayed, you can drag buttons on the toolbar to change their position.

If you want to clear the contents of the toolbar, choose **View** > **Reset Editing Toolbar**.

To close the Customize Editing Toolbar palette, click **Done**.

Control-click a button and choose **Icon and Text**, **Icon Only**, or **Text Only** to choose whether you want to display icons and text labels in the editing toolbar.

The left pane

By default, the left pane displays the Media Browser tool. You can use the Media Browser to find files on your computer. For more information, see "Opening a file" on page 17.

Click the **Show or hide the left pane** button to toggle the pane's display.

The editor

The center of the Sound Forge Pro window is dedicated to editing your sound files.

When you open a file, its waveform is displayed here.

When you open multiple files in tabs, the editor controls allow you to display multiple files at once in a single tabbed view, a horizontal tabbed view, or a vertical tabbed view. For more information, see "Opening multiple files in the editor" on page 19.

The right pane

By default, the right pane displays the Channel Meters, Plug-In Chain, and Plug-In Chooser views.

For more information, see "Monitoring peak levels" on page 96, "Adding effects to a plug-in chain" on page 83, or "Processing audio" on page 69.

Click the **Show or hide the right pane** button to toggle the pane's display.

You can rearrange tools within a pane by dragging the heading to a new position, or you can change a tool's placement by dragging it between the right and left panes.

The bottom pane

The bottom pane displays the File Properties, Regions List, Summary Information, Record, and Statistics views.

For more information, see "Viewing and editing file properties" on page 23, "The Regions List" on page 32, "Viewing summary information" on page 24, "Statistics" on page 25, or "The Record tool" on page 92.

Click the **Show or hide the bottom pane** button to toggle the pane's display.

Arranging editing views

Sound Forge Pro displays panes at the sides and bottom of the window that you can use to arrange the editing views.

Showing or hiding panes

Click the **Show or hide the left pane** button, **Show or hide the right pane** button, and **Show or hide the bottom pane** button to quickly show or hide the panes.

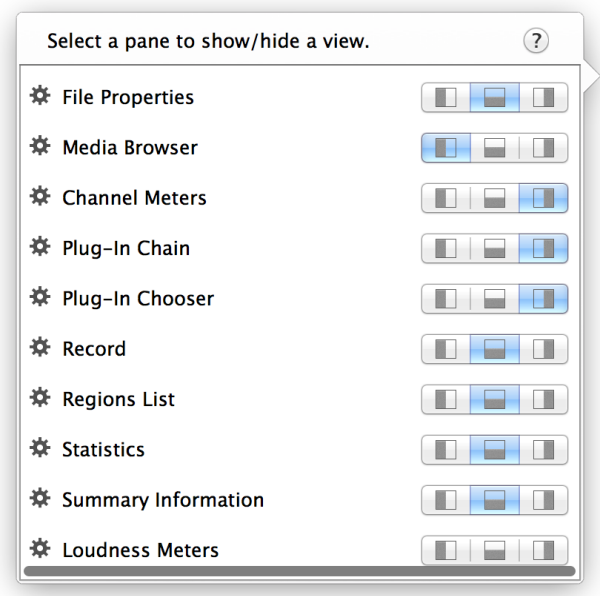
Showing or hiding tools

Choose **View** and then choose a command from the submenu to show or hide a tool.

Adding or removing tools from a pane

You can drag tools among panes to move them quickly: if you want to display the Channel Meters on the left side of the waveform, for example, you can drag the Channel Meters heading from the right pane to the left pane.

For more control, you can use the **Tools** button in the toolbar. When you click the **Tools** button, a control displays all available tools and where each will be displayed. The highlighted pane icon indicates where each tool will be displayed:

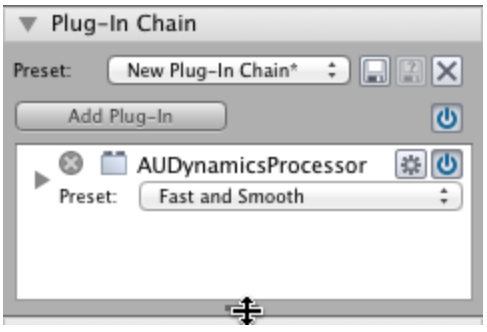


If you want to move a tool to a different pane, select the icon for the desired pane.

If you want to hide a tool, click the selected pane to deselect it.

Resizing a tool

You can drag the resize handle at the bottom of a tool to adjust its size:



Preferences

Choose **Sound Forge Pro** > **Preferences** to choose various settings for editing in Sound Forge Pro.

General preferences

Item	Description
Keep new peak files	Select this check box if you want to preserve peak (.spk) files in your library folder. When the check box is cleared, peak files are deleted when you close the application.
Move selection on edit	Select this check box if you want to move the loop bar when changing the **Selection Start**, **Selection End**, or **Selection Length** boxes below the waveform. When the check box is selected, the tooltips for the boxes will display **Edit Mode: Move** to indicate that the loop bar will move when you edit the values. When the check box is cleared, the loop bar's length is adjusted when you change the **Selection Start**, **Selection End**, or **Selection Length** boxes below the waveform. When the check box is cleared, the tooltips for the boxes will display **Edit Mode: Adjust** to indicate that the loop bar will be adjusted when you edit the values.
Scroll playback	Select this check box to enable automatic waveform scrolling during playback.
Update loop bar on Mark In/Out	Select this check box if you want to update the selection when setting the mark in and mark out point. When the check box is cleared, the selection isn't updated until you set a mark in and mark out point. For more information, see "Marking the beginning or end of a selection" on page 38.
Use default settings for new files	Select this check box if you want to use the default parameters when creating a new file. Use the **Sample rate**, **Bit depth**, and **Channels** controls at the bottom of the dialog to specify default parameters. When the check box is cleared, you'll be prompted to specify parameters when creating a new file.

Audio preferences

Item	Description
Audio Device Type	Choose a setting from the drop-down list to choose the audio device you want to use to play and record audio in Sound Forge Pro.  If you want to use separate devices for playback and recording, you can use the Audio MIDI Setup utility to create an aggregate device that merges your devices into a single virtual device: 1. Choose **Applications** > **Utilities** > **Audio MIDI Setup.app**. 2. Click **+** and choose **Create Aggregate Device**. 3. Select the **Use** check box for each audio device you want to include in your new audio device. 4. The next time you start Sound Forge Pro, you can choose your aggregate device from the **Audio Device Type** drop-down list.
Playback/Record	Click the Playback or Record tab to view and manage audio device mappings. .
Channel/Device	When Playback is selected, 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. When Record is selected, the Channel and Device columns indicate which audio input will be used to record each channel in a multichannel file. To assign a channel to a different output, click the Device entry and choose a new input from the drop-down list.

Keyboard Shortcuts preferences

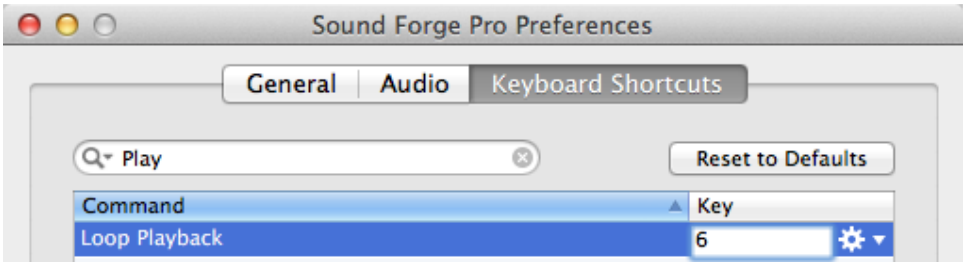
The Keyboard Shortcuts page displays all available keyboard shortcuts. You can use this page to add, customize, delete, or restore keyboard shortcuts.

1. Select a row. The **Command** column displays a description of each available shortcut.

   Use the **Search** box to filter the list of keyboard shortcuts. For example, if you type `Play` in the search box, only keyboard shortcuts that contain the word "Play" in their description will be displayed. You can use the drop-down in the Search box to choose whether you want to search command names, key values, or all fields.

2. Double-click the value in the **Key** column. The **Key** value is editable, and you can press a key combination to change the current keyboard shortcut.

   For example, if you wanted to change Loop Playback from Q to Command+Q, double-click the **Key** column for the **Loop Playback** command and press Command+Q. The previous keyboard shortcut is replaced with the new key combination.



3. The button at the end of the row ( ) provides additional options. Click the button and choose a command from the menu:

Item	Description
Clear	Removes the selected keyboard shortcut.
Revert	Reverts your last change. This command is available only while you're editing a row.
Delete	Removes the selected row from the list of keyboard shortcuts. This command is not available for default keyboard shortcuts, but it is available for keyboard shortcuts that you add.
Add New	Duplicates the selected row and allows you to assign another keyboard shortcut. Adding a new shortcut allows you to create multiple keyboard shortcuts that perform the same task.

4. Click the **Reset to Defaults** button to restore all keyboard shortcuts to the default state.

Chapter 2

Working with files in Sound Forge Pro

Sound Forge Pro can open and save a wide range of file formats.

Creating a new sound file

Each sound file is opened in a separate tab in the editor. You can have multiple files open at once; click anywhere in a tab to make it active.

If you want to create a new sound file using a section of another file, you can use the **Paste to New** command. For more information, see "Paste to New" on page 51.

1. Choose **File** > **New**.
2. Use the New Sound File dialog to specify the parameters for the new file:
   a. Choose a sample rate from the **Sample rate** drop-down list.
   b. Choose a setting from the **Bit depth** drop-down list to specify the number of bits that should be used to store each sample.
   c. Choose a setting from the **Channels** drop-down list to specify the number of channels that will be used in the window.

   If you want to use the same settings when you create new files, you can select the **Use these settings for all new files** check box or use the **Use default settings for new files** check box in the Preferences dialog.
3. A new, untitled sound file is created.

Opening a file

Use the **Open** command to open a media file in a new Sound Forge Pro editor tab.

You can also drag a file from the Finder to the Sound Forge Pro window or Dock icon.

Opening a file

1. Choose **File** > **Open**. The Open dialog is displayed.
2. Choose the folder where the file you want to open is stored.
3. Select a file in the browse window. Detailed information about the selected file is displayed.
4. Click the **Open** button.

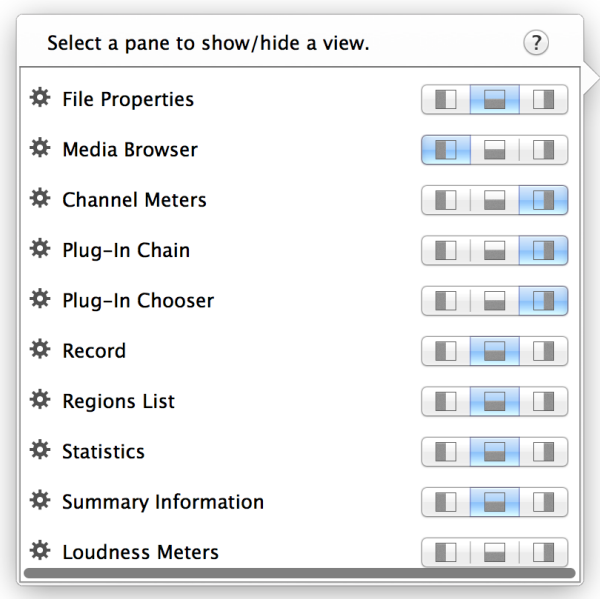
   If you want to edit multiple files in an editing session, use the Open command to open additional files. Each opened file will be displayed in a separate editor tab.

Opening a recent file

1. Choose **File** > **Open Recent**.
2. Choose a file from the submenu.

Opening a file with the Media Browser

1. If the Media Browser isn't already visible, click the **Tools** button in the toolbar and choose where you want to display the Media Browser:



2. Use the Media Browser to navigate your computer and choose the files you want to open.
3. You can double-click a file to open it, or you can drag it from the Media Browser to an editor tab.

   If you open multiple files, each file will be opened in a separate editor tab.

   The Media Browser can display all files on your computer, favorite files, open files, or you can search for files. Use the toolbar at the top of the Media Browser to choose what is displayed:

   - **Show files on computer**: Click to display all files on your computer. Use the Media Browser to navigate your drives and folders.

     Click the **Show files on computer** button and choose **Show All Items** to toggle display of all/supported files.

   - **Show Favorites**: Click to display files and folders that you've marked as favorites. To add a file or folder to your favorites, select it in the Media Browser and then click the **Add selected item to Favorites** button.

     Favorites for files from unmounted volumes are unavailable.

   - **Show open files**: Click to display files that are currently open in editor tabs.

- **Search for files**: Click to search your computer for a specific file. You can type a file name (or a partial file name) in the Search box to search for matching files.

  Press Shift+Command+D to navigate to the desktop, or press Shift+Command+H to navigate to your Home folder.

To preview a file in the Media Browser, Control-click the file and choose **Preview**. To toggle automatic preview of selected files, click the **Show files on computer** button and choose **Auto Play**.

Opening multiple files in the editor

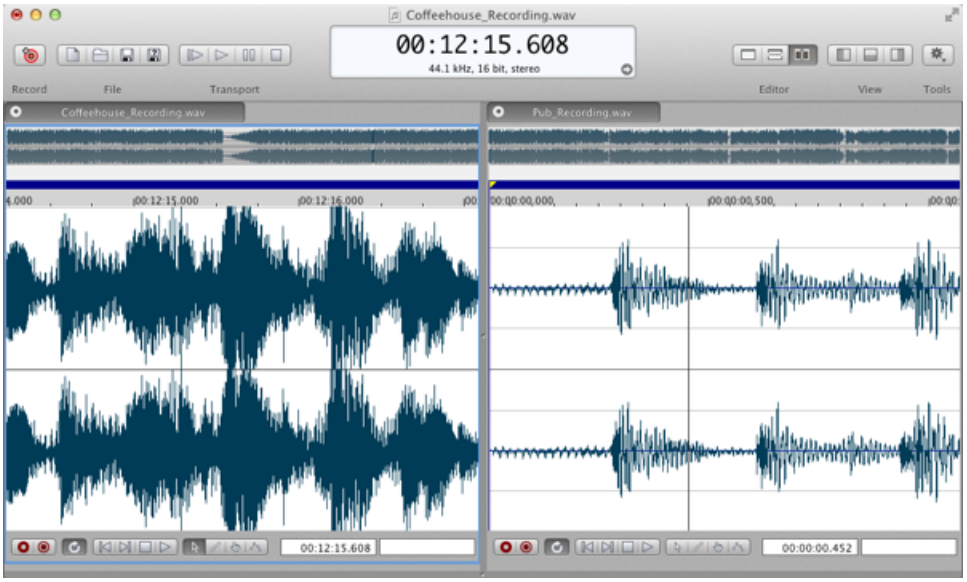
If you need to work with multiple files in an editing session, you can divide the Sound Forge Pro interface horizontally or vertically to view multiple editors at once.

When you open a file, it is added as a new tab in the active editor.

When multiple editors are visible, click a portion of the editor to make it active. A border is drawn around the active editor so you can find it easily.

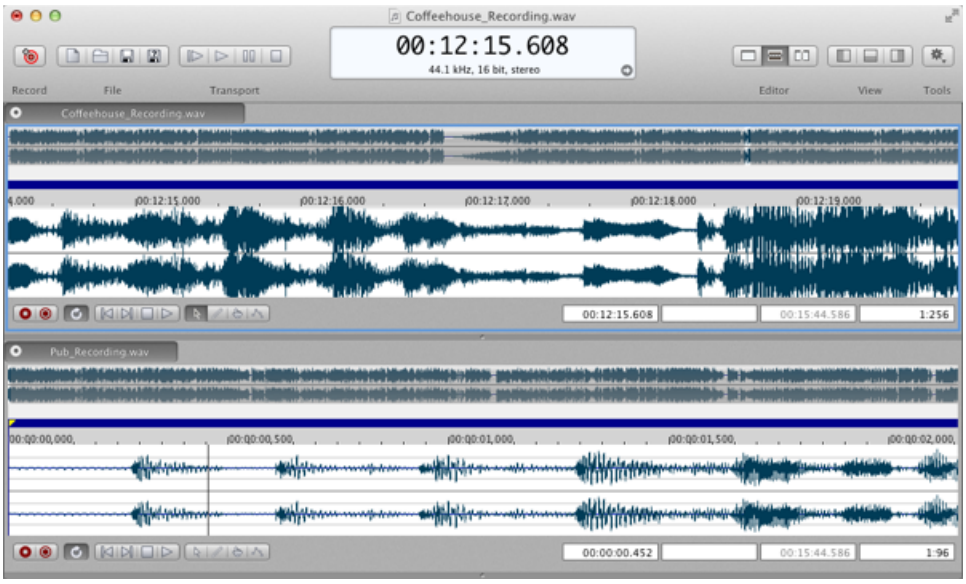
Arranging editors vertically

Click the **Show two vertical editors** button (or choose **View** > **Show Two Vertical Editors**) to display two vertical editors side by side. You can open multiple tabs in each editor.



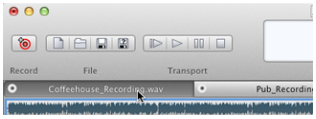
Arranging editors horizontally

Click the **Show two horizontal editors** button (or choose **View** > **Show Two Horizontal Editors**) to display two stacked horizontal editors. You can open multiple tabs in each editor.



Moving tabs

Drag a tab to move it within the editor. You can rearrange tabs or move them across sections of the editor.

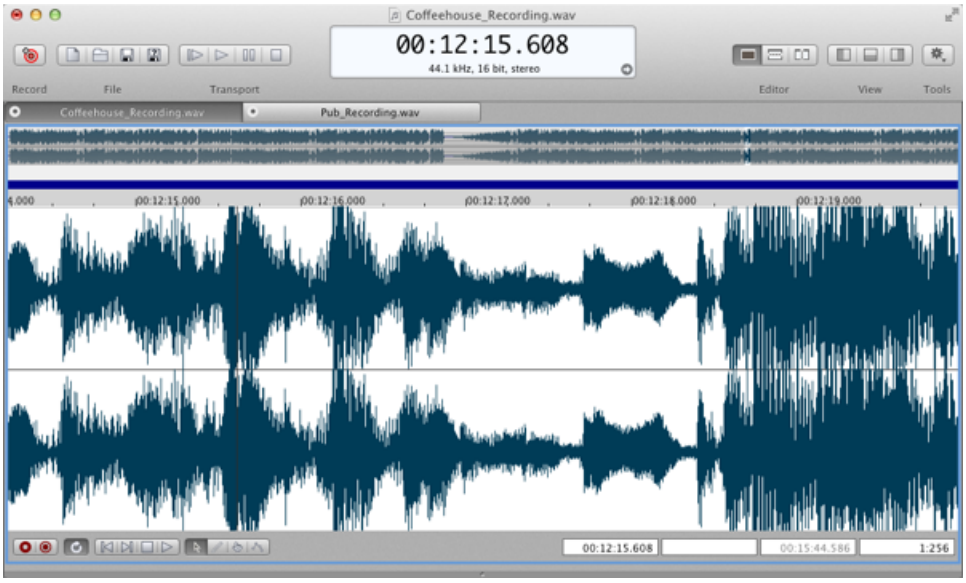


When viewing a single editor, you can drag a tab to the right edge of the editor to split the editor vertically and move the tab to the new editor.

When viewing a single editor, you can drag a tab to the bottom edge of the editor to split the editor horizontally and move the tab to the new editor.

Reverting to a single editor

Click the **Show single editor** button (or choose **View** > **Show Single Editor**) to return to a single, tabbed editor.



Saving a file

1. Click anywhere in the tab to select it.
2. Choose **File** > **Save**.

   If the active tab 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. For more information, see "Saving a file with a new name or format" on page 21.

If you have multiple tabs open, hold Option and choose **File** > **Save All** to save all open files.

Saving a file with a new name or format

1. Click anywhere in the tab to select it.
2. Choose **File** > **Save As**.
3. Type a name in the **Save As** box to identify your file.
4. Choose a location from the **Where** drop-down list to choose where you want to save your file.
5. Choose a file format from the **Format** drop-down list to choose the kind of file you want to save.
6. Choose a setting from the **Preset** drop-down list to choose the attributes that will be used to save your file.
7. Click the **Save** button.

Close

Choose **File** > **Close** to close the active file.

If you have multiple tabs open, hold Option and choose **File** > **Close All** to close all open files.

Quitting and closing files

Choose **Sound Forge Pro** > **Quit Sound Forge Pro** to exit the application.

The command's behavior depends on the **System Preferences** > **General** > **Close windows when quitting an application** (Mountain Lion) or **Restore windows when quitting and re-opening apps** (Lion) setting.

If **Close windows when quitting an application** (Mountain Lion) is selected or **Restore windows when quitting and re-opening apps** (Lion) is not selected. . .

- Choose **Sound Forge Pro** > **Quit Sound Forge Pro** to close all open files and exit the application. You'll be prompted to save any changes, and no files will be opened the next time you start Sound Forge Pro.
- Hold Option and choose **Sound Forge Pro** > **Quit and Keep Windows** to exit the application. The next time you start Sound Forge Pro, any files that were open in the editor will be restored.

If **Close windows when quitting an application** (Mountain Lion) is not selected or **Restore windows when quitting and re-opening apps** (Lion) is selected. . .

- Choose **Sound Forge Pro** > **Quit Sound Forge Pro** to close all open files and exit the application. The next time you start Sound Forge Pro, any files that were open in the editor will be restored.
- Hold Option and choose **Sound Forge Pro** > **Quit and Close All Windows** to exit the application.You'll be prompted to save any changes, and no files will be opened the next time you start Sound Forge Pro.

Working with projects

When you save a project file, Sound Forge Pro creates a .forgeproj archive containing your editing history, all associated media, and temporary files created by your editing operations.

A project file is not a multimedia file, but a portable snapshot of the entire editing history of a file — you can edit your project at any time without worrying about corrupting your source files. Project files are also easy to transfer between computers for editing on the go.

You can render a project file to a new multimedia file at any time by choosing **Save As** from the File menu. For more information, see "Saving a file with a new name or format" on page 21.

1. Click anywhere in the tab to select it.
2. Choose **File** > **Save As**.
3. Type a name in the **Save As** box to identify your file.
4. Choose a location from the **Where** drop-down list to choose where you want to save your file.

5. From the **Format** drop-down list, choose **Sound Forge Pro Project**.
6. Click the **Save** button.

Viewing and editing file properties

The File Properties tool displays information saved in the active file that is saved with the file and can be displayed by media players when you save your project in a different file format.

If the File Properties tool is not visible, you can select the **Show or hide the bottom pane** button or choose **View** > **File Properties**. For more information, see "Arranging editing views" on page 11.

Option	Description
File Name	The name of the file saved on disk.
Location	The folder where the file is saved.
Size	The size of the file on disk.
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.
Format	The format used to save the audio stream.
Sample Rate	Displays the number of samples used to store each second of audio. Click the setting and choose a sample rate from the drop-down list to set the number of samples per second used to represent the audio. 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.
Bit Rate	Displays the bit rate of the audio file.
Bit Depth	Displays the number of bits used to represent each sample. Click the setting and choose a bit depth from the drop-down list to set the number of bits used to represent each sample.
Channels	Displays the number of audio channels stored in the file. Click the setting and choose a setting from the drop-down list to set the number of channels stored in the file.
Length	The duration (in time and samples) of the audio file.

Viewing summary information

The Summary Information tool in the bottom pane displays information saved in the active file.

To edit summary information, double-click the **Value** column and type a new value in the box.

If the Summary Information tool is not visible, you can select the **Show or hide the bottom pane** button or choose **View** > **Summary Information**. For more information, see "Arranging editing views" on page 11.

Name	Description
Title	The title of the subject of the file, such as **Madison From Above**.
Artist	The artist of the original subject of the file.
Album	The name of the album that contains the file.
Copyright	Copyright information for the file. For example, **© Copyright 2012 Sony Creative Software Inc.** If there are multiple copyrights, separate them with a semicolon followed by a space.
Engineer	The name of the person who engineered the file.
Publisher	The name of the person or organization that published the file.
Genre	The type or genre of media contained in the file.
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.
Description	A description of the contents of the file.
Date created	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.
Software	The name of the software package used to create the file.
Language	The language used in the file.
Location	Identifies the location where the file was recorded.

Statistics

The Statistics tool displays information about the selected sound file region.

Click the **Update** button after moving the cursor or creating a selection to refresh the display, or you can select the **Automatic updates** check box to refresh the display when you move the cursor or selection.

If the Statistics tool is not visible, you can select the **Show or hide the bottom pane** button or choose **View** > **Statistics**. For more information, see "Arranging editing views" on page 11.

Option	Description
Level Format	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.
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	The maximum and minimum sample values and the locations where they occur. 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 example, to find the noise amplitude, run the Statistics function on a region of noisy silence.
RMS level	The Root Mean Square of the sample values relative to the RMS value of a maximum-amplitude square wave (the loudest possible recording). When used on short intervals, this value relates to the volume level of the sound file. However, if used 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.

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 file independently.

Zoom horizontally

Zooming incrementally

To zoom in and out in time by small increments, press the Up Arrow/Down Arrow keys.

Zooming in fully

Choose **View** > **Zoom Time** > **In Full** to maximize the horizontal magnification to 24:1 (24 pixels per sample).

Zooming out fully

Choose **View** > **Zoom Time** > **Out Full** (or press Ctrl+Down Arrow) to zoom out to the lowest magnification so that the entire sound file will fit on the screen.

If you're using a trackpad, you can use gestures to zoom:

- Hold Shift and pinch to zoom.
- Hold Option+Shift and pinch to zoom incrementally.
- Swipe up or down with two fingers to zoom.
- Hold Option and swipe up or down with two fingers to zoom incrementally.

Zooming to a selection

Choose **View** > **Zoom Time** > **Selection** to maximize the time selection to fit the width of the editor.

Zooming to an event

When the **Event Mode** button is selected, choose **View** > **Zoom Time** > **Event** to maximize the selected event to fit the width of the editor.

Zooming vertically

Zooming incrementally

To zoom in and out vertically by small increments, press Shift+Up Arrow/Down Arrow.

Zooming out fully

Choose **View** > **Zoom Level** > **Entire Waveform** to allow viewing of the entire amplitude range.

Zooming to fit the waveform to the editor height

Choose **View** > **Zoom Level** > **Visible Waveform** to allow viewing of the amplitude range in the visible portion of the editor.

Zooming to fit the selection to the editor height

Choose **View** > **Zoom Level** > **Selected Waveform** to allow viewing of the current selection's amplitude range.

If you're using a trackpad, you can pinch to zoom vertically.

Chapter 3

Working with markers and regions

Markers and regions serve as reference points along the timeline.

Using markers

Choose **Insert** > **Marker** (or press M) to add a marker at the current cursor position. Markers are reference points you can place throughout a file to identify positions for editing.

Each marker (up to 99) is assigned a number. Pressing this number on the keyboard moves the cursor to the corresponding marker.

Inserting a marker

1. Position the cursor where you want to add a marker.
2. Choose **Insert** > **Marker** (or press M). A marker will be added at the cursor position.

Naming or renaming a marker

Control-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.

Deleting a marker

Control-click the marker tag and choose **Delete** from the shortcut menu.

Deleting all markers and regions

Control-click the marker bar and choose **Markers/Regions** > **Delete All**. All markers and regions are removed.

Deleting all markers and regions within a selection

Control-click the marker bar and choose **Markers/Regions** > **Delete All in Selection**. All markers and regions in the selected area are removed.

Moving a marker

Drag the marker tag to a new location.

Tags will snap to other markers and regions if snapping is enabled. Hold Shift while dragging to override snapping. For more information, see "Enable snapping" on page 37.

Moving a marker to the cursor position

1. Position the cursor in the waveform.
2. Control-click a marker and choose **Move to Cursor** from the shortcut menu.

   The marker moves to the cursor position.

   If you have a range of data selected, the cursor will blink at one end of the selection; press Home to move the cursor to the beginning of the selection or press End to move to the end of the selection. You can also press , (comma) to move the cursor to the beginning or end of the selection.

Using regions

Choose **Insert** > **Region** (or press R) 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.

Each region (up to 99) is assigned a number. Pressing this number on the keyboard selects the corresponding marker.

Inserting a region

1. Drag the cursor in the waveform or marker bar to make a time selection. For more information, see "Selecting data using the mouse" on page 35.
2. Choose **Insert** > **Region** (or press R). Numbered region markers are placed at the start and end of the selected area.

   When you're in event-editing mode, press R to create a region based on the selected event, or press Alt+R to create a region based on the time selection.

Naming or renaming a region

Control-click the starting region tag 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.

Deleting a region

Control-click the starting region tag and choose **Delete** from the shortcut menu.

Deleting all markers and regions

Control-click the marker bar and choose **Markers/Regions** > **Delete All**. All markers and regions are removed.

Splitting a region

1. Click to position the cursor where you want to split the region.
2. Control-click the beginning or ending region tag and choose **Split Region at Cursor** from the shortcut menu. Two regions are created from the original region based on the cursor position.

Deleting all markers and regions within a selection

Control-click the marker bar and choose **Markers/Regions** > **Delete All in Selection**. All markers and regions in the selected area are removed.

Moving a region

Drag the region tag to a new location.

Tags will snap to other markers and regions if snapping is enabled. Hold Shift while dragging to override snapping. For more information, see "Enable snapping" on page 37.

Moving a region to match the current selection

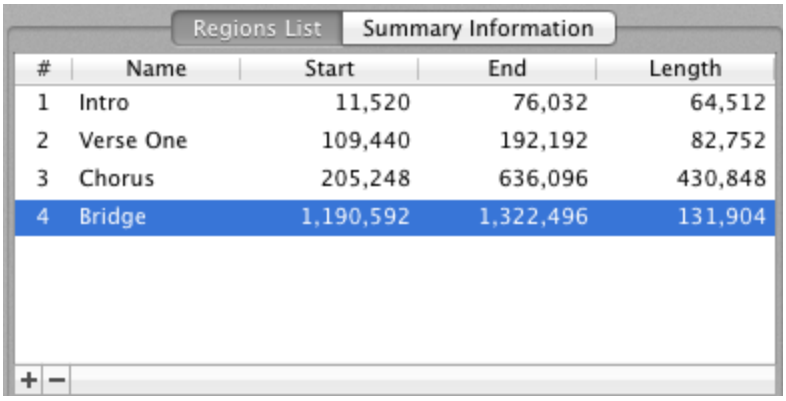
1. Create a time selection. For more information, see "Selecting data using the mouse" on page 35.
2. Control-click a region tag and choose **Move to Selection** from the shortcut menu.

   The beginning and ending points of the region are moved to match the current selection, and the length of the region is modified if necessary.

The Regions List

The Regions List in the bottom pane displays all regions and markers in the active sound file.

If the Regions List is not visible, you can select the **Show or hide the bottom pane** button or choose **View** > **Regions List**. For more information, see "Arranging editing views" on page 11.



For more information, see "Working with markers and regions" on page 29.

Sorting columns

Click a column heading to sort the results in ascending or descending order based on the column's contents.

Selecting a marker or region

Select a marker or region (by clicking in the marker or region's row) to move the cursor or selection in the waveform display.

Renaming a marker or region

Double-click the **Name** column and type a new name to name or rename a marker or region. The name is displayed in the Regions List and with the marker or region tag in the waveform display.

Editing the start, end, or length

You can edit a region by double-clicking and typing new values in the **Start**, **End**, or **Length** boxes.

You can edit a marker by double-clicking and typing a new value in the **Start** box.

Exporting regions

Choose **File** > **Export Regions** to create new files from regions in your file.

1. Choose **File** > **Export Regions**. The Export Regions dialog is displayed.
2. Type a name in the **Prefix** box if you want add a prefix to extracted regions. For example, type **Test** to extract **Test_1.wav**, **Test_2.wav**, **Test_3.wav**, and so on.
3. Choose a location from the **Where** drop-down list to choose where you want to export your files.
4. Choose a file format from the **Format** drop-down list to choose the kind of files you want to export.
5. Choose a setting from the **Preset** drop-down list to choose the attributes that will be used to export your files.
6. A list of regions is displayed at the bottom of the dialog. Select the **Export** check box for each region you want to export, or click **Select All** to export all regions.
7. Click the **Export** button.

Chapter 4

Selecting sound data

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.

Choose **Edit** > **Mode** > **Time** (or click the **Time Mode** button in an editor's playbar) to create time selections.

Selecting data using the mouse

Choose **Edit** > **Mode** > **Time** (or click the **Time Mode** button in an editor's playbar) to create time selections by clicking and dragging in a waveform.

Making a selection

Perform any of the following actions to select data:

- Click to position the cursor, hold the mouse button, and drag over an area of the waveform to select data.

  If snapping is enabled, the selection edge will snap to marker/region tags and major divisions of the time ruler as you drag past them.

  For more information, see "Working with markers and regions" on page 29 and "Enable snapping" on page 37.

- Double-click the waveform to select sound data between boundaries: if the sound file has no markers or regions, double-clicking will select the entire waveform. If markers and regions are present, double-clicking between marker or region tags will select the waveform between the tags.
- Double-click the loop bar to select the entire waveform.
- When markers and regions are present in the sound file, you can triple-click to select all data. Hold Shift while double-clicking to the right or left of a selection to extend the selection to the next region or marker.

Selecting 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 Command and click a channel to add or remove it from the current selection.

- Hold Command and Shift while clicking the first and last channel you want to select to select a range of channels.

Adjusting the length of a selection

1. Move the mouse over the edge of a selection. The resize pointer will be displayed.

   Drag to change the length of the selection.

2.

   You can also drag the ends of the loop region to adjust the selection length.

   Hold Shift while clicking the waveform to extend a selection to the point you click.

   Hold Shift while double-clicking to select the entire waveform. If markers or regions exist, Shift+double click extends the selection to the previous and next marker/region.

Shifting a selection left or right

Drag the center of the loop region to move a selection without resizing it:

Hold Option while dragging either end of a selection to move it.

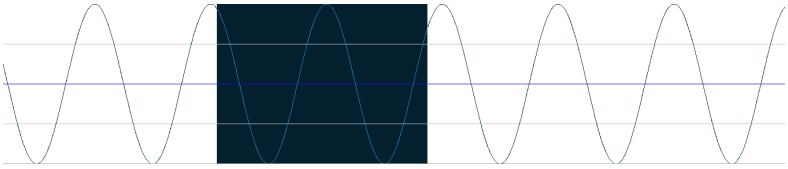
Snapping to zero crossings

Performing edits at zero-crossings reduces the possibility of introducing glitches in your sound file.

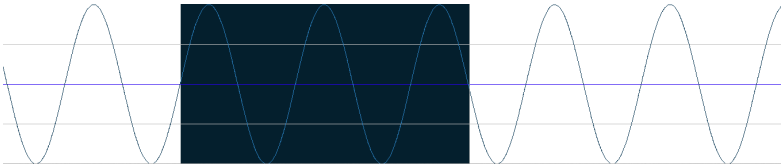
Choose **Edit** > **Selection** > **Snap to Next Zero** to force both edges of a selection to the next zero-crossing of the waveform.

Choose **Edit** > **Selection** > **Snap Edge to Next Zero** 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 to zero.



After snapping, the edges of the selection snap to the nearest locations where the waveform crosses the baseline.

Enable snapping

Choose **Options** > **Snapping** > **Enable** to turn automatic snapping on or off.

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 the editor, snap points are highlighted.

Hold the Shift key to temporarily suspend snapping.

Turning snapping on or off

Choose **Options** > **Snapping** > **Enable** to turn automatic 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 events.

Snapping 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.

Choose **Options** > **Snapping** > **Grid** to toggle snapping to grid lines.

To change the time format of the grid, choose **Options** > **Status Format** and then choose a setting from the submenu (or Control-click the time ruler and choose a format from the shortcut menu).

Snapping to markers

When snapping is enabled, you can also choose to have elements in the data windows snap to markers.

Choose **Options** > **Snapping** > **Markers** to toggle snapping to markers and regions.

For more information, see "Working with markers and regions" on page 29.

Snapping to events

When snapping is enabled, you can also choose to have elements in the data windows snap to event boundaries.

Choose **Options** > **Snapping** > **Events** to toggle snapping to event boundaries.

For more information, see "Event-based editing" on page 57.

Snapping to zero crossings

If you want to adjust a selection to zero-crossing points, you can choose **Edit** > **Selection** > **Snap to Next Zero** and **Edit** > **Selection** > **Snap Edge to Next Zero**.

For more information, see "Selecting data using the mouse" on page 35.

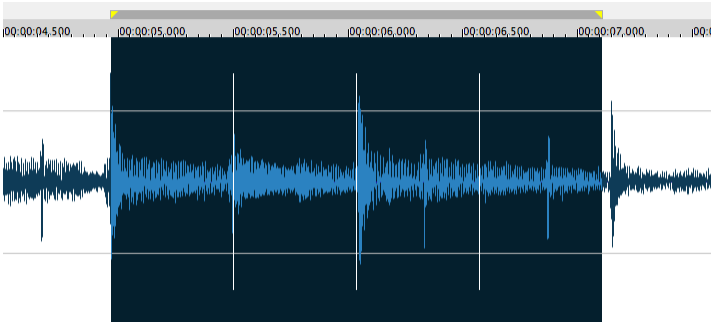
Marking the beginning or end of a selection

Choose **Edit** > **Selection** > **Mark In** to set the cursor position as the beginning of a time selection.

Choose **Edit** > **Selection** > **Mark Out** to set the cursor position as the end of a time selection.

Selection Divisions

Choose **Options** > **Selection Divisions** > **Enable** to display vertical lines that divide the selection into equal parts.



To change the number of divisions that will be used, choose **Options** > **Selection 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 number of divisions to 3 allows you to divide a selection into three beats.

Choosing a status format

Choose **Options** > **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 check mark is displayed next to the selected format.

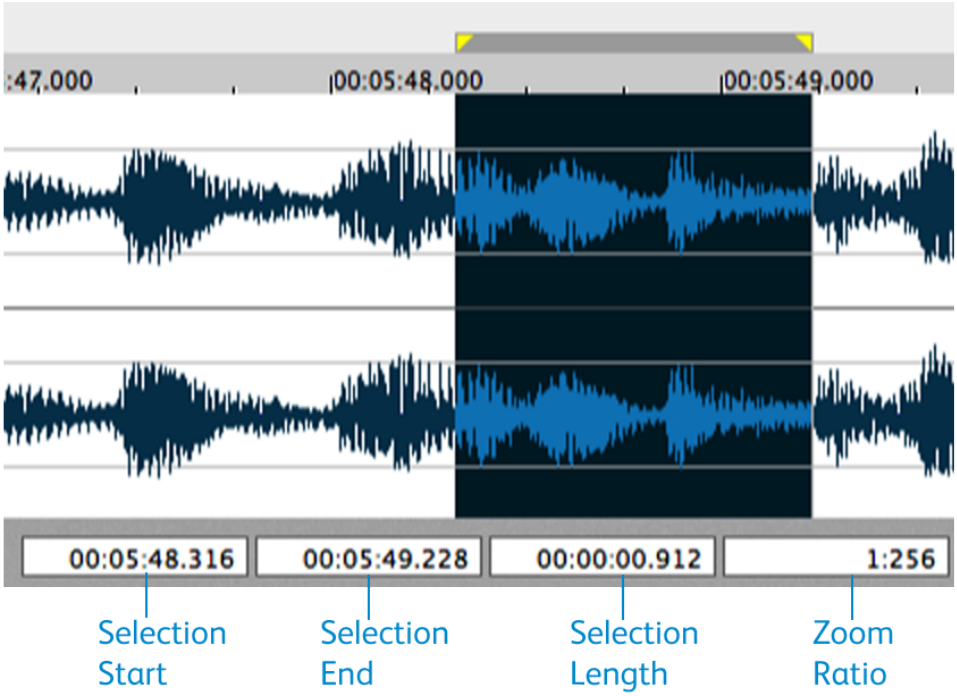
You can also Control-click the time ruler and choose a format from the shortcut menu.

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.
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 (24 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.

Format	Description
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 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 from 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.

The selection status bar

The selection status bar in each editor shows the beginning, end, and length of a selection. If no selection has been made, the cursor position is displayed. For more information, see "Selecting data using the mouse" on page 35.



The **Selection Start**, **Selection End**, **Selection Length**, and **Zoom Ratio** boxes may not be displayed when the editor is narrow.

- Double-click the **Selection Start** box to type a value and move the cursor.
- When a time selection is present, double-click the **Selection Start**, **Selection End**, or **Selection Length** box to type values in the boxes to specify or edit a selection.
- The **Move selection on edit** setting on the General page of the Preferences dialog determines whether the selection length is preserved when you change the **Selection Start** or **Selection Length** value.

  When the check box is selected, adjusting the **Selection Start** or **Selection End** value will automatically adjust the other value to move the selection and preserve its length. The tooltips for the boxes will display **Edit Mode: Move** to indicate that the loop bar will move when you edit the values.

  When the check box is cleared, adjusting the **Selection Start** or **Selection End** value will adjust only the value you edit, adjusting the selection length in the process. When the check box is cleared, the tooltips for the boxes will display **Edit Mode: Adjust** to indicate that the loop bar will move when you edit the values.

  For more information, see "Preferences" on page 13.

- To change values quickly, you can use mathematical operations.

  Type + to add to the current value: "+1" in the **Selection Start** box would move the beginning of the selection one status-format unit to the right.

  Type - to subtract from the current value: "-1" in the **Selection Start** box would move the beginning of the selection one status-format unit to the left.

  Type / to divide the current value: "/2" in the **Selection Start** box would move the beginning of the selection to half of its current value.

  Type * to multiply the current value: "*2" in the **Selection Start** box would move the beginning of the selection to two time its current value.

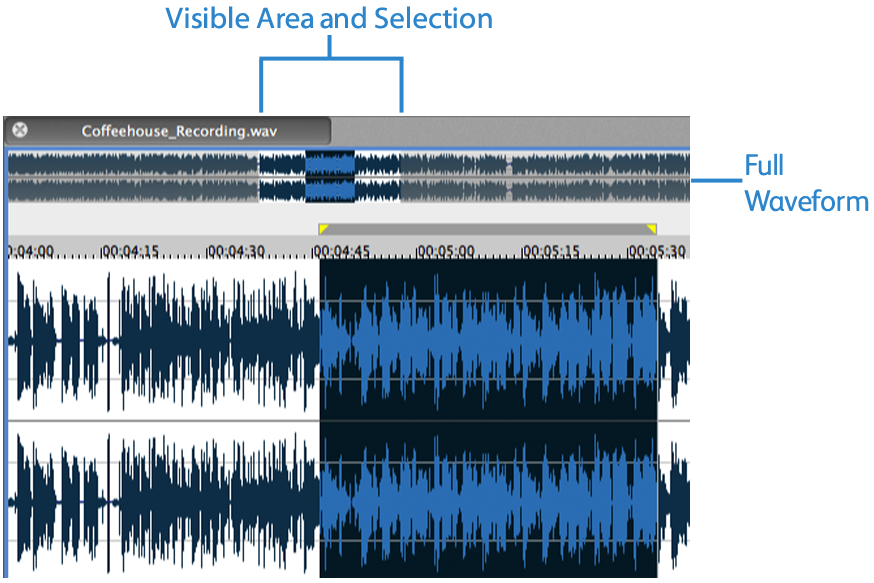
  Type % to multiply the current value by a percentage: "%50" in the **Selection Start** box would move the beginning of the selection to half of its current value.

- Control-click to display a shortcut menu that allows you to choose a time format. For more information, see "Choosing a status format" on page 39.

The overview bar

The overview bar is displayed above the waveform in each editor and helps you navigate the waveform.

You can toggle the overview bar by choosing **View** > **Show Overview/Hide Overview**.



- 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 editor. You can drag this portion to navigate the waveform.
- The current selection is also represented in the overview bar.
- To navigate the waveform, you can drag the unshaded portion of the waveform display:

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

Chapter 5

Editing sound data

The edit operations used most often include cut, copy, paste, mix, and delete. Most of these functions use the clipboard, which is a temporary storage area. The clipboard can also be used to move data across sound files.

Editing modes

Sound Forge Pro provides several editing methods. To set the editing mode for the active editor, choose **Edit** > **Mode**, and choose a command from the submenu or click a mode button in the playbar below the waveform.

- **Time Mode**: in this general-purpose editing mode, you can create time selections in the waveform to manipulate audio. For more information, see "Selecting data using the mouse" on page 35.
- **Event Mode**: in this mode, you can edit nondestructively, using multiple audio files in a single editor. For more information, see "Event-based editing" on page 57.
- **Pencil Mode**: in this mode, you can perform precision edits by drawing directly in the waveform. For more information, see "Pencil Mode" on page 54.
- **Envelope Mode**: in this mode, you can use envelopes to adjust effect parameters over time. For more information, see "Automating effect parameters" on page 86.

Undoing and redoing edits

Choose **Edit** > **Undo** or **Redo** to reverse or restore edit operations.

Undoing a single edit

Choose **Edit** > **Undo** to reverse the last action performed. For example, if you deleted a section of data accidentally, use the **Undo** command to restore the data.

Redoing a single edit

Choose **Edit** > **Redo** to reverse an undo operation.

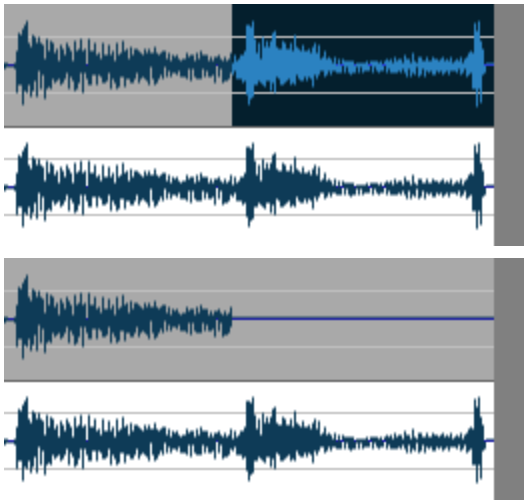
Cutting sound data

Choose **Edit** > **Cut** to remove the selected sound data and copy it to the clipboard. Cutting sound data replaces the previous contents of the clipboard.

For information about cutting events, please see "Cutting, copying, pasting, mixing and deleting events" on page 60.

1. Choose **Edit** > **Mode** > **Time** (or click the **Time Mode** button in an editor's playbar).
2. Select the data you want to cut. For more information, see "Selecting data using the mouse" on page 35.
3. Choose **Edit** > **Cut**.

   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.



Regions, markers, and envelope points are cut with a selection. To turn this feature off, turn off **Options** > **Lock to Selection** > **Markers/Regions** and **Envelope Points**.

Copying sound data

Choose **Edit** > **Copy** to copy the selected sound data to the clipboard. Copying sound data replaces the previous contents of the clipboard.

For information about copying events, please see "Cutting, copying, pasting, mixing and deleting events" on page 60.

1. Choose **Edit** > **Mode** > **Time** (or click the **Time Mode** button in an editor's playbar).
2. Select the data you want to copy. For more information, see "Selecting data using the mouse" on page 35.
3. choose **Edit** > **Copy**. The data is copied to the clipboard.

   Regions and markers are copied with a selection. To turn this feature off, turn off **Options** > **Lock to Selection** > **Markers/Regions**.

Pasting sound data

Choose **Edit** > **Paste** to insert a copy of the clipboard contents at the cursor position. If there is a selection, the **Paste** command deletes the selected data before inserting.

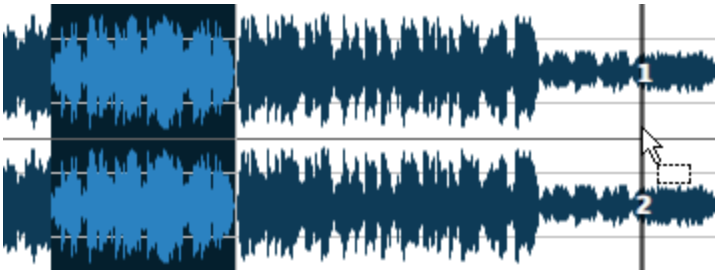
For information about pasting events, please see "Cutting, copying, pasting, mixing and deleting events" on page 60.

Pasting by dragging and dropping a selection

1. Choose **Edit** > **Mode** > **Time** (or click the **Time Mode** button in an editor's playbar).
2. Select the sound data you want to paste.

   For more information, see "Selecting data using the mouse" on page 35.

3. Hold Command and drag the selection to the location where you want to paste the data. The paste cursor is displayed, and a vertical line is displayed to show you where the paste will occur.



You can drag a selection to a new location in the current editor, to a different editor, or to a blank spot in an editor (to create a new tab).

If you're dragging nonadjacent channels in a multichannel file — channels 1 and 3 in a 5.1-channel file, for example — hold Option during the drag to force the dragged data to adjacent channels.

Regions, markers, and envelope points are pasted with a selection. To turn this feature off, turn off **Options** > **Lock to Selection** > **Markers/Regions** and **Envelope Points**.

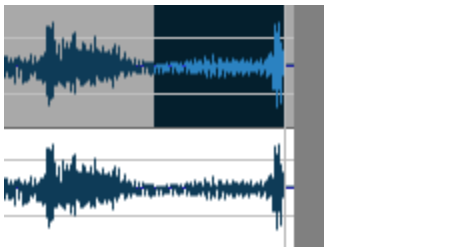
4. When you drop the selection, the selection is pasted.

Pasting audio from the clipboard

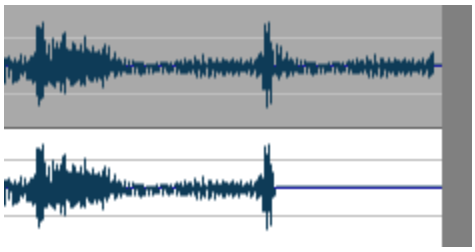
1. Choose **Edit** > **Mode** > **Time** (or click the **Time Mode** button in an editor's playbar).
2. Click to place the cursor where you want to paste the clipboard contents, or select the data you want to replace. For more information, see "Selecting data using the mouse" on page 35.

3. Choose **Edit** > **Paste**.

   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



After paste

Regions, markers, and envelope points are pasted with a selection. To turn this feature off, turn off **Options** > **Lock to Selection** > **Markers/Regions** and **Envelope Points**.

Mixing sound data

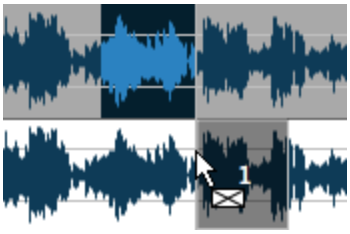
Choose **Edit** > **Mix** to mix a copy of the clipboard contents at the current cursor position.

Mixing by dragging and dropping a selection

1. Choose **Edit** > **Mode** > **Time** (or click the **Time Mode** button in an editor's playbar).
2. Select the sound data you want to mix or crossfade.

   For more information, see "Selecting data using the mouse" on page 35.

3. Drag the selection to the location where you want to mix the data. The mix cursor is displayed, and a shaded selection box is displayed to show you where the mix will occur.



You can drag a selection to a new location in the current editor, to a different editor, or to a blank spot in an editor (to create a new tab).

If you're dragging nonadjacent channels in a multichannel file — channels 1 and 3 in a 5.1-channel file, for example — hold Option during the drag to force the dragged data to adjacent channels.

4. When you drop the selection,the Mix dialog is displayed.
5. Choose a setting from the **Preset** drop-down list, or adjust the controls as desired:
    a. Drag the source **Volume** fader to adjust the volume of the selection you want to mix.
    b. Drag the destination **Volume** fader to adjust the volume of the selection you want to mix over.

        Select the **Invert phase** check boxes to invert the source or destination audio at the baseline (reverse the phase). Inverting data can help match transitions and compare the phase relationship of the two sound files.

    c. 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.
    d. 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.

        Click the **Fade curves** button and choose a curve type from the menu to set the speed of the in and out fades.

    e. Select the **Proportional fade lengths** check box if you want to specify fade lengths as a percentage of the selection.
6. Click the **Process** button to apply the mix.

Mixing audio from the clipboard

The the **Mix** command is not available in event-editing mode.

1. Choose **Edit** > **Mode** > **Time** (or click the **Time Mode** button in an editor's playbar).
2. Select the sound data you want to mix or crossfade, and then cut or copy the sound data to the clipboard.

   For more information, see "Selecting data using the mouse" on page 35, "Cutting sound data" on page 46, or "Copying sound data" on page 47.
3. Click to place the cursor where you want to mix the clipboard contents or select the data you want to replace.
4. Choose **Edit** > **Mix**. The Mix dialog is displayed.
5. Choose a setting from the **Preset** drop-down list, or adjust the controls as desired:
   a. Drag the source **Volume** fader to adjust the volume of the selection you want to mix.
   b. Drag the destination **Volume** fader to adjust the volume of the selection you want to mix over.

      Select the **Invert phase** check boxes to invert the source or destination audio at the baseline (reverse the phase). Inverting data can help match transitions and compare the phase relationship of the two sound files.

   c. 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.
   d. 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.

      Click the **Fade curves** button and choose a curve type from the menu to set the speed of the in and out fades.

   e. Select the **Proportional fade lengths** check box if you want to specify fade lengths as a percentage of the selection.
6. Click the **Process** button. The contents of the clipboard are mixed starting at the cursor position.

   If the clipboard has fewer channels than your mix target, only the selected channels will be mixed.

   If the clipboard has more channels than your mix target, only the selected channels in your destination will be mixed.

Paste to New

Choose **Edit** > **Paste to New** to create a new file that contains the contents of the clipboard.

Regions, markers, and envelope points are pasted with a selection. To turn this feature off, turn off **Options** > **Lock to Selection** > **Markers/Regions** and **Envelope Points**.

Trimming a selection

Choose **Edit** > **Trim** to remove all data outside the current selection.

1. Select the data you want to keep. For more information, see "Selecting data using the mouse" on page 35.
2. Choose **Edit** > **Trim**.

   This command does not copy sound data to the clipboard.

   Unselected channels in a multichannel file are unaffected by the trimming operation.

   At least one event must be selected to use the **Trim** command in event-editing mode. For more information, see "Event-based editing" on page 57.

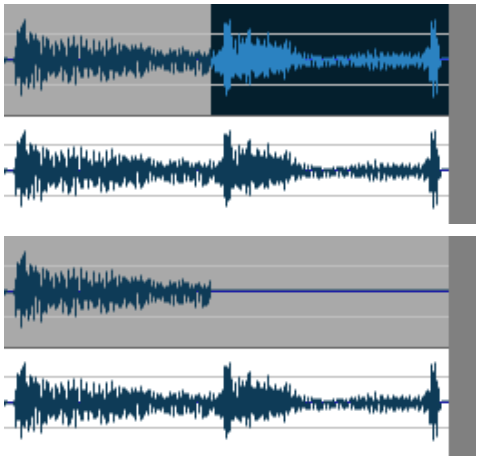
   Trimming is not available in envelope-editing mode. For more information, see "Envelope Mode" on page 54.

Deleting sound data

Choose **Edit** > **Delete** to remove the selected sound data without copying it to the clipboard.

1. Choose **Edit** > **Mode** > **Time** (or click the **Time Mode** button in an editor's playbar).
2. Select the data you want to delete. For more information, see "Selecting data using the mouse" on page 35.
3. Choose **Edit** > **Delete**.

   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

Regions, markers, and envelope points are deleted with a selection. To turn this feature off, turn off **Options** > **Lock to Selection** > **Markers/Regions** and **Envelope Points**.

Inserting silence

Choose **Insert** > **Silence** to insert a section of silence in a sound file.

1. Choose **Edit** > **Mode** > **Time** (or click the **Time Mode** button in an editor's playbar).
2. Choose **Insert** > **Silence**. The Insert Silence dialog is displayed.
3. In the **Insert** box, specify the length of silence that you want to add.
4. 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.
5. Click the **Insert** button.

   Any markers or regions that exist after the insertion point will be rippled to preserve their position.

Simple Synthesis

You can use the Simple Synthesis plug-in to generate a simple waveform of a given shape, pitch, and length.

1. Select the sound data you want to replace with a synthesized waveform. If no data is selected, the synthesis will be inserted at the cursor position. For more information, see "Selecting data using the mouse" on page 35.
2. Choose **Insert** > **Simple Synthesis**. The Simple Synthesis dialog is displayed.

   The **Insert** > **Simple Synthesis** command is not available in event-editing mode.
3. Choose a setting from the **Preset** drop-down list, or adjust the controls as desired:
   a. Choose a shape from the **Type** drop-down list to specify the shape of a single period of the waveform.
   b. In the **Length** box, specify the length (in seconds) of the generated waveform.
   c. Drag the **Amplitude** fader to set the peak level of the waveform.
   d. 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.

      Aliasing can occur with many of these waveforms when using high frequencies because they are not band-limited.

e. If you want to sweep a range of frequencies, select the **Use Sweep** check box and use the **End Frequency** box to specify an ending frequency.

   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.

4. Click the **Process** button

Pencil Mode

Choose **Edit** > **Mode** > **Pencil** (or click the **Pencil Mode** button in an editor's playbar) 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.

Pencil mode is available only at magnification levels of 1:32 or greater.

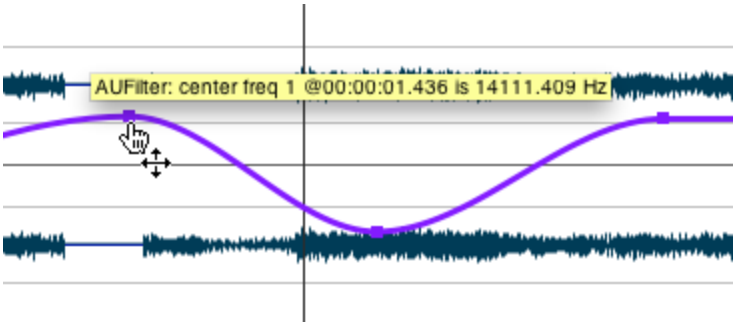
Envelope Mode

Choose **Edit** > **Mode** > **Envelope** (or click the **Envelope Mode** button in an editor's playbar) to edit points on effect automation envelopes.

For more information, see "Automating effect parameters" on page 86.

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.

If snapping is enabled, envelope points will snap to enabled snap points (grid marks, markers, or events) as you drag them. For more information, see "Enable snapping" on page 37.

Hold Command while dragging an envelope point or segment to adjust the point's value without changing its horizontal position.

Hold Command+Option while dragging an envelope point to move the point's horizontal position without changing its value.

Click and drag in an editor to create a selection box and select multiple envelope points.

Double-click an envelope point to restore it to its default value.

Adding or deleting 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.

Flipping all points

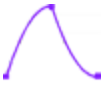
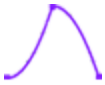
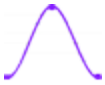
1. Right-click an envelope segment. A shortcut menu is displayed.
2. Choose **Flip all** from the shortcut menu.

Flipping selected points

1. Choose **Edit** > **Mode** > **Envelope** (or click the **Envelope Mode** button in an editor's playbar).
2. Create a time selection to select the points you want to flip.
3. Right-click an envelope point in the time selection and choose **Flip** 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:

- Hold: 
- Linear: 
- Fast: 
- Slow: 
- Smooth: 
- Sharp: 

Cutting, copying, and pasting envelope points

1. Choose **Edit** > **Mode** > **Envelope** (or click the **Envelope Mode** button in an editor's playbar).
2. Create a time selection to select the points you want to cut or copy.
3. Choose **Edit** > **Cut** or **Copy**.
4. Click to position the cursor where you want to paste the envelope points.
5. Choose **Edit** > **Paste**.

   Envelope points can be pasted only within the same envelope.

Chapter 6

Event-based editing

Choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to perform event-based editing.

Event-based editing allows you to divide a sound file into any number of independent sections that can be arranged and rearranged on the timeline.

Creating events

Events are created when you cut/copy/paste sound data, split events, drag sound data to an editor, or process selections.

Creating events by cutting, copying, pasting, or mixing sound data

Cutting, copying, pasting, or mixing sound data will create events in a data window.

After performing one of these edits, choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to work with the new event.

For more information, see "Cutting sound data" on page 46, "Copying sound data" on page 47, "Pasting sound data" on page 47, or "Mixing sound data" on page 49.

Creating events by dragging selections

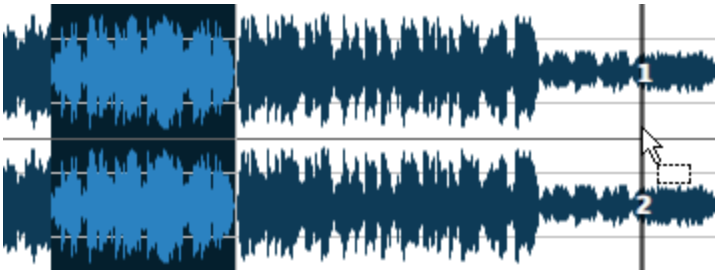
You can create events by dragging sound data within an editor or to another editor.

1. Create a time selection in an editor.

   For more information, see "Selecting data using the mouse" on page 35.

2. Drag the selection to the location where you want to mix or paste it.

   When you drop a selection, the Mix dialog is displayed to allow you to mix the new event. If you want to paste the selection, hold Command and drag the selection to the location where you want to paste the data. The paste cursor is displayed, and a vertical line is displayed to show you where the paste will occur.



3. Choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to work with the new event.

Creating 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. Create a time selection in an editor.

   For more information, see "Selecting data using the mouse" on page 35.

2. Apply a process or effect to your time selection. Sound Forge Pro creates an event from the selection.

   For more information, see "Processing audio" on page 69 or "Applying effects" on page 81.

3. Choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to work with the new event.

Moving events

You can move events horizontally along the timeline by dragging them when in event-editing mode.

Choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to enable event-editing mode.

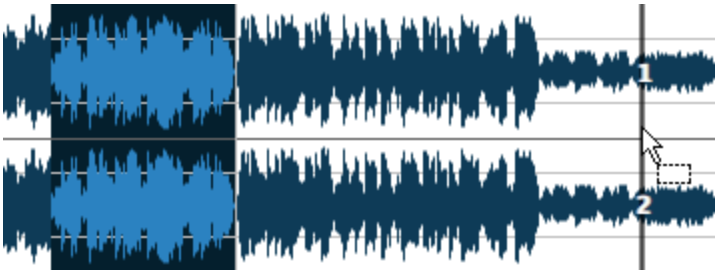
Moving an event past the end of the current file inserts time into the editor. You must remove any unwanted silence when you are finished editing the file.

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.

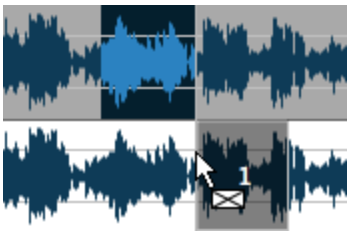
Events can cross channel boundaries, but overlapping events must lie on the same channels. Sound Forge Pro automatically splits or merges channels as you move events.

You can hold Command while dragging events to paste and mix them:

- Hold Command while dragging an event to move it within an editor. The paste cursor is displayed, and a vertical line is displayed to show you where the paste will occur:



- Hold Command while dragging an event to another editor to paste the event to that editor (hover over a tab in the target editor to bring it to the foreground before dropping it).
- Hold Command while dragging an event to an empty area in an editor's tab area to create a new file using the event.
- If you release Command after you start dragging the event, the event is mixed where you drop it. The mix cursor is displayed, and a shaded selection box is displayed to show you where the mix will occur:



- If you're dragging data from nonadjacent channels, you can hold Option to paste or mix the events to adjacent channels. For example, if dragging events from channels 1 and 3 to a stereo file, only the event from channel 1 would be pasted or mixed after you drop your selection. If you hold Option, the events from channels 1 and 3 would be pasted or mixed to channels 1 and 2 in the stereo file.

Regions, markers, and envelope points are moved with an event. To turn this feature off, turn off **Options** > **Lock to Selection** > **Markers/Regions** and **Envelope Points**.

If you want to ripple the contents of the editor when pasting events, choose **Options** > **Event** > **Auto Ripple**. For more information, see "Auto Ripple Events" on page 67.

Splitting 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.

Splitting an event at the cursor

1. Choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to enable event-editing mode.
2. Click above the time ruler to position the cursor where you want to split the events.
3. Select the events you want to split.
4. Choose **Edit** > **Event** > **Split**.

   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.

Splitting events at region boundaries

1. Choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to enable event-editing mode.
2. Add regions as needed. For more information, see "Using regions" on page 30.
3. Select the events you want to split.
4. Choose **Edit** > **Event** > **Split Regions**.

   If no events are selected, the events located at the current cursor position will be split throughout all of the channels at region boundaries.

   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, and delete events in an editor or across multiple editors. For more information, see "Opening multiple files in the editor" on page 19.

Cutting events

1. Choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to enable event-editing mode.
2. Select the events you want to cut. For more information, see "Selecting events" on page 62.
3. Choose **Edit** > **Cut**.

   The selected events are removed from the editor and placed on the clipboard.

   Regions, markers, and envelope points are cut with an event. To turn this feature off, turn off **Options** > **Lock to Selection** > **Markers/Regions** and **Envelope Points**.

Copying events

1. Choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to enable event-editing mode.
2. Select the events you want to copy. For more information, see "Selecting events" on page 62.
3. Choose **Edit** > **Copy**.

   The selected events are copied to the clipboard and the waveform is unchanged.

   Regions, markers, and envelope points are copied with an event. To turn this feature off, turn off **Options** > **Lock to Selection** > **Markers/Regions** and **Envelope Points**.

Pasting events

1. Choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to enable event-editing mode.
2. Move the cursor to the desired location on the timeline.
3. Choose **Edit** > **Paste**.

   The clipboard events are inserted into the editor, and existing events on the selected channels are moved by the total length of the pasted events.

   If no channels are selected, the clipboard events are pasted to all channels.

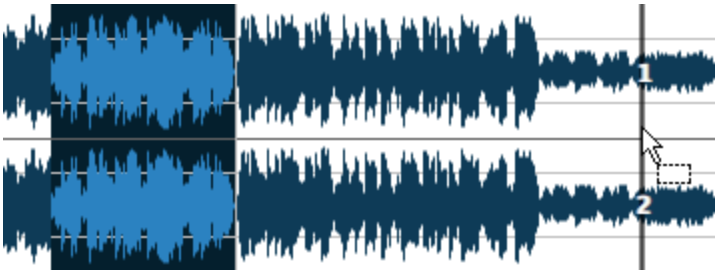
   Regions, markers, and envelope points are pasted with an event. To turn this feature off, turn off **Options** > **Lock to Selection** > **Markers/Regions** and **Envelope Points**.

Mixing events

You can mix events and selections when using the Event tool by dragging sound data within an editor or to another editor. Mixed audio is inserted as new events over existing events in a data window.

When you drop a selection, the Mix dialog is displayed to allow you to mix the new event.

If you want to paste the selection, hold Command and drag the selection to the location where you want to paste the data. The paste cursor is displayed, and a vertical line is displayed to show you where the paste will occur.



Deleting events

1. Choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to enable event-editing mode.
2. Select the events you want to delete. For more information, see "Selecting events" on page 62.
3. Choose **Edit** > **Delete**.

   The selected events are removed from the editor, 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 **Options** > **Lock to Selection** > **Markers/Regions**.

Selecting events

Select one or more events by clicking in the waveform display when in event-editing mode.

Choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to enable event-editing mode.

Selecting events

- To select an event, click it. To deselect an event, click it again.
- 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.
- To select multiple nonadjacent events, hold the Command key and click each event you want to select.
- To select the next or previous event, choose **Edit** > **Event** > **Select Next/Previous Event** (or press Shift+Right/Left Arrow).
- To select the first or last event, choose **Edit** > **Event** > **Select First/Last Event** (or press Shift+Home/End).

- To extend a selection to the next or previous event, choose **Edit** > **Event** > **Extend Selection to Next/Previous Event** (or press Shift+Command+Left/Right Arrow).
- To extend a selection to the first or last event, choose **Edit** > **Event** > **Extend Selection to First/Last Event** (or press Shift+Command+Home/End).

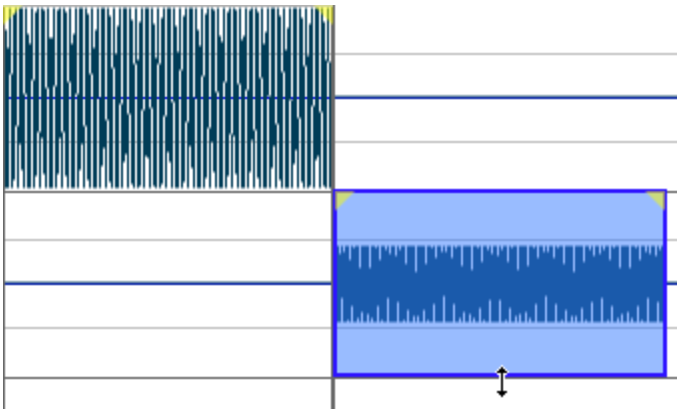
  Choose **View** > **Zoom Time** > **Event** to maximize the selected event to fit the width of the editor.

Creating a time selection from an event

Double-click an event to select it and set the loop bar to match the event's length.

Selecting channels in an 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.

Crossfading events

When **Options** > **Event** > **Automatic Crossfades** is selected, crossfades are automatically applied when you overlap two events on the same channel.

You can show or hide the crossfade length in a help tag choosing **Options** > **Event** > **Show Crossfade Lengths** or pressing Shift+Command+T.

Creating an automatic crossfade

1. Choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to enable event-editing mode.
2. Verify **Options** > **Event** > **Automatic Crossfades** is selected.

3. Drag an event so it overlaps another event on the same channel.

   A crossfade is automatically added to transition between the two events.

Creating 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.

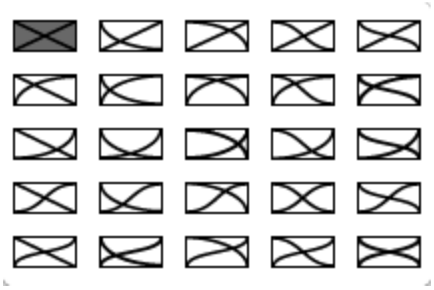
You can turn off automatic crossfades for longer events by deselecting **Options** > **Event** > **Automatic Crossfades**.

1. Choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to enable event-editing mode.
2. Drag a shorter event so it overlaps a longer event, or drag an event with **Automatic Crossfades** turned off.
3. Hover over the upper-left or upper-right corner of an audio event until the fade offset cursor is displayed.
4. Click the corner of the event and drag to create a fade.
5. Repeat step 4 for the other end of the event.

Changing 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:



Changing the default fade type

If you want to change the default fade type that is used when fading an event in or out, choose **Options** > **Event Default Fade In** or **Default Fade Out** and choose a fade curve from the submenu.

The fade curve you choose will be used for new fades (existing fades are unaffected).

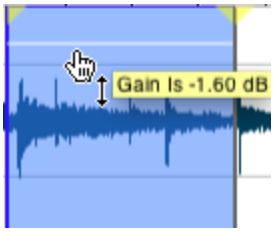
Event envelopes

You can apply envelopes to individual events. Envelopes, 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.

Adjusting an event's volume

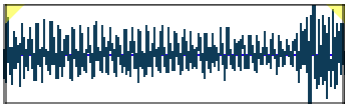
1. Choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to enable event-editing mode.
2. Hover over the top of an audio event.
3. When you see the envelope cursor (), drag the volume line to the desired level. As you drag the envelope, the event's gain is displayed in dB.



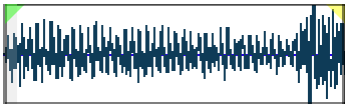
Fading an event in or out

1. Hover over the upper-left or upper-right corner of an audio event until the fade offset cursor is displayed .

   The fade handle is displayed in yellow when no fade is present:

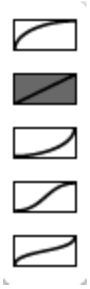
   . . . and is displayed in green when the fade is too small to be displayed:

2. Click the corner of the event and drag to create a fade.
3. To remove a fade, drag the end of the fade curve back to the edge of the event.

Changing the fade type

1. Right-click the fade-in or fade-out area to display a shortcut menu.
2. Choose **Fade Type** from the shortcut menu and choose a fade curve from the submenu:



Changing the default fade type

If you want to change the default fade type that is used when fading an event in or out, choose **Options** > **Event Default Fade In** or **Default Fade Out** and choose a fade curve from the submenu.

The fade curve you choose will be used for new fades (existing fades are unaffected).

Slipping and trimming events

You can use any of the following methods to adjust events.

Trimming an event

1. Choose **Edit** > **Mode** > **Event** (or click the **Event Mode** button in an editor's playbar) to enable event-editing mode.
2. Hover over the edge of an event. The trim cursor is displayed:  .
3. Drag the edge of the event to trim it, exposing more or less of the underlying media.

   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.

Slipping (shifting the contents of) an event

Hold Option while dragging an event. The slip cursor is displayed:  .

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.

Regions, markers, and envelope points are moved with the contents of the event. To turn this feature off, turn off **Options** > **Lock to Selection** > **Markers/Regions** and **Envelope Points**.

Slip-trimming an event

Hold Option while dragging the right or left edge of an event. The slip-trim cursor is displayed:  .

As you drag the event edge, the opposite edge of the event will remain fixed, trimming the media from the edge you drag.

Hold Option+Shift while dragging any portion of an event to slip-trim the right edge. The left edge of the event will remain fixed, 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 **Options** > **Lock to Selection** > **Markers/Regions** and **Envelope Points**.

For more information, see "Enable snapping" on page 37.

Auto Ripple Events

You can ripple the contents of the editor 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.
- Deleting events.

1. Select **Options** > **Event** > **Auto Ripple** (or press Alt+Command+R) to turn on auto ripple.
2. Perform one of the edits listed above.

   The contents of the editor 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 35.

   Regions, markers, and envelope points are moved with the event. To turn this feature off, turn off **Options** > **Lock to Selection** > **Markers/Regions** and **Envelope Points**.

Chapter 7

Processing audio

The Process menu is reserved for sound-altering processes that are included with Sound Forge Pro and cannot be added to the Plug-In Chain.

The commands in the Process and Effects menus are not available in event-editing mode.

Automatically Trimming a File

From the Process menu, choose **Auto Trim** to automatically remove unnecessary silence from a sound file and automatically fade the end-points of phrases in and out.

1. From the Process menu, chose **Auto Trim**.
2. Choose a setting from the **Preset** drop-down list or adjust the controls as needed.

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: ▪ **Remove silence from start and end** Silence at the beginning and end of the selection is deleted. Data outside of the selection is not affected. ▪ **Remove silence between phrases (create regions)**: All silence between phrases inside the selection is deleted. Regions are created between phrases. Use this function to delete the silence between sound effects and automatically create regions. For more information, see "The Regions List" on page 32. ▪ **Remove data from start and limit length**: Allows you to specify an amount of sound that should be deleted from the beginning of each selection 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 silence between phrases	Specify the minimum amount of silence that must exist between phrases before a new region is created.
Auto trim from start	When using the **Remove data from start and limit length** function, this value specifies the amount of data that should be trimmed from the beginning of the file.
Maximum output size	When using the **Remove data from start and limit length** function, this value specifies the maximum length of the file.

3. Click the **Process** button.

Channel Converter

Choose **Process** > **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 **Channels** box in the File Properties tool. For more information, see "Viewing and editing file properties" on page 23.

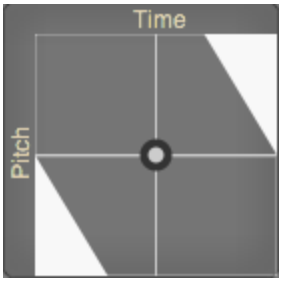
1. Choose **Process** > **Channel Converter**.
2. Choose a setting from the **Preset** drop-down list, or adjust the controls as needed:
    a. Choose a setting from the **Output Channels** drop-down list to indicate the number of channels in the converted file.
    b. Click in the **In** box for each 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.
3. Click the **Process** button.

Stretching audio

Choose **Process** > **élastique Timestretch** to time-stretch and pitch-shift audio while maintaining control over all stretching parameters.

After you open the élastique Timestretch dialog, you can choose a preset from the **Preset** drop-down list, or adjust the controls as desired.

- Use the Time stretch controls to change the duration of your audio.
- Use the Pitch shift controls to raise or lower the pitch of your audio.
- Use the Formant shift controls to adjust the audio's fundamental harmonic frequency range. These controls are typically used to prevent the "chipmunk effect" in vocal performances.
- To reset time and pitch stretching, double-click the point in the Pitch/Time graph:



- If you want to move the point in the graph horizontally or vertically only, you can drag the horizontal or vertical grab bars.
- Select the **Synchronize Pitch** check box if you want the plug-in to transition smoothly as you adjust time and pitch stretching. This setting is useful if you want to adjust settings while previewing. If the check box is not selected, stretching will change abruptly if you adjust settings while previewing.

Choosing a stretching mode

Choose a setting from the **Mode** drop-down list to choose the stretching method that is best suited to your source media:

Mode	Description
Pro	This mode provides the highest quality stretching for most applications but requires more RAM usage and CPU power. Formant shift controls are available only when using Pro mode.
Efficient	This mode provides good-quality stretching but uses fewer CPU resources.
Soloist (Monophonic)	This mode provides the highest quality stretching for monophonic audio sources.
Soloist (Speech)	This mode provides the highest quality stretching for monophonic speech signals.

Adjusting time stretch controls

In the Time stretch group, the **Original Time** and **Original Tempo** boxes display the original length and tempo of your audio.

Drag the **Ratio** slider to the right to make your audio slower, or drag to the left to make the audio faster. You can stretch the audio from 1/10 to 10 times its original duration.

- As you drag the **Ratio** slider, the **New Time** and **New Tempo** boxes are updated.
- You can double-click the **New Time** and **New Tempo** boxes and type a new value.
- If the original tempo of the clip is displayed incorrectly, you can double-click the **Original Tempo** box and type a new value.

  Editing the **Original Tempo** value does not affect the original file data or attributes, but you can use the **Original Time** and **Original Tempo** values to autocalculate the desired time stretch ratio.
- As you adjust the tempo, the gold point in the Pitch/Time graph is updated to reflect the modified clip length. You can also drag this point to adjust time and pitch shifting.

Adjusting pitch shift controls

In the Pitch shift group, the **Semitones** and **Cents** sliders allow you to raise or lower the pitch of your audio up to two octaves.

Drag the **Semitones** slider for coarse control.

Drag the **Cents** slider for fine control.

- You can also double-click the **Semitones** and **Cents** boxes and type a new value.
- As you adjust the pitch, the gold point in the Pitch/Time graph is updated to reflect the modified clip pitch. You can also drag this point to adjust time and pitch shifting.

Adjusting Formant shift controls

You can use the Formant shift controls to control whether the audio's fundamental harmonic frequency range is shifted along with the Pitch Shift value.

The Formant shift controls are available when **Pro** is selected from the **Mode** drop-down list.

As you adjust the pitch, the silver point in the Pitch/Time graph is updated to reflect the modified formant shift. You can also drag this point to adjust formant shifting.

The fundamental harmonic frequency range is specific to the instrument's or vocalist's resonating body (as opposed to the notes that are produced by that resonating body).

Drag the **Formant shift** slider to **0 (Preserve)** if you do not want to pitch shift formants. When set to **100 (Match Pitch)**, formants are shifted by the same amount as the **Pitch Shift** setting.

Drag the **Optimize for audio content max pitch** slider to indicate which frequencies will be used as the format range. This slider is unavailable when the Formant shift slider is set to **100 (Match Pitch)**.

Fade in/out

Choose **Process** > **Fade In** or **Fade Out**, and then choose a fade type from the submenu to vary the volume of a sound file over time.

1. Select the data you want to fade. If no data is selected, the fade will be applied to the entire file.

   For more information, see "Selecting data using the mouse" on page 35.

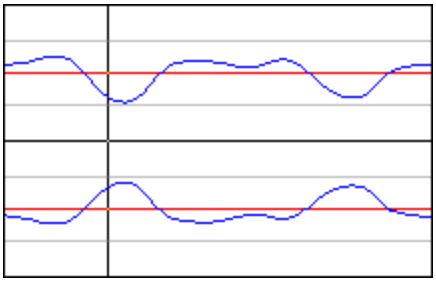
2. Choose **Process** > **Fade In** or **Fade Out**, and then choose a fade type from the submenu.

Inverting data

Choose **Process** > **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.

In the following example, the red line represents the baseline, and the lower waveform is the inverted image of the upper waveform.



iZotope 64-Bit SRC

Choose **Process** > **iZotope 64-Bit SRC** to change the sample rate of an existing sound file.

1. Choose **Process** > **iZotope 64-Bit SRC**.
2. Choose a setting from the **Preset** drop-down list, or adjust the controls as needed.

Item	Description
New Sample Rate	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.
Quality	When the **Use Simplified Quality Setting** check box is selected, you can drag the **Quality** slider to adjust the plug-in's controls automatically. Dragging the slider sets the balance of audio quality vs. processing speed. A setting of 50% works well for most applications. Increasing the setting improves the quality of the plug-in but requires more processing power. When the **Use Simplified Quality Setting** check box is cleared, you can adjust the plug-in's controls manually.
Steepness	The plug in uses a low-pass filter to discard frequencies that cannot be represented or are undesirable in your audio output. This setting establishes the steepness of the transition band of the low-pass filter. Higher settings will reject unwanted frequencies, but can cause more ringing in the time domain and a higher CPU load.
Max Filter Length	Sets the maximum length of the filters used for resampling. The default setting will work well for most applications, but you can increase the setting if very high-quality output is desired for uncommon source or destination sampling rates.
Cutoff Scaling	Allows you to scale the cutoff frequency of the plug-in's low-pass filter from the Nyquist frequency. Typical values are near 1. Higher values will offer a flatter pass-band, and lower values will offer better aliasing suppression.
Alias Suppression	Sets the amount of suppression in the low-pass filter's stop-band. Frequencies in the stop-band that are not fully attenuated will result in aliasing. Higher settings will result in better quality, and lower settings can minimize CPU load.

Item	Description
Prering	Low-pass filters are characterized by the amount of ringing they introduce into their output. Higher **Steepness** settings produce increased ringing. A setting of 100% produces a linear phase filter with equal pre and post ringing. A setting of 0% produces a minimum phase filter that offers no preringing but has nonlinear phase distortion. Intermediate settings allow a tradeoff between preringing and postringing and allows you to linearize phase in the pass-band.

3. Click the **Process** button.

iZotope MBIT+ Dither

Choose **Process** > **iZotope MBIT+ Dither** to convert sound files to different bit depths and apply dithering.

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.

1. Choose **Process** > **iZotope MBIT+ Dither**.
2. Choose a setting from the **Preset** drop-down list, or adjust the controls as needed.

Item	Description
Bit Depth	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.
Dither Mode	Choose a setting from the drop-down to choose the type of dithering that will be applied to mask quantization noise. ■ **Type 1**: Uses a traditional rectangular probability distribution function. ■ **Type 2**: Uses a traditional rectangular probability distribution function. ■ **MBIT+**: Uses a proprietary algorithm to offer superior results for all types of source material.

Item	Description
Noise Shaping	Choose a setting from the drop-down list to control the amount of noise shaping that will be applied. When **Type 1** or **Type 2** is selected in the **Dither Mode** drop-down list, the following settings are available: ■ **None**: No noise shaping is applied. ■ **Simple**: A high-pass filter is applied to the dither noise. ■ **Clear**: Aggressively moves dither noise toward the Nyquist frequency. ■ **Psych5**: Uses a fifth-order filter to move dither noise away from audible frequency bands. ■ **Psych9**: Uses a ninth-order filter to move dither noise away from audible frequency bands. When **MBIT+** is selected in the **Dither Mode** drop-down list, you can choose a setting from the **Noise Shaping** drop-down list to control the amount of noise shaping applied. Increased settings will provide more audible noise suppression at the expense of a higher noise floor.
Dither Bits/Amount	When **Type 1** or **Type 2** is selected in the **Dither Mode** drop-down list, you can choose a setting from the **Dither Bits** drop-down list to choose whether you want to use 1 or 2 dither bits. 1 works well for most applications. When **MBIT+** is selected in the **Dither Mode** drop-down list, you can choose a setting from the **Dither Amount** drop-down list to control the amount of dithering applied. **Normal** works well for most applications. The **None** and **Low** settings can leave some nonlinear quantization distortion or dither noise modulation behind. The **High** setting can eliminate nonlinear quantization distortion at the expense of a higher noise floor.
Auto Blank	Allows you to scale the cutoff frequency of the plug-in's low-pass filter from the Nyquist frequency. Typical values are near 1. Higher values will offer a flatter pass-band, and lower values will offer better aliasing suppression.
Minimize Peaks	Select this check box if you want to suppress peaks in the dither noise signal.
Silence Harmonics	Select this check box if dithering distorts the timbre of your audio. When the check box is selected, harmonic quantization distortion is moved away from the overtones of audible frequencies.

3. Click the **Process** button.

Muting sound data

Choose **Process** > **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

Choose **Process** > **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).

Normalizing 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. Choose **Process** > **Normalize**.
2. Click the **Peak level** radio button.
3. Choose how you want to scan the file:
    - When the **Autoscan levels when changing selection or settings** radio button is selected, Sound Forge Pro will scan each time you change the selection in the waveform or the settings in the Normalize dialog. If no selection exists, the entire file is scanned.
    - When the **Use current scan levels** radio button is selected, you can click the **Scan Levels** button to start a scan.
4. Drag the **Normalize to** fader to specify the level to which the highest peak should be set.
5. Click the **Process** button.

Normalizing 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. Choose **Process** > **Normalize**.
2. Click the **Average RMS level** radio button.

3. Choose how you want to scan the file:

   - When the **Autoscan levels when changing selection or settings** radio button is selected, Sound Forge Pro will scan each time you change the selection in the waveform or the settings in the Normalize dialog. If no selection exists, the entire file is scanned.
   - When the **Use current scan levels** radio button is selected, you can click the **Scan Levels** button to start a scan.

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	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. 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.
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	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. This option is useful for getting very loud, yet clear sound during the mastering process.
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.

7. Click the **Process** button.

Normalize using levels from another selection

1. Select the data you want to use to normalize your data.
2. Choose **Process** > **Normalize**.
3. Select the **Use current scan levels** radio button.
4. **Click the Scan Levels button.**
5. Select the data you want to normalize.
6. Click the **Process** button. The selection is normalized to the level displayed in the **Peak** or **RMS** fields without rescanning.

Reversing data

Choose **Process** > **Reverse** to reverse the current selection, creating a backward-tape effect.

If no data is selected, the entire file will be reversed.

Volume

Choose **Process** > **Volume** to change the volume of a selection.

You can also use the Normalize dialog to maximize the volume of a sound file. For more information, see "Normalizing audio" on page 77.

1. Select the data you want to modify. For more information, see "Selecting data using the mouse" on page 35.

   If no data is selected, the volume of the entire file will be modified.

3. Choose **Process** > **Volume**.

4. Drag the **Volume** fader to adjust the volume of the selection.

   Click the **Decibels (dB)** or **Percent (%)** radio button to change the scale of the **Volume** fader.

5. Type a value in the **Fade in** box (or use the spinner) to set the length of the fade in between the processed and unprocessed audio.

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 audio.

   Click the **Fade curves** button  and choose a curve type from the menu to set the speed of the in and out fades.

7. Select the **Proportional fade lengths** check box if you want to specify fade lengths as a percentage of the selection.

8. Click the Process button.

Chapter 8

Applying effects

Sound Forge Pro software includes many processes and effects that you can use to improve the quality of your audio or create unique sounds.

Sound Forge Pro supports 64-bit Audio Units (AU) and 64-bit VST 2.x plug-ins.

Adding a single effect to an audio file

The Plug-In Chooser displays the plug-ins that are available on your computer. You can use the Plug-In Chooser to browse plug-ins and presets that you can use to process your audio. Processing is an offline operation: you need to apply the effect to commit it to your file.

If the Plug-In Chooser is not visible, you can select the **Show or hide the right pane** button or choose **View** > **Plug-In Chooser**. For more information, see "Arranging editing views" on page 11.

The commands in the Process and Effects menus are not available in event-editing mode.

Processing audio with a single plug-in

1. Select the sound 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 the individual or all channels. However, because 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.

   For more information, see "Selecting data using the mouse" on page 35.

2. Expand the Plug-In Chooser to display your plug-ins. You can click the heading to expand or collapse the plug-in list.

   Choose a setting from the **Filter** drop-down list if you want to filter the list of plug-ins, or choose **All** to display all your plug-ins in the Plug-in Chooser.

   If you want to search for a plug-in by keyword, type in the search box at the bottom of the Plug-In Chooser.

3. Click the **Expand** button ▶ next to a plug-in name to see the plug-in's presets.

4. Drag a preset to the waveform or Control-click a preset name and choose **Process Selection** from the shortcut menu.

   You can drag a plug-in or preset from the Plug-In Chooser to an editor's tab to bring it to the foreground. For more information, see "Opening multiple files in the editor" on page 19.

   You can also choose a plug-in from the Process or Effects menu to add it to the current editor.

   A new window opens where you can adjust the plug-in's controls.

   If a plug-in does not support the current channel selection, the plug-in UI will display **Not Connected**. You can click in the editor to update your channel selection.

5. Choose a preset from the **Preset** drop-down list or adjust the dialog controls as needed.
6. Click the **Preview** button to hear the effects of your processing settings.

   If you want to hear the unprocessed signal, click the **Plug-In Enable** button at the top of the dialog to deselect it. Select the button again before clicking the **Process** button.

   If a plug-in does not support bypass, the **Plug-In Enable** button is not available.

7. If you're working with plug-ins that create audio tails — such as reverb or delay — choose a command from the **Tail** drop-down list to specify how Sound Forge Pro will handle the tails:

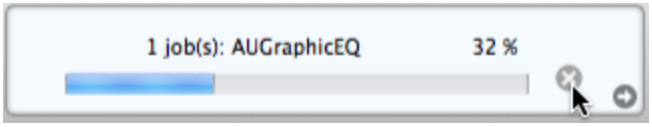
   Choose **Ignore** to ignore the tail. The effect will end abruptly at the end of the selection.

   Choose **Insert** to insert the audio tail. All audio to the right of the tail will be moved over to accommodate the extra audio.

   Choose **Mix** to mix the tail into the adjacent material. This is the most natural-sounding option.

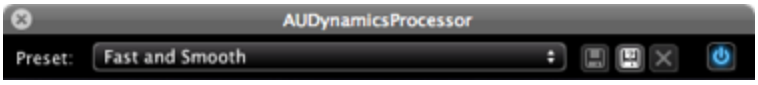
8. Click the **Process** button to start processing.

   During processing, a progress meter is displayed in the activity view at the top of the window. You can cancel the operation at any time by clicking the **Cancel** button.



Saving a single plug-in's settings as a preset

The controls at the top of the plug-in window allow you to load and save presets.



When you edit a plug-in's settings, an asterisk (*) is appended to the preset name to let you know that the settings have been altered.

To save a new preset, click the **Save As** button and type a name in the **Preset name** box.

To replace an existing user preset, click the **Save** button.

Processing audio with a chain of plug-ins

If you want to process audio with multiple plug-ins, use the Plug-In Chain. Effects from the Plug-In Chain are previewed in real time when you play back a file and are applied when you save the file.

For more information, see "Adding effects to a plug-in chain" on page 83.

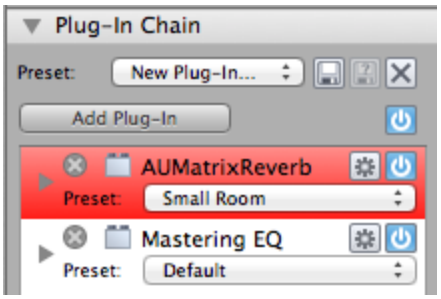
Adding effects to a plug-in chain

The Plug-In Chain tool allows you to add multiple plug-ins to process your audio.

Insert effects are previewed in real time when you play back a file and are applied when you save the file.

If the Plug-In Chain is not visible, you can select the **Show or hide the right pane** button or choose **View** > **Plug-In Chain**. For more information, see "Arranging editing views" on page 11.

If a plug-in does not support the current channel count, it will be bypassed and displayed in red in the Plug-In Chain, and the plug-in UI will display **Not Connected**:



Adding an effect to the plug-in chain

Perform any of the following steps to add a plug-in to the active editor's chain:

- Click the **Add Plug-In** button at the top of the Plug-In Chain tool to quickly add a plug-in to the bottom of the chain.
- Drag a preset from the Plug-In Chooser to the Plug-In Chain in the right pane.The plug-in is added to the chain where you drop it.
- Control-click a preset in the Plug-In Chooser and choose **Add to Plug-In Chain** from the shortcut menu.

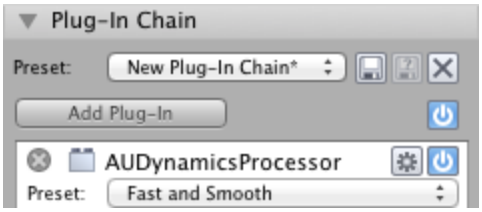
  Choose a setting from the **Filter** drop-down list if you want to filter the list of plug-ins, or choose **All** to display all your plug-ins in the Plug-in Chooser.

  If you want to search for a plug-in by keyword, type in the search box at the bottom of the Plug-In Chooser.

- Hold Option while choosing an effect from the Effects menu.
- Hold Option while double-clicking an effect or preset in the Plug-In Chooser.

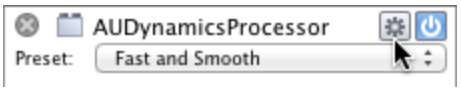
Adjusting an effect's settings

The Plug-In Chain tool allows you to choose new presets or display a plug-in's controls.



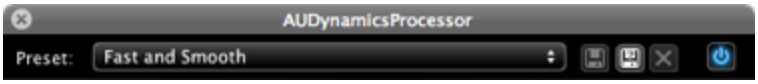
Each plug-in displays a drop-down list that shows the current preset. Click the drop-down to choose a new preset from the list.

To adjust a plug-in's controls, click the **Show Plug-In** button. A new window opens where you can adjust the plug-in's controls:



Saving a single plug-in's settings as a preset

The controls at the top of the plug-in window allow you to load and save presets.



When you edit a plug-in's settings, an asterisk (*) is appended to the preset name to let you know that the settings have been altered.

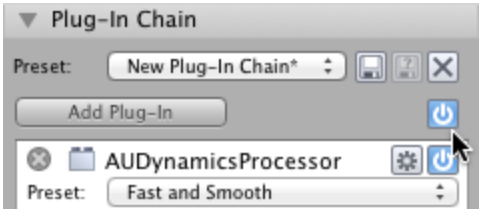
To save a new preset, click the **Save As** button and type a name in the **Preset name** box.

To replace an existing user preset, click the **Save** button.

Removing or bypassing plug-ins

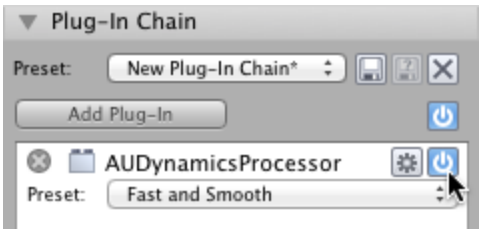
The Plug-In Chain tool displays the active editor's effects chain.

If you want to bypass the plug-in chain, click the **Enable plug-in chain** button to turn it off. Click again to re-enable the chain:

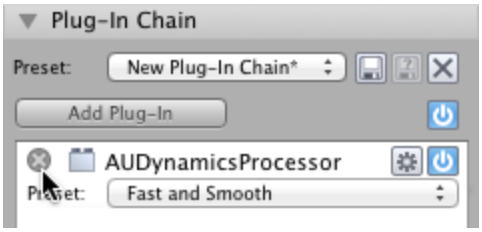


If you want to bypass a plug-in without removing it from the chain, click the **Enable plug-in** button to turn it off:

If a plug-in does not support bypass, the **Enable plug-in** button is not available.



If you want to remove a plug-in from the chain, click the **Remove from chain** button:



Managing plug-in chain presets

The Plug-In Chain tool allows you to save effects chains as presets that you can use later.

To save a new preset, click the **Save As** button and type a name in the **Preset name** box.

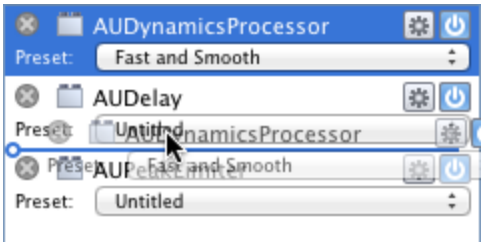
To replace an existing user preset, click the **Save** button.

To load a preset, choose it from the **Preset** drop-down list at the top of the Plug-In Chain tool or choose it from the **Effects** > **Plug-In Chains** submenu.

Changing the order of plug-ins in the Plug-In Chain

You can drag plug-ins within the Plug-In Chain tool to change the order in which they will be processed.

The following image shows the AUDelay plug-in being dragged between the AUDynamicsProcessor and AUPeakLimiter plug-ins:



Channel Volume

Choose **Effects** > **Sony Creative Software** > **Channel Volume** to change the volume of a selection.

You can also use the Normalize dialog to maximize the volume of a sound file. For more information, see "Normalizing audio" on page 77.

1. Select the data you want to modify. For more information, see "Selecting data using the mouse" on page 35.

   If no data is selected, the volume of the entire file will be modified.

3. Choose **Effects** > **Sony Creative Software** > **Channel Volume**.
4. Drag the **Master** fader to adjust the volume of the selection, or you can drag a channel fader to adjust channel levels independently.
5. Click the **Process** button.

Automating effect parameters

When you add an effect that supports automation to the Plug-In Chain, a list of the effect's automatable parameters is displayed in the Plug-In Chain tool. You can use these controls to add, show/hide, and enable/bypass automation envelopes.

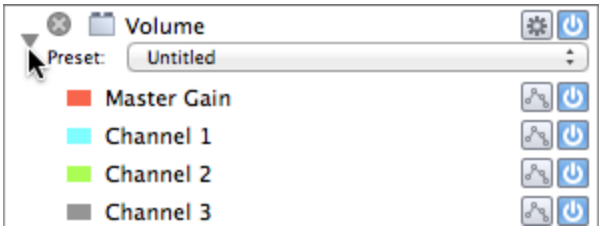
Plug-in parameters can be edited using the automation envelope in the editor.

If the Plug-In Chain tool is not visible, you can select the **Show or hide the right pane** button or choose **View** > **Plug-In Chain**. For more information, see "Arranging editing views" on page 11.

Choosing a new effect chain preset will clear the current effect automation settings.

Adding an effect automation envelope

1. In the Plug-In Chain, click the down arrow for an effect that includes automatable parameters. The plug-in's automatable parameters are displayed.



2. Select the **Enable Envelope** button to apply a parameter's automation envelope to your audio signal.

3. Click the **Show Envelope** button for the parameter you want to automate. An envelope is added to the waveform.

   Envelope points represent plug-in parameter settings at a specific point in time. A new envelope will have a single point.

   You can add points, adjust their positions, and change the fade curves between points to modify effect parameters and the transitions between them.

   Choose **Edit** > **Mode** > **Envelope** or click the **Envelope Mode** button in the playbar to add points and adjust fades. For more information, see "Envelope Mode" on page 54,

Showing or hiding effect automation envelopes

Select the **Show Envelope** button to display a parameter's envelope in the editor.

When the button is not selected, an effect automation envelope is ignored and the effect's initial state is used.

Enabling or bypassing effect automation envelopes

Select the **Enable Envelope** button to apply a parameter's automation envelope to your audio signal.

Bypassed envelopes are drawn in gray in the editor.

When the button is not selected, the envelope is hidden in the editor, but its playback properties are retained.

Plug-in controls reflect the automated state during playback and when you position the cursor.

Editing with SpectraLayers Pro

Choose **Tools** > **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.sonycreativesoftware.com/spectralayerspro.

Editing a file in SpectraLayers Pro

1. Select the data you want to edit.

   If no data is selected, the entire file is sent to SpectraLayers Pro.

2. Choose **Tools** > **Edit in SpectraLayers Pro**.

   SpectraLayers Pro starts, and the selected sound data 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 editor is updated to reflect any changes.

Sending a file to a layer in SpectraLayers Pro

1. Select the data you want to edit.

   If no data is selected, the entire file is sent to SpectraLayers Pro.

2. Choose **Tools** > **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 selected data 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.

Chapter 9

Recording audio

You can record into existing audio files or to new audio files with Sound Forge Pro.

Recording a new file

Choose **Transport** > **New Recording** to create a new recording.

If you want to record into an existing sound file, please see "Recording into an existing sound file" on page 90.

Creating a recording

1. Choose **Transport** > **New Recording** (or click the **New Recording** button on the toolbar).

   Choose **Create new window** from the **Mode** drop-down list on the General tab of the Record tool if you want to create a new file each time you restart or resume recording. For more information, see "The Record tool" on page 92.

2. Use the New Sound File dialog to specify the parameters for the new file:

   a. Choose a sample rate from the **Sample rate** drop-down list.

   b. Choose a setting from the **Bit depth** drop-down list to specify the number of bits that should be used to store each sample.

   c. Choose a setting from the **Channels** drop-down list to specify the number of channels that will be used in the window.

3. Click **OK**. A new, untitled sound file is created, and recording begins.

   If you want to use the same settings when you create new files, you can select the **Use these settings for all new files** check box or use the **Use default settings for new files** check box in the Preferences dialog.

   If you want to check your input levels during recording, you can use the meters in the Record tool. For more information, see "The Record tool" on page 92.

   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.

4. Click the **Record** or **Stop** button to end recording.

Reviewing recorded takes

Click the **Play** button ▶ to review your recording. Click the **Stop** button ■ to end playback.

Recording into an existing sound file

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 "Recording a new file" on page 89.

Recording at the cursor position or into a selection

1. Set your recording options:
    a. Click the General tab in the Record tool.
    b. Verify that your recording method is set to **Normal**.
    c. Choose **Normal** or **Create new region** setting from the **Mode** drop-down list. For more information, see "The Record tool" on page 92.
2. Select the sound data you want to replace, or click to position the cursor where you want to begin recording. For more information, see "Selecting data using the mouse" on page 35.
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 choose **Transport** > **Record**). Recording begins, and the recording position is displayed in the activity view at the top of the Sound Forge Pro window.

    If you want to check your input levels before or during recording, you can use the meters in the Record tool. For more information, see "The Record tool" on page 92.

    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.

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.

Recording multiple takes into a selection

1. Set your recording options:
    a. Click the General tab in the Record tool.
    b. Verify that your recording method is set to **Normal**.

c. Choose **Normal** from the **Mode** drop-down list. For more information, see "The Record tool" on page 92.

2. Select the sound data you want to replace.
3. Select the **Loop Playback** button.
4. 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.

5. Click the **Record** button (or choose **Transport** > **Record**). Recording begins, and the recording position is displayed in the activity view at the top of the Sound Forge Pro window.

   If you want to check your input levels before or during recording, you can use the meters in the Record tool. For more information, see "The Record tool" on page 92.

   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. When recording reaches the end of the time selection, the cursor returns to the beginning of the selection, and a new take is recorded.
7. Click the **Record** or **Stop** button to end recording.
8. You can use the **Undo** and **Redo** commands to cycle through your recorded takes while previewing.

Recording audio automatically

You can use the Record tool in the bottom pane to set up recording to begin automatically from the selected input device by detecting when audio exceeds a set threshold.

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.

If the Record tool is not visible, you can select the **Show or hide the bottom pane** button or choose **View** > **Record**. For more information, see "Arranging editing views" on page 11.

Recording audio over a set threshold

1. Click the General tab in the Record tool.
2. Choose a recording device from the **Device** drop-down list.

   If your device has multiple inputs, choose **Sound Forge** > **Preferences**, and use the Audio tab to map channels to input ports.

3. Choose **Automatic: Threshold** from the **Method** drop-down list.

4. 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, see "The Record tool" on page 92.
5. Click the Advanced tab.
6. If you want to set a prerecord buffer, select the **Prerecord buffer** check box and type a value in the edit box to maintain a set amount of time in a buffer when Sound Forge Pro is armed for recording. A prerecording buffer helps to ensure you won't miss a perfect take if you've set the threshold a bit too high.

   When the prerecording buffer is enabled, recording begins when the audio input reaches the threshold level and the sound data in the buffer is committed to disk. For example, if you set a 15-second buffer, recording effectively begins 15 seconds before the input reaches the set threshold level.
7. Use the **Threshold** control to set the audio level at which recording will begin.
8. Use the **Release** control to set the amount of time the audio level should be below the **Threshold** setting before recording will stop.
9. Select the **Automatically rearm after record** check box if you want to continue monitoring audio levels and recording until you click the **Stop** button .
10. Click the **Arm** button . Recording will begin at the cursor position when the audio signal meets the threshold level and will stop after the level falls below the threshold for the specified release time.
11. Click the **Record** or **Stop** button to end recording.

    If you've created a time selection in the editor and **Loop Playback** is not enabled, the **Release** setting is ignored and Sound Forge Pro will record the full selection length.

    If you've created a time selection (or loop region) in the editor and **Loop Playback** is enabled, a new take is recorded each time the cursor returns to the beginning of the selection. Recording will stop after the level falls below the threshold for the specified release time.

The Record tool

You can use the Record tool in the bottom pane to configure your recording device, choose a recording mode, and set recording options.

If the Record tool is not visible, you can select the **Show or hide the bottom pane** button or choose **View** > **Record**. For more information, see "Arranging editing views" on page 11.

Choosing a recording device

1. Click the General tab in the Record tool.
2. Choose a recording device from the **Device** drop-down list.

   If your device has multiple inputs, choose **Sound Forge** > **Preferences**, and use the Audio tab to map channels to input ports.

Choosing a recording method

1. Click the General tab in the Record tool.
2. Choose a setting from the **Method** drop-down list.
    - **Normal**: recording begins at the cursor position when you click the **Record** button, overwriting any sound data that exists after that position. When recording is stopped, the cursor returns to the original cursor position, allowing you to review and replace the last take if necessary.

      For more information, see "Recording a new file" on page 89 or "Recording into an existing sound file" on page 90.
    - **Automatic: Threshold**: recording begins automatically when the audio input reaches the level specified by the **Threshold** control on the Advanced tab.

      For more information, see "Recording audio automatically" on page 91.

Choosing a recording mode

1. Click the General tab in the Record tool.
2. Choose a setting from the **Mode** drop-down list.
    - **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 new region**: 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 window**: a new file is created each time you restart or resume recording.

      When **Create new window** is selected, punch-in recording is not available.

      For more information, see "Recording a new file" on page 89 or "Recording into an existing sound file" on page 90.

Monitoring the audio input

Recording meters are displayed in the Record tool so you can check your input before and during recording.

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: you want your input to be as loud as possible without clipping.

Select the **Monitor Inputs** check box if you want to send your audio input to your output device during recording (and when the **Arm** button is active).

Chapter 10

Previewing files

Previewing a file allows you to witness the results of your meticulous editing.

Using transport controls

Transport controls are available in the main toolbar, in the playbar below the waveform, and in the Transport menu.

Use the transport controls to perform playback and recording functions.

Option	Description
	**Record New**: click to create a new recording. For more information, see "Recording a new file" on page 89.
	**Arm**: click 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 recording to an existing file. 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.
	**Record**: click to start recording at the cursor position in the active editor. For more information, see "Recording into an existing sound file" on page 90.
	**Loop Playback**: click to play the selected data in a continuous mode. If there is no selection, the entire sound file is played in an endless loop.
	**Go to Start**: click to move the cursor to the beginning of the current file.
	**Rewind**: click to move the cursor backward through the current file.
	**Forward**: click to move the cursor forward through the current file.
	**Go to End**: click to move the cursor to the end of the current file.
	**Stop**: click to stop playback and return the cursor to its position prior to playback.
	**Play**: click to play back the file from the current cursor position. If a selection exists, only the selected channels will be included in playback. During playback, you can use the peak meters to monitor sound levels. When **Options > Seek Playback to Cursor** 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.

Preview cut

Choose **Transport** > **Preview Cut** (or press Command+K) to play 1.5 seconds of data before and after the current selection or cursor position.

This command lets you preview the result of a cut or delete operation without altering the file.

If you want to play to the cursor with no post roll, choose **Transport** > **Preroll to Cursor**.

Monitoring peak levels

The Channel Meters display peak meters that you can use to monitor your audio levels.

If the Channel Meters are not visible, you can select the **Show or hide the right pane** button or choose **View** > **Meters**. For more information, see "Arranging editing views" on page 11.

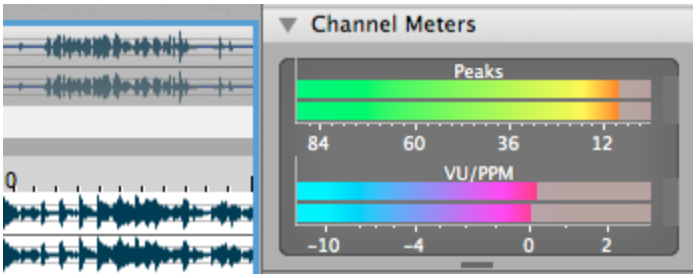
The peak meters display instantaneous levels during playback to help you determine the loudest level in your audio signal and whether the signal is clipping.

To prevent clipping, keep an eye on your peak meters. Peak levels should never exceed 0 dB.

Display peak meters in the right pane

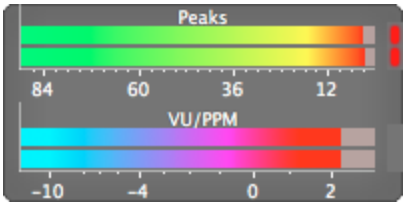
Use the transport controls to start playback. During playback, peak and VU/PPM meters are displayed in the Channel Meters. For more information, see "Using transport controls" on page 95.

Click the arrow to show ▶ or hide ▼ the meters.



Resetting clip indicators

When clipping is detected, the peak meters display a red clipping indicator.



Perform any of the following actions to reset the indicator:

- Control-click the meter and choose **Reset Clip** from the shortcut menu.
- Click the red clip indicator.
- Choose **Options** > **Channel Meters** > **Reset Clip**.

Changing the meters' display resolution

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

- Choose **Options** > **Channel Meters** > **Peak Range**.
- Control-click the channel meter, choose **Peak Range** from the shortcut menu, 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:

- Choose **Options** > **Channel Meters**, and then choose a command from the submenu.
- Control-click the channel meter and choose a command from the submenu:
    - Select **Show VU/PPM** if you want to display VU/peak program meters in the Channel Meters. For more information, see "Monitoring with VU and peak program meters" on page 98.
    - Select **Show Labels** if you want to display level labels on the meters.
    - Select **Hold Peaks** if you want to display a thin line in the meters to maintain the highest peak levels during playback.
    - Select **Hold Valleys** if you want to display a thin line in the meters to maintain the lowest peak levels during playback.

Change the meters' layout

Control-click the peak meters, choose **Layout**, and then choose a command from the submenu if you want to change the orientation of the peak meters. Meters can be presented horizontally or vertically, or they can switch automatically depending on the window layout.

Monitoring with VU and peak program meters

You can display volume unit (VU) and peak program (PPM) meters in the Channel Meters 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.

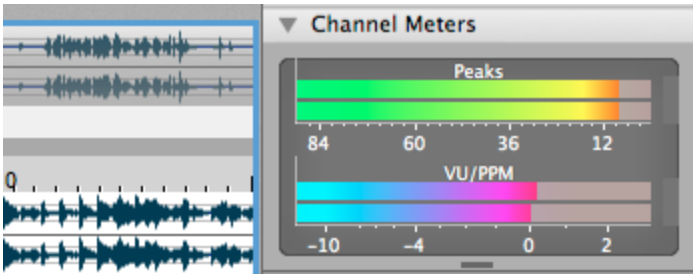
Control-click the Channel Meters and choose **Show VU/PPM** from the shortcut menu to toggle the display of the VU/PPM meters. VU/PPM readings should fall near the 0 (or reference) mark. 0 VU is merely a reference level, and your signal may exceed 0 VU. To prevent clipping, keep an eye on your peak meters. Peak levels should never exceed 0 dB. For more information, see "Monitoring peak levels" on page 96.

Showing or hiding VU/PPM meters

If the Meters tool is not visible, you can select the **Show or hide the right pane** button or choose **View** > **Meters**. For more information, see "Arranging editing views" on page 11.

Click the arrow to show ▶ or hide ▼ the meters.

Control-click the Channel Meters and choose **Show VU/PPM** from the shortcut menu to show or hide VU/PPM meters.



Choosing a VU or PPM scale

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.

To change the scale of the meter, perform the following steps:

1. Choose **Options** > **Channel Meters** > **VU/PPM Scale** (or Control-click the Channel Meters and choose **VU/PPM Scale**).

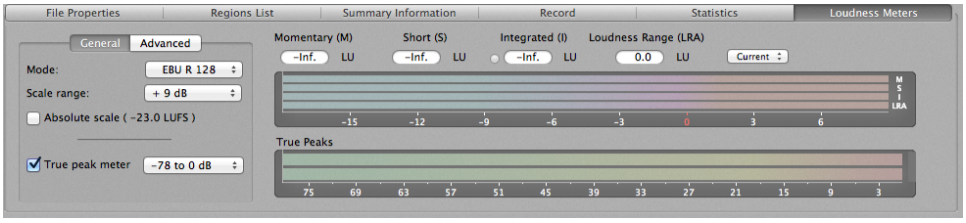
2. Choose a setting from the submenu:

Setting	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 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: 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.

Loudness Meters

The Loudness Meters provide 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).

If the Loudness Meters are not visible, you can select the **Show or hide the bottom pane** button or choose **View** > **Loudness Meters**. For more information, see "Arranging editing views" on page 11.



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 Meters tool for increased accuracy. For more information, see "Monitoring peak levels" on page 96.

  The clipping indicator on the **True Peaks** meter shows you whether the target loudness has been exceeded. The indicator is reset when you restart playback, or you can click the indicator to reset it.

The statistics at the top of the tool can display the maximum or last-calculated (current) values. Choose **Current**, **Max**, or **Reset** from the menu at the end of the statistics bar to change the display.

- Loudness is recalculated whenever you start, stop, seek, or change playback direction. If you want to force a recalculation, choose **Reset** from the menu at the end of the statistics bar.
- Select the **Enable surround processing on 5.1 media**check box on the Advanced tab in the Loudness Meters tool 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.

When **Loop Playback** is selected, the selection must be greater than 2.5 milliseconds to use the Loudness Meters.

Choosing a metering mode

To change the mode of the meters, click the General tab in the Loudness Meters tool, and then choose **EBU R 128** or **ATSC A 85** from the **Mode** drop-down list.

- When using **EBU R 128**, 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**, 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 Peaks** meters are exceeded.

Choosing a loudness scale

To change the scale of the meter, click the General tab in the Loudness Meters tool, and then choose **EBU +9** or **EBU +18** from the **Scale range** drop-down list.

- 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 scale (-23 LUFS)** if you want to display loudness values as Loudness Units Full Scale (LUFS). When **Absolute scale (-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**).

Configuring peak meters

To toggle the True Peaks meters in the Loudness Meters, select the **True peak meter** check box on the General tab in the Loudness Meters.

Please note that true peaks are calculated using a higher sample rate than peaks in the Channel Meters for increased accuracy. For more information, see "Monitoring peak levels" on page 96.

Peak levels may be miscalculated if audio signals are asymmetrical or if a DC offset is present. To enable filtering, select the Advanced tab in the Loudness Meters and then select the **True peak blocking filter** check box. 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, choose a setting from the True peak meter drop-down list on the General tab in the Loudness Meters.

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

Generating 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.

The log 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).

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.

   The log will be automatically opened in your default text editor.

   Select the **Enable surround processing on 5.1 media** check box on the Advanced tab of the Loudness Meters 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.

Chapter 11

Keyboard shortcuts

The following shortcut keys that can help streamline your work with Sound Forge Pro software. The available shortcut keys are arranged in tables according to function.

If you want to customize your keyboard shortcuts, you can use the Keyboard Shortcuts page in the Preferences dialog. For more information, see "Preferences" on page 13.

File shortcuts

Command	Keyboard Shortcut
Create a new sound file	Command+N
Open a sound file	Command+O
Save the active file	Command+S
Save all files	Option+Command+S
Save a file with a new name or type	Shift+Command+S
Close the active file	Command+W
Close all files	Option+Command+W

Magnification and view

Command	Keyboard Shortcut
Zoom time in/out	Up/Down Arrow
Zoom to selection	Command+Up Arrow
Zoom time in full (if no time selection exists)	
Zoom to selected event	
Zoom level in/out	Shift+Up/Down Arrow
Show/hide left pane	Command+P
Show/hide right pane	Shift+Command+P
Show/hide bottom pane	Option+Command+P
Show/hide Plug-In Chooser	Command+0
Show/hide Media Browser	Command+1
Show/hide File Properties	Command+2
Show/hide Plug-In Chain	Command+3
Show/hide Channel Meters	Command+4

Command	Keyboard Shortcut
Show/hide Regions List	Command+5
Show/hide Summary tool	Command+6
Show/hide Record	Command+7
Show/hide Statistics	Command+8

General editing

Most of the cursor placement commands, when combined with the Shift key, also perform selection.

Command	Keyboard Shortcut
Undo the last operation	Command+Z
Reverse the last Undo operation.	Command+Shift+Z
Move (cut) the selected data onto the clipboard	Command+X
Copy the selected data onto the clipboard	Command+C
Paste data from the clipboard into the active editor	Command+V
Mix data from the clipboard with the active editor	Option+Command+V
Paste the clipboard contents into a new editor	Command+E
Select all data	Command+A
Remove all data outside the current selection	Command+T
Place a marker at the current cursor position	M
Create a region from the current selection	R
When you're in event-editing mode, press R to create a region based on the selected event, or press Command+Alt+R to create a region based on the time selection	Alt+R

Cursor movement

Most of the cursor placement commands, when combined with the Shift key, also perform selection.

Command	Keyboard Shortcut
Move 1 pixel	Left/Right Arrow
Move 1 sample	Option+Command+Left/Right Arrow
Move to next boundary	Command+Right/Left Arrow
Move 10% of screen	Page Up/Down (Command+Fn+Up/Down Arrow)
Move 100% of screen	Command+Page Up/Down (Fn+Left/Right Arrow)
Move to beginning/end of screen	Home/End (Fn+Left/Right Arrow)
Move to beginning/end of file	Option+Command+Home/End (Command+Fn+Left/Right Arrow)
Move the cursor to the beginning or end of the current selection	Comma
Move cursor to corresponding marker or select corresponding region	0-9 keys

Selecting data

Most of the cursor placement commands, when combined with the Shift key, also perform selection.

Command	Keyboard Shortcut
Set the cursor position as the beginning of a time selection.	I
Set the cursor position as the end of a time selection.	O

Event editing

Command	Keyboard Shortcut
Split event at cursor	S
Select previous/next event	Shift+Left/Right Arrow
Select first/last event	Shift+Home/End
Extend selection to previous/next event	Shift+Command+Left/Right Arrow
Extend selection to first/last event	Shift+Command+Home/End Arrow
Turn automatic crossfades on or off	Shift + Command + X
Show crossfade lengths	Shift + Command + T
Auto ripple events	Alt+Command+R

Navigation and playback

Most of the cursor placement commands, when combined with the Shift key, also perform selection.

Command	Keyboard Shortcut
Play All	Shift+Spacebar
Play/Pause	Spacebar
Preview Cut	Command+K
Preroll to Cursor	Command+Shift+K
Pause	Return
Go to Start	Option+Command+Home
Rewind	Control+Page Up
Forward	Control+Page Down
Go to End	Option+Command+End
Record	Command+R
Record New	Command+Shift+R

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