



To register on-line with Sonic Foundry, please follow the steps outlined in the registration wizards upon installation of this product.

Registering your product will provide you with technical support, notification of product updates, and special promotions exclusive only to Vegas Pro registered users.

Registration is required within 7 days of installation or your product will expire.

Sonic Foundry product registration helps protect against software copyright infringement and allows us to provide support exclusively to registered users.

If you do not have access to the Internet, registration assistance (in English) is available (Monday through Friday, 8 am-7 pm CST).

- In the US, phone: 1-800-57-SONIC.
- From outside the US, phone: 001-608-256-5555.
- Fax in the US: 1-608-256-7300. Fax outside the US: 001-608-256-7300.

Sonic Foundry, Inc.
754 Williamson Street
Madison, WI 53703

Sales/Customer Service Only (in North America): 1-800-57-SONIC
Technical Support: 608-256-5555
Fax: 608-256-7300

Sonic Foundry Europe

PO Box 2903
2601 CX Delft
Netherlands

The information contained in this manual is subject to change without notice and does not represent a commitment on the part of Sonic Foundry. The software described in this manual is provided under the terms of a license agreement or non-disclosure agreement. The software license agreement specifies the terms and conditions for its lawful use. No part of this manual may be reproduced or transmitted in any form or by any means for any purpose other than the purchaser's personal use, without written permission from Sonic Foundry, Inc.

Sonic Foundry and Vegas Pro are trademarks of Sonic Foundry, Inc. All other products mentioned in this manual are trademarks or registered trademarks of their respective holders.

© 1999 Sonic Foundry, Inc.

Table of Contents

Introduction	9
Welcome to Sonic Foundry Vegas Pro™	9
System requirements	10
Technical Support	10
Web site support	10
Email support	10
Fax support	11
Telephone support	11
Installing Vegas Pro	11
Starting Vegas Pro	12
Using the shortcut	12
Using the Start button	12
Serial number and activation code	13
Registration	13
Registering online	13
Registering via the telephone	14
Using the online help	14
Accessing help	15
Overview	16
Main window	16
Toolbar	17

Marker bar	17
Ruler	18
Track List	18
Track View	19
Transport bar controls	19
Scrub control	19
Window Docking Area	20
Keyboard command reference	22
Signal Flow	25

Quick Start 27

Media Files	27
What type of media can you use?	27
Starting a project	28
Finding media files to use	28
Previewing a media file	30
Placing a media file on a track	31
Placing a event on the Video Ruler	32
Audio event basics	33
Moving events along the timeline	33
Track navigation	35
Track Number	35
View buttons	35
Track FX button	36
Bus assignment	36
Arm for Record button	36
Mute button	37
Solo button	37
Scribble Strip	37
Volume fader	38
Multipurpose slider	38

Video event basics.	40
Moving the video event.	40
Removing the video's audio.	41
Playing back the project.	41
Play back within Vegas Pro.	41
Previewing to media player	43
Saving the project	44
Renaming or rendering a project (using Save As...)	45
Tutorial	49
Getting the tutorial folder.	49
Using the Explorer window.	50
Placing the video	50
Displaying the Video Preview	51
Play back the video.	52
Placing the new voice-over	52
Aligning new voice-over with video	53
Editing the voice-over.	54
Lock the original audio.	54
Editing a time selection	55
Splitting an event using time selection	55
Editing an event.	56
Aligning the remaining voice-over events.	56
Grouping the voice-over and video.	57
Working with the music bed.	57
Placing the music bed	57
Adding a volume envelope	58
Setting the volume envelope.	58
Add EQ to the voice-over.	59
Saving a Vegas project (*.veg).	60

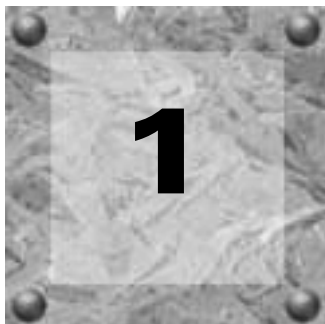
Rendering the project as an *.avi.	61
Setting the format.	61
Applying compression	62
General Editing.	63
Using the cursor	63
Editing event and time selections	64
Selecting multiple events	64
Selecting a time range.	65
Selecting events and a time range	66
Basic event editing	66
Copying events	67
Pasting events	68
Cutting events	70
Trimming/Cropping events	72
Deleting events	73
Using the Undo and Redo commands.	74
Undo command	74
Redo command	76
Clearing the edit history	77
Using project markers and regions.	77
Working with markers.	77
Working with regions	80
Working with command markers.	83
Using a sound editor program.	88
Setting up the sound editor program	88
Opening the sound editor from Vegas Pro	89

Advanced Audio Editing	91
Snapping events	91
Using the event snap offset	91
Snapping to grid lines	92
Snapping to markers	93
Disable snapping	93
Splitting events	94
Using the Ripple Edits	96
Cutting events in ripple mode	96
Deleting events in ripple mode	98
Pasting events in ripple mode	99
Accessing event properties	101
Changing the active take's name	102
Using the pitch shift	104
Setting event switches	105
Using event switches	105
Muting an event	106
Locking an event	107
Looping an event	108
Normalizing an event	109
Using event envelopes (ASR)	110
Setting an event's volume	111
Setting an event's fade in and out	111
Crossfading events	113
Automatic crossfades	113
Manually setting a crossfade	114
Changing crossfade curves	114
Grouping events	116
Creating a new group	116
Removing an event from a group	117
Clearing a group	117

Using the Trimmer window	118
Showing an event in the Trimmer	119
Working in the Trimmer window	120
Opening the sound editor from the Trimmer	122
Working with Tracks	123
Track basics	123
Adding an empty track	123
Duplicating a track	124
Deleting a track	125
Naming or renaming a track	126
Organizing tracks	126
Reordering tracks	126
Changing a track's color	127
Changing track height	127
Working with tracks	128
Using the track fader	128
Muting a track	129
Soloing a track	129
Adding track FX	130
Assigning a track to a bus	130
Assigning a track to an auxiliary bus	131
Setting up to record into tracks	132
Using track envelopes	132
Adding a volume envelope	132
Hiding the volume envelopes	135
Removing track volume envelopes	135
Adding a panning envelope	136
Hiding the panning envelopes	138
Removing track panning envelopes	138
Mixing multiple tracks to a single track	139

Recording	141
Setting up your equipment	141
Basic setup	141
Setup with mixer	142
Setup with digital multitrack	142
Starting and stopping recording	143
Recording into an empty track	144
Recording into a time selection	145
Recording into an event	146
Recording into an event with a time selection	147
Working with multiple recorded takes	148
Previewing takes	148
Choosing an active take after loop recording	149
Renaming an event take	150
Deleting an event take	151
Specifying where recordings are stored	153
 Track and Assignable FX	 155
Track FX	155
Plug-in Chooser	156
Creating an Assignable FX chain	157
Assignable FX Control	158
Saving Assignable FX as presets	158
Editing an Assignable FX chain	159
Routing tracks to an Assignable FX chain	159
Removing an Assignable FX	160
Assigning FX to Busses	161

Troubleshooting.....	163
Why are some of my DirectX plug-ins not working correctly?.....	163
Why do I hear gaps in my audio playback?.....	163
Why can't I get my other DirectX plug-ins to work as Track effects?.....	165
MPEG and Quicktime Video Audio/Video Synchronization Issues.....	165
Some AVI's that open in Windows Media Player don't open in Vegas Pro....	166
Why does a mono event increase 6 dB when panning a track hard to either side?	166
Glossary.....	167
Index.....	i



Introduction

Welcome to Sonic Foundry Vegas Pro™

Sonic Foundry proudly introduces Vegas Pro, an innovative and technologically advanced multitrack media editing system. Vegas Pro was designed with one thing in mind: to create a more efficient audio/video production environment without sacrificing the exceptional quality and superior processing power professionals expect from Sonic Foundry.

Vegas Pro removes the barriers commonly found between your creativity and sophisticated multitrack recording and editing. Whether it's the standard and familiar Windows navigation commands, or the clean and uncluttered interface throughout, you'll find Vegas Pro a tool that will be mastered in minutes. But don't let that fool you. Beneath the Vegas Pro unique and customizable interface, you'll find a product so powerful and flexible, you'll forget you've just completed your project in half the time.

Below are some of the features available in Vegas Pro, the perfect multitrack media editing system for your studio or production environment:

Non-destructive editing	Unlimited tracks
Unlimited undo/redo	Multiple file formats (.wav/.aif) on a single track
Automatic crossfade functionality	EQ and compressor inserts available on every track
Quick-edit media trimmer with direct link to *.wav editor	Simultaneous multitrack record & play
Loop recording	Plug-In manager
Real time event resampling	32 assignable DirectX FX sends
Audio/video scrub control	DirectX Plug-In support
Video preview window	Dual processor support
Edit detail list management	Multiple I/O support
24-bit/96 kHz	MIDI Time Code generate & chase
26 Aux outputs	Dual monitor support
Internet streaming file authoring (Windows Media Technologies 4.0 and RealNetworks G2)	Ability to incorporate timeline metadata (markers/captions) for Internet content authoring
Imports: .wav, .aif, .avi, .mov (using Microsoft DirectShow), .mpg (video), .bmp	Exports: .wav, .aif, .avi, .wma, .asf, .rm, .mp3 (with optional plug-in)

System requirements

Your system's components affect how well Vegas Pro performs.

Common

- Microsoft® Windows™ 9x or NT 4.0
- CD-ROM drive
- 20 MB hard-disk space for program installation
- Windows-compatible sound card
- Internet Explorer™ 4.0 (included on CD-ROM) or later to view online help

Minimum

- 200 MHz processor
- VGA display
- 32 MB RAM
- DirectX Media 6.0 (included on CD-ROM) or later

Recommended

- 400 MHz processor
- 128 MB RAM
- 16-bit color display

Technical Support

If you experience problems or have questions while using Vegas Pro, there are a few ways to get the information that you need from Sonic Foundry: Web site support, Email support, Fax support, and Telephone support.

Web site support

Visit our Web site at www.sonicfoundry.com/support. You will find technical information, reference information, program updates, tips and tricks, and a Frequently Asked Questions (FAQ) archive.

Email support

Send your questions or comments to support@sonicfoundry.com. Our Technical Support Department will respond to you within 36 business hours.

Fax support

Send your questions or comments via fax 24 hours a day at (608) 256-7300. You will receive a response within 36 business hours.

Telephone support

Our technical support representatives are available Monday-Friday from 8am to 7pm (CST) at (608) 256-5555.

Before You Call Support


Before you contact our technical support department, we ask that you do the following:

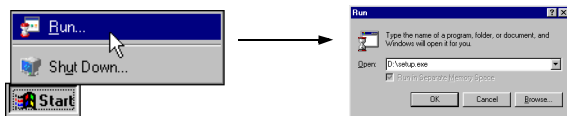
- Check to see if your question may be answered in the manual or online help.
- Use a telephone that is near the computer where Vegas Pro is installed.
- Make sure you have registered the product. *For more information, see [Registration](#) on page 13.*

Installing Vegas Pro





Before you install Vegas Pro, we recommend that you exit all open programs and temporarily disable any virus protection.

1. Insert the Vegas Pro CD-ROM. The Vegas Pro Installation screen appears (if CD-ROM AutoPlay is enabled).

If the CD-ROM AutoPlay is disabled, click on the  button and choose Run.



In the Run window that appears, type the CD-ROM drive's letter and add **:setup.exe**. Click the **OK** button to start the installation.

2. Click Install Software. The installation process begins.
3. Follow the screen prompts and enter the necessary information when required.
 - Use the  button to continue the installation.
 - Use the  button to suspend the installation and review previous screen prompts.
 - Use the  button to terminate the installation process.
4. At the last screen prompt, click the  button to conclude the installation.

Starting Vegas Pro


Starting Vegas Pro is exactly the same as starting most Windows programs that you may use already. After Vegas Pro has been installed on your computer, there are two ways to start the program.

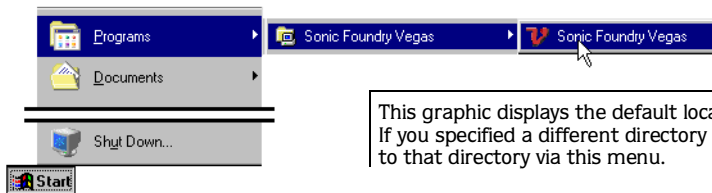
Using the shortcut

You may have noticed a new icon on your desktop () upon completion of the installation procedure. This icon is a shortcut to the Vegas Pro program located on your hard drive. By double-clicking on this icon, you will start Vegas Pro directly from the desktop.

Using the Start button

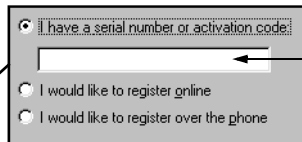
The second method to start also allows you to start Vegas Pro right from the desktop. This procedure is exactly the same as other Windows-based programs.

1. Click the  button on the task bar. The **Start** menu appears.
2. From the **Start** menu, choose **Programs**. The Programs list menu appears.




This graphic displays the default location where Vegas Pro was installed. If you specified a different directory during installation, then navigate to that directory via this menu.

3. From the **Programs** menu, choose **Sonic Foundry Vegas**. A sub-menu appears.
4. From the sub-menu, choose **Sonic Foundry Vegas** to start the program. The registration dialog window appears. (Once you register Vegas Pro, this dialog will not appear again.)



Enter either the serial or activation code here

5. Enter either the serial number or the activation code and click  to start using Vegas Pro.

Serial number and activation code

The first time you start Vegas Pro, the registration dialog appears. You need to enter either the serial number or the activation code. Either number will start Vegas Pro so that you may immediately begin your first project.

The serial number allows you to run Vegas Pro for 7 days. After the 7 days expire, Vegas Pro will time out. If you purchased Vegas Pro, you can receive your activation code by registering either online or by telephone.

Note: *If you have started a project and Vegas Pro times out, you will not lose the project. It will be available when you start the program after you have registered, received, and entered your activation code.*

An activation code is based on the Computer ID number where Vegas Pro is loaded. Each computer has a unique number, similar to a license plate. An activation code is created based on that unique number. When you register Vegas Pro, Sonic Foundry will generate an activation code for you. Once the activation code is entered, Vegas Pro will not time out; it is yours. Because the activation code is based on the Computer ID, it is important that you have Vegas Pro loaded on the computer where you will be using it.

The Computer ID is automatically detected and provided to you when you install Vegas Pro.


Registration


The registration dialog that appears when you start Vegas Pro allows you to quickly and easily register to get your activation code. You may register via the Sonic Foundry web site or via the telephone.

Registering online

When you register online, your activation code is sent to your email address within minutes after you complete and submit the online registration form.

To register online, do the following:


1. Select the second radio button labeled I would like to register online.
2. Click the  button. Your internet browser automatically starts (if it is not already running) and the Sonic Foundry online registration form appears.

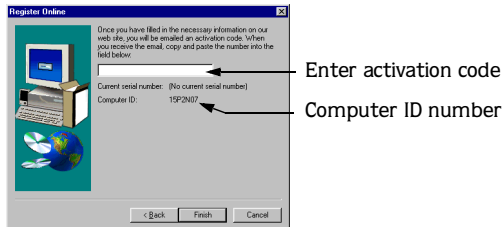
3. Fill in the form's required fields, which are indicated with an asterisk (*). You will notice that some of the information is already inserted for you, most notably the Computer ID number.
4. Make sure that your email address is entered correctly. This address is where the activation code will be sent.
5. Submit the form to register. In a few minutes, your activation code is sent to your email address.
6. Copy the activation code from the email message and paste it into the registration field on the Vegas Pro Registration dialog.
7. Click the  button to activate Vegas Pro and become a fully registered customer.


Registering via the telephone

When you register via telephone, a Customer Service Representative will help you to obtain your activation code.

To register via telephone, do the following.

1. Select the third radio button labeled I would like to register over the phone.
2. Click the  button. A new dialog will appear with a field where you will enter the activation code. Your Computer ID number appears below this field.



3. When the Customer Service Representative gives you the activation code, type it in the field.
4. Click the  button to activate Vegas Pro and become a fully registered customer.

Using the online help

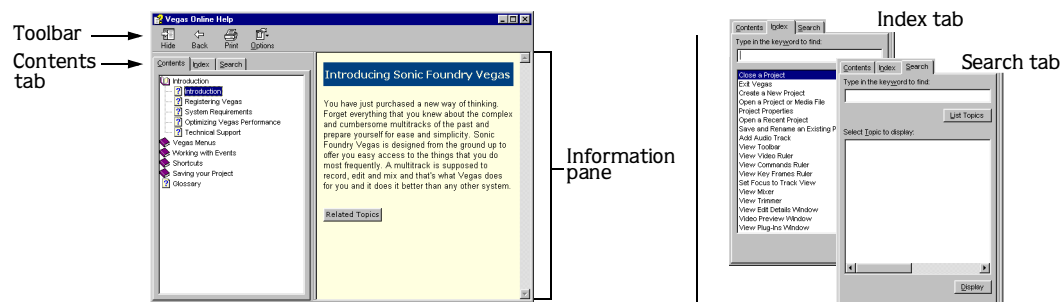
Vegas Pro includes HTML online help. To view the online help, you need to have Internet Explorer 4.0 or higher loaded on your system (included on the Vegas Pro CD-ROM).



Accessing help

The online help is available in two forms: in a Main help window or What's This? help window. Both forms are available via the keyboard or the **Help** menu.

Main help window

The Main help window is accessed either by choosing **Contents and Index** from the **Help** menu or pressing the **F1** key. This window has three tabs that you can use to find the information that you need.




The Contents tab provides a categorized listing of available help topics. Click on the book icon () , then on the topic page () you want information about.

The Index tab provides a complete listing of the help topics available. Use the scroll bar to scroll through the list of available topics or type a word in the text field to quickly locate topics related to the word. Select the topic and click the **Display** button.

The Search tab allows you to enter a keyword and display all of the topics in the online help that contain the keyword you have entered. Type a keyword in the text field and click on the **List Topics** button. Select the topic from the list and click the **Display** button.

What's This? help

What's This? help allows you to view pop-up window descriptions for Vegas Pro menus, buttons, and dialog boxes. Choose **What's This?** from the **Help** menu or press the **Shift+F1** keys, and then click on any Vegas Pro item. To use What's This? help in a dialog box, click on the question mark () in the upper-right hand corner of the dialog box, then on an item.

Tip of the Day

The Tip of the Day displays functional tips to increase your productivity with Vegas Pro. To view and scroll through the Tip of the Day messages, choose **Tip of the Day** from the **Help** menu.

PDF manual

There is a more current manual available on the Vegas Pro CD-ROM. The PDF manual contains information that was written during this manual's press time. To view this manual, you will need Adobe® Acrobat® Reader (also included on the Vegas Pro CD-ROM).

Help on the web

Additional Vegas Pro help and information is available on the Sonic Foundry web site. Choose **Sonic Foundry on the Web** from the **Help** menu to view a listing of web pages pertaining to Vegas Pro and Sonic Foundry. If your browser is not already open, Vegas Pro will automatically start it for you.

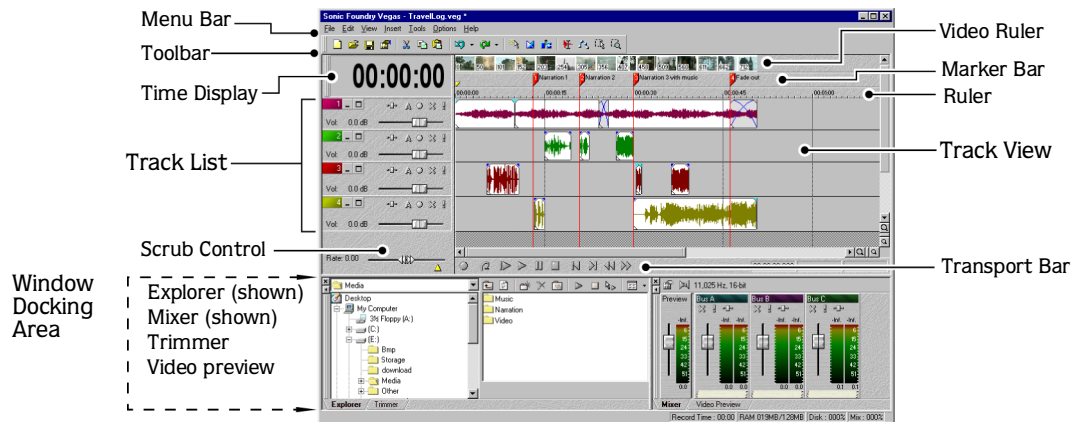
Overview

Vegas Pro is designed to be an easy-to-use program with many tools that provide power and flexibility when creating and working with media files. As you will learn, many of the Vegas Pro operations, menu items, and shortcut keys are common to other popular software applications.

Vegas Pro is a unique and powerful program that gives you tremendous flexibility. The following sections are a graphical tour of the Vegas Pro work area. Please take a moment to get familiar with the Vegas Pro interface. Many of the procedures in this manual use terminology found in these sections.

Main window









This is the window that appears when you open Vegas Pro. The work area is primarily three frames: the Track List, the Track View, and the Window Docking Area. The other parts of the interface are tools and features used while working with your project.











Toolbar

The Toolbar allows you to quickly access the most commonly-used functions and features in Vegas Pro.

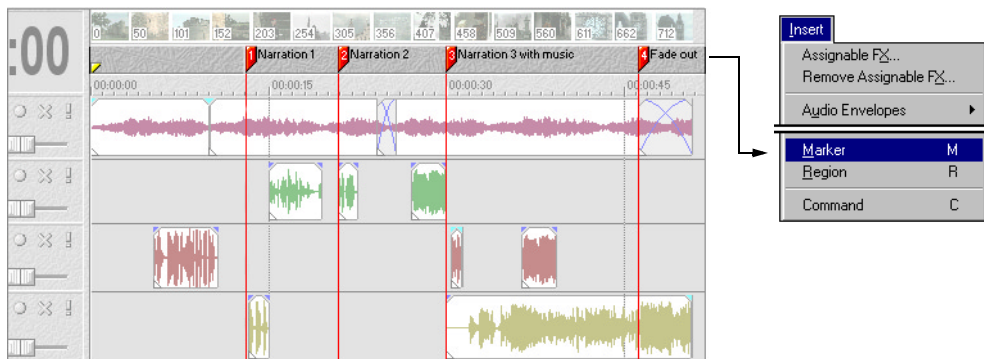


	Create new project
	Open existing project
	Save project
	Open project properties
	Cut selected events or time range
	Copy selected events or time range
	Paste items from clipboard into project
	Undo command

	Redo command
	Enable snapping to grid lines
	Automatic crossfades
	Ripple edits
	Edit tool
	Envelope tool
	Selection tool
	Zoom tool

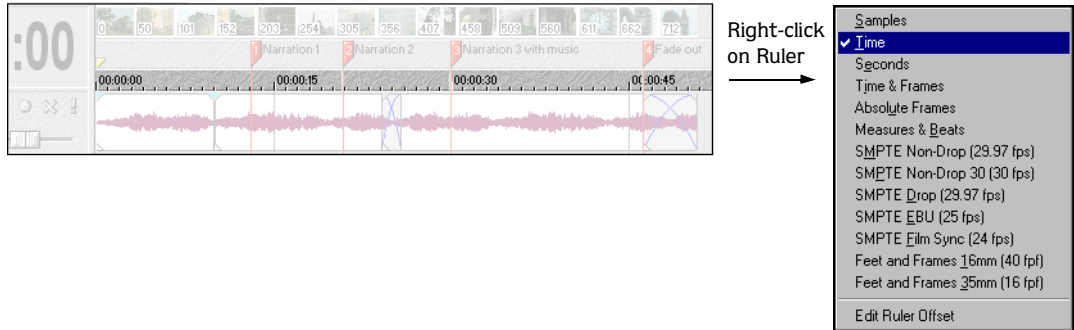
Marker bar

The Marker bar is the area where informational tags may be placed, named, and positioned along the project's timeline.



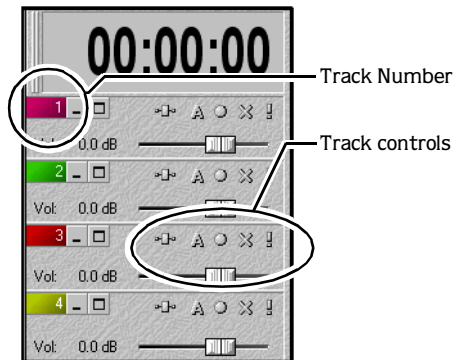
Ruler

The Ruler is the timeline for your project. You may specify how the Ruler measures time: seconds, measures and beats, frames, etc.



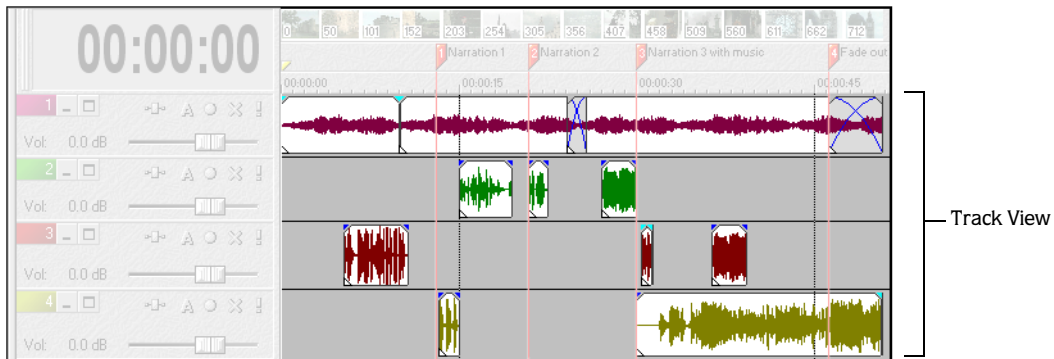
Track List

This list identifies the track order in your project. Each track's controls are also available in the Track List.



Track View


All arranging and editing is done in the Track View. This area contains all the project's events.





Transport bar controls


The Transport bar contains the playback and cursor positioning buttons frequently used while working on your project.





 Record into track


 Loop play back


 Play back from beginning of project


 Play back project from cursor position


 Pause project playback

 Stop playback

 Move cursor to start of project

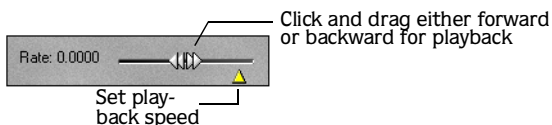
 Move cursor to end of project

 Move cursor left at grid increments

 Move cursor right at grid increments

Scrub control

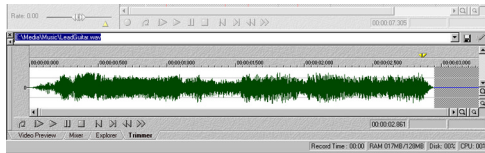
The Scrub control is used to play your project forward or backward for editing purposes. You may adjust playback speed by setting the Speed Control Marker located beneath the Scrub control.



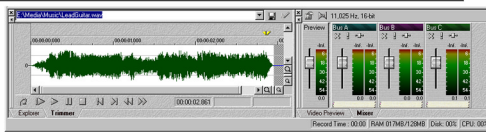
Window Docking Area

This area allows you to keep frequently-used windows available, but out of the way while you are working with a project. To dock a window, simply drag and drop it to the Docking Area. This area has three regions in which a window can be placed: right, middle, and left. As a result, the Docking Area can display up to three windows at a time.

When windows are docked, they will either be displayed on top of the other windows, or each window's tab will appear above the task bar. Simply click the window's tab to bring it to the top.



One window display



Two window display



Three window display

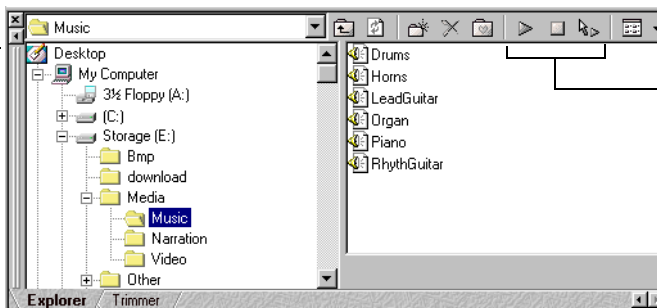
These windows are fully scalable to suit your needs.

Click a window's tab to bring it to the top.

Explorer window

The Explorer window works similarly to the Windows 9x and NT file management Explorer included with your operating system. Use the Vegas Pro Explorer window to select media files to place into your projects.

Select drive or folder

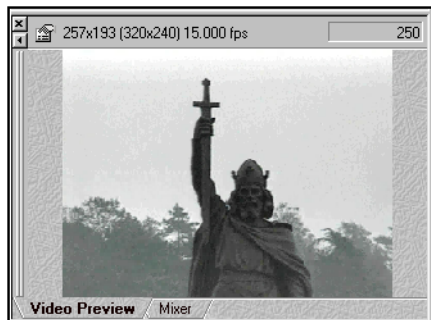


Preview selected media file before you place it in the project

Select media to place in the project by dragging and dropping or double-clicking

Video Preview window

This window displays a project's video event during project editing and playback. If a video event is not placed in the project, you will see "--No Video--" in the center of this window.



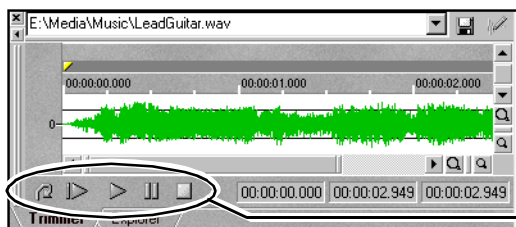
Right-click to change Video Preview settings

- Default Background
- Black Background
- White Background
- Integral Stretch
- Preserve Aspect
- Stretch to Window

Video will appear during project playback or as the cursor is moved during editing.

Trimmer window

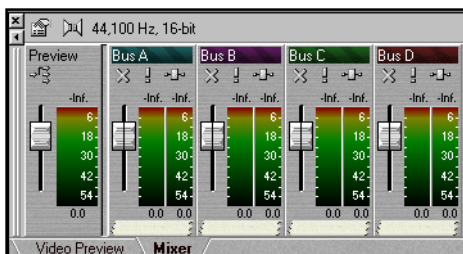
The Trimmer window is a good place to edit an audio event. When an event is placed in the Trimmer window, you may take portions of the event and place them on separate tracks by dragging and dropping. For more information, see [Using the Trimmer window](#) on page 118.



Trimmer window
Transport bar

Mixer window

The Mixer window gives you access to your project's properties, bus assignments, output levels, and FX chains.



Right-click on a meter to change its settings

Reset Clip

- 12 to 0 dB
- 24 to 0 dB
- 42 to 0 dB
- ✓ -60 to 0 dB
- 78 to 0 dB
- 90 to 0 dB

- ✓ Show Labels
- ✓ Hold Peaks
- Hold Valleys

Keyboard command reference

Vegas Pro keyboard commands are shortcuts that you can use while working with your project.

Project file commands

Create new project	Ctrl+N
Open existing project or media file	Ctrl+O
Save project	Ctrl+S
Open project's properties	Alt+Enter
Exit Vegas Pro	Alt+F4

Window view commands

Track view	Alt+0	Edit Details	Alt+4
Explorer	Alt+1	Plug-ins	Alt+5
Trimmer	Alt+2	Video Preview	Alt+6
Mixer	Alt+3		

Edit commands

Undo	Ctrl+Z or Alt+Backspace	Select right by grid marks	Shift+Ctrl+Page Down
Redo	Ctrl+Shift+Z	Restore selection	Backspace
Cut selection	Ctrl+X or Shift+Delete	Paste repeat from clipboard	Ctrl+B
Copy selection	Ctrl+C or Ctrl+Insert	Split event(s)	S
Paste from clipboard	Ctrl+V or Shift+Insert	Trim/Crop selected events	Ctrl+T
Select all	Ctrl+A	Open in Sound Editor	Ctrl+E
Unselect all	Ctrl+Shift+A	Mix to new	Ctrl+M
Delete selection	Delete	Mix to preview	Ctrl+Shift+M
Select left by grid marks	Shift+Ctrl+PageUp	Make a selection during play back I (in) and O (out)	

Cursor placement commands

Go to beginning of selection or view (if no selection)	Home or W	Center in View	\
Go to end of selection or view (if no selection)	End or E	Swap on selection	Num. pad 5
Go to beginning of project	Ctrl+Home	Move left to marker(s)	Ctrl+Left (arrow)
Go to end of project	Ctrl+End	Move right to marker(s)	Ctrl+Right (arrow)
Move left by grid marks	Page Up	Move left to event edit points including fade edges	Ctrl+Alt+Left (arrow)
Move right by grid marks	Page Down	Move right to event edit points including fade edges	Ctrl+Alt+Right (arrow)
Go to	Ctrl+G		

Playback commands

Start/stop playback	Spacebar	Pause	Enter
Stop playback	Esc	Record	Ctrl+R
Looped playback	L	Play back from any window	Ctrl+Spacebar or F12

Event commands

Move selected event(s) one pixel	Right (arrow) number pad	Move selected event(s) down one track	Down (arrow) number pad
Move selected event(s) one pixel	Left (arrow) number pad	Move selected event(s) right on grid	Ctrl+Right (arrow) number pad
Move selected event(s) up one track	Up (arrow) number pad	Move selected event(s) left on grid	Ctrl+Left (arrow) number pad

Track view commands

New audio track	Ctrl+Q	Group selected events	G
Enable/disable snapping	F8	Mark in point	I or [
Snap to markers	Shift+F8	Mark out point	O or]
Snap to grid	Ctrl+F8	Insert/Remove track-volume envelope	V
Ripple edit mode	Ctrl+L	Insert/Remove track-panning envelope	P
Auto crossfade mode	X	Insert Region	R
Edit tool selection	D	Insert Marker	M
Normal edit tool	Ctrl+D	Insert Command Marker	C

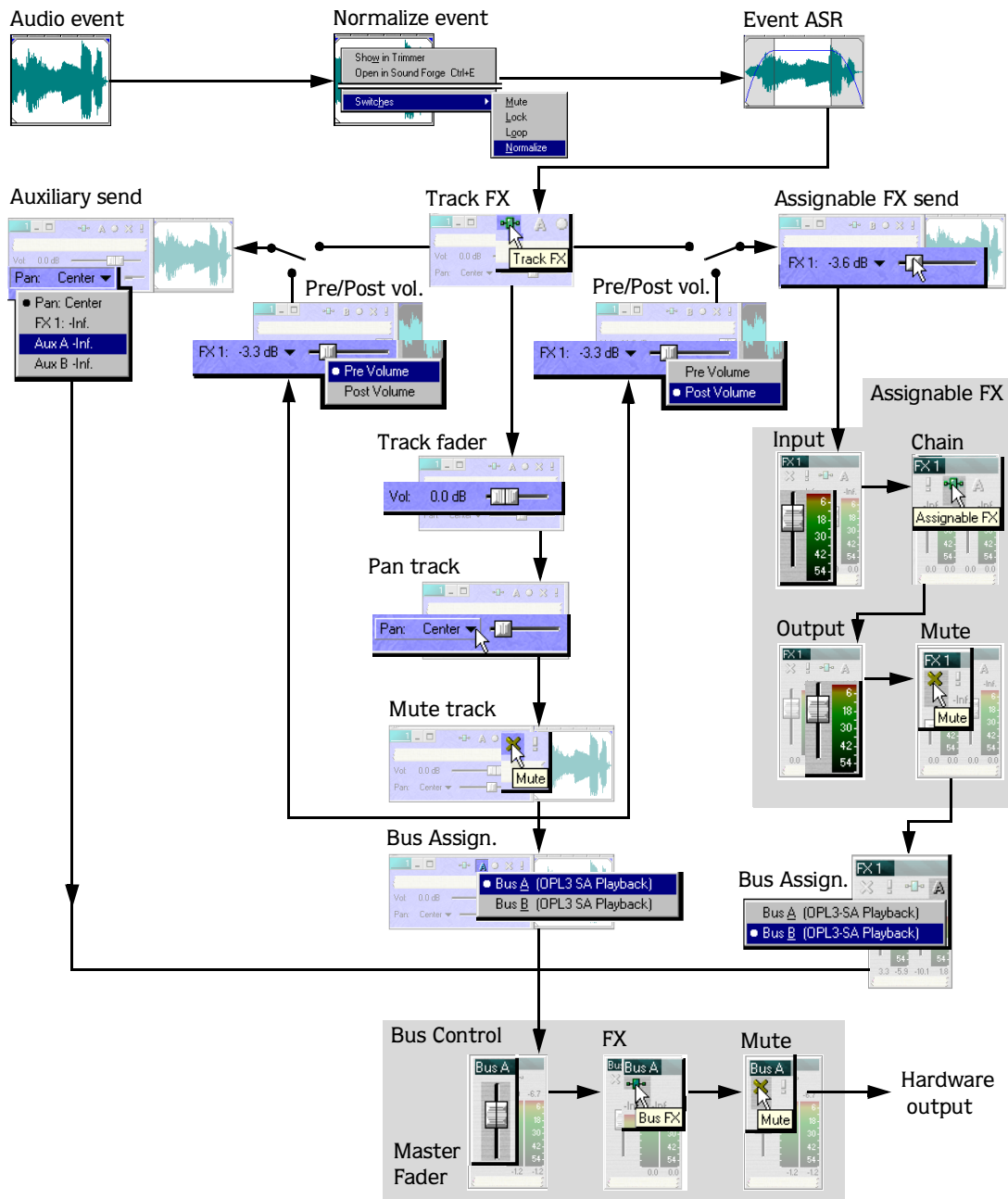
View commands

Increase track height	Ctrl+Shift+Up (arrow)	Zoom out large increments or selection (if one exists)	Ctrl+Down (arrow)
Decrease track height	Ctrl+Shift+Down (arrow)	Zoom in large increments or selection (if one exists)	Ctrl+Up (arrow)
Zoom in time (incremental)	Up (arrow)	Zoom in vertically	Shift+Up (arrow)
Zoom out time(incremental)	Down (arrow)	Zoom out vertically	Shift+Down (arrow)

Miscellaneous commands

Online help	F1	Popup menu	Shift+F10
What's This? help	Shift+F1	Refresh screen	F5

Signal Flow





Quick Start

The Vegas Pro environment is a new way of thinking in multitrack mixing. Whether you are experienced at mixing or brand-new to it, you will find Vegas Pro easy to use and powerful. As you use Vegas Pro, experiment with different features and listen to the results in real-time.

This chapter was designed to help you get familiar with the interface and describe the essential operations for using Vegas Pro. Using this chapter will get you into the program quickly to begin your first project or to begin experimenting with Vegas Pro. In the next chapter, we take you through a sample project from start to finish, using sample media files included on the Vegas Pro CD-ROM. *For more information, see [Tutorial](#) on page 49.*

Media Files

Before we get started in Vegas Pro, there are a few terms that need to be defined:

- Media files - audio and video files that may be placed within your project.
- Events - playable portions of media files within a track. Events have fully editable starting and ending points.
- Tracks - timeline containers where events are placed and arranged.

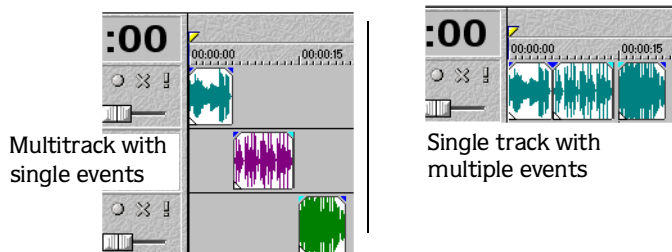
What type of media can you use?

A media file is an audio file that can be placed on a track or a video file that can be placed on the video ruler.

Format Name	Extension	Definition
Wave (Microsoft)	*.wav	Standard audio format used on Windows-based computers
Video for Windows	*.avi	Standard audio/video format used on Windows-based computers
AIFF	*.aif	Standard audio format used on Macintosh computers
QuickTime	*.mov	Standard audio/video format used on Macintosh computers (using Microsoft DirectShow)
Bitmap	*.bmp	Standard graphic format used on Windows-based computers
MPEG3	*.mp3	Highly compressed media file. This file type can only be placed via plug-in.

A media file is referred to as an event after you have placed it on a track. Tracks are the containers for audio events. Each track can contain more than one event.

You may place events on separate tracks, or place all events on the same track:



In addition, you may place a video file on the Video Ruler. If the video has audio included, Vegas Pro automatically creates a new track and places the video's audio on it.



Video ruler with included audio on track below.

Starting a project

When you first open Vegas Pro, it displays an empty project. You may begin finding, previewing, and placing media files and start building your project. Vegas Pro supports many types of media file formats for placement, editing, and rendering to new media formats.

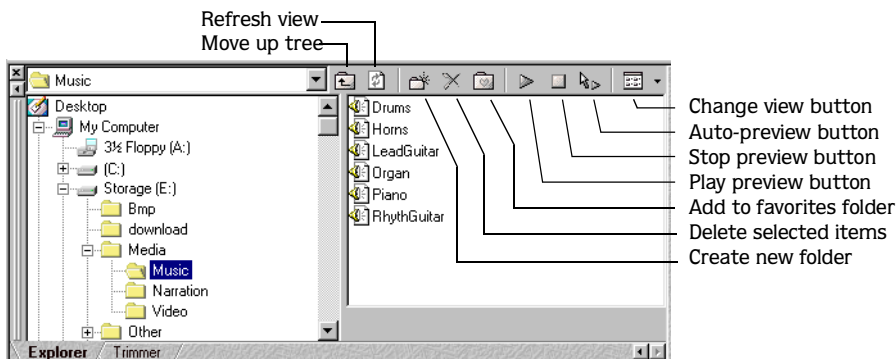
The following sections briefly explain the process of finding media files, previewing them, and placing them within your project.

Finding media files to use

There are two ways to find media to place in a project: using the Explorer window or the **File** menu and choosing **Open**.

The Explorer Window

The media Explorer window in Vegas Pro works similarly to the Windows 9x and NT file management Explorer included with your operating system. You can expand and collapse drives and folders in the tree view. The content of selected drives and folders appears in the list view.



Note: If you cannot see the Explorer window, it may be “under” another window. Click the Explorer tab to display the window. If you do not see the Explorer tab, choose **Explorer** from the **View** menu to display it.

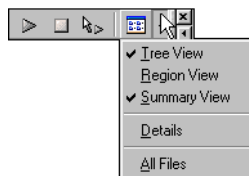
Explorer **Trimmer**

Vegas Pro windows are dockable. To access a hidden window, click its tab to bring it forward.

Using the Vegas Pro Explorer allows you to place multiple file types into your project simultaneously. To find media using the Explorer window, do the following:

1. From the drop-down list or tree view, choose the drive or folder where the media is located.

Note: Vegas Pro is preset to display all supported file types. However, you may change the list view to display all files within a selected drive or folder.




2. From the list view, you may place the file into your project by dragging and dropping or double-clicking it.


The File>Open option

An alternative to the Explorer window, you may find media in the more traditional method using the **File** menu and choosing **Open**. With the File>Open option, you specify the media file type that you want to use in the project: *.wav, *.avi, etc.

To find media using File>Open, do the following:



1. From the **File** menu, choose **Open**. The Open dialog appears.
Or, click the Open () button on the Toolbar.
2. Select the media's location in the Open dialog by doing one of the following:
 - Specifying it from the Look in drop-down list.
 - Double-clicking drives and folders in the list view.
 - Typing the file's path in the File name field.
3. Select the media format from the Files of type drop-down list.
4. Press the Open button to automatically place the file in the project.


Previewing a media file

Once you have located media files, you may preview them before placing them in your project. The Explorer window has a mini-transport bar with Play, Stop, and Auto Preview buttons () .

When you preview a file, its signal is sent to the Mixer window's preview bus. This bus displays levels, which you can adjust with its Volume fader.

To preview the audio file, do the following:

1. Select an event in the list view.
2. Press the Play () button to listen to the file.
3. Press the Stop () button, select a different file, or place the file in the project to stop previewing to the file.

Note: To automatically preview selections, press the Auto Preview () button on the Explorer's Transport bar. To turn off Auto Preview, press the Auto Preview button again.

Placing a media file on a track

Audio media files may be placed in your project by either dragging and dropping or double-clicking them. Either method places the media file in its entirety in the Track View. After the file is placed, it becomes (and is referred to as) an event along the project's timeline.

Dragging and dropping an event

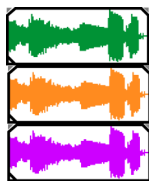
This method controls the event's occurrence on the Track View's timeline. You can create a new track by dragging an event to a blank area in the Track View and dropping it in place. Vegas Pro tracks can contain multiple events, so you can place different events next to each other on a track.

In addition, you may place multiple events at the same time and control their arrangement in the track view. Vegas Pro is preset to place the events on separate tracks.

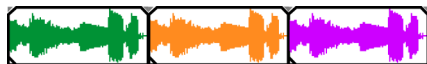
To place multiple events, do the following:

1. Select a range of adjacent media files by holding down the **[Shift]** key and clicking files in the list view.
Or, select files that are not adjacent by holding down the **[Ctrl]** key and clicking files.
2. Drag the files to the Track View.
3. Cycle through the placement options by right-clicking. As you click, Vegas Pro displays outlines of the selected events and the placement option. When you see the option that you want, drop the events in place. Below is a list of placement options:

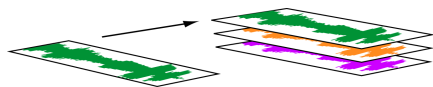
- Place events on separate tracks



- Place events next to each other on the same track



- Place events as takes on a track



You will see one event on the track. The other events are listed as takes "beneath" the the topmost event.

Double-clicking an event

This method creates a new track and places the event at the cursor's position along the timeline. However, once the events are placed, you can move them from one track to another or change their position on the timeline.

Placing a event on the Video Ruler

A video media file may be placed in your project by either dragging and dropping or double-clicking. The video is placed on the Video Ruler, located above the audio tracks. If the video file includes audio, the audio is placed below the Video Ruler on a newly-created audio track.

Dragging/dropping or double-clicking a video event

Video event placement is the same as placing an audio event; dragging and dropping controls timeline placement and double-clicking places the event at the cursor's position.

The Video Ruler supports one video event at a time. So, whether or not an event exists on the Video Ruler only affects what happens in your project when you place a video event. The following table describes placement scenarios:

Event to place	Video ruler status	Placement method	Result
Video only	No event	Drag/drop or double-click	Video placed on ruler
Video with audio	No event	Drag/drop or double-click	Video placed on ruler and audio on a new track
Video with audio	event placed	Drag/drop or double-click	Audio on new track
Video with audio	event placed	Drag/drop to video ruler	Video placed on ruler and audio on a new track
Video only	event placed	Double-click	No affect (existing video is not replaced)

Audio event basics

There are a number of ways to work with events once they have been placed in your project. Whether you are working to achieve a specific project goal, or experimenting with sound and video, the events that you placed are fully editable. The following sections describe basic event editing techniques.

Moving events along the timeline

An event, by definition, is an occurrence along the project's timeline. Events, as a result, may be moved along the timeline either individually or as a group. The left edge of an event is its starting point. Therefore, where the left edge lines up on the ruler determines when the event starts.

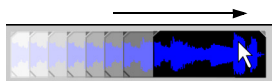
Events may overlap each other or be placed on top of each other. You may crossfade overlapping events automatically or with envelopes.

Moving a single event

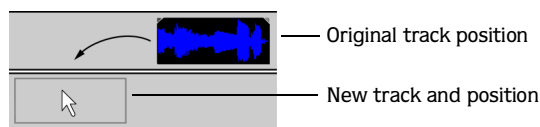
You can move an event along the timeline within a track or move it to a different track.

1. Select the event by clicking on it. The event is highlighted.
2. Click and drag the event along the timeline.

If you move the event along the original track's timeline, the event's appearance (color) remains the same.




However, you may move the event to a different track's timeline. If you do, the event appears as a simple outline and you will see its original track and position on the timeline. Once you release the mouse, the event will assume the new timeline position and track color.



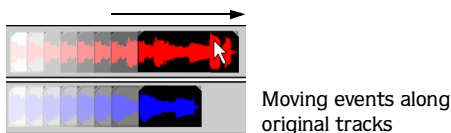
3. Release the mouse to set the event's timeline occurrence.
4. Repeat Steps 1-3 to move more events along the timeline.

Moving multiple events

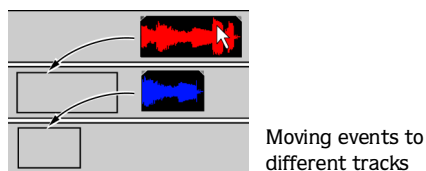
You can move multiple events along the timeline within a track or move them to a different track, similar to the previous procedure. In addition, selected events do not need to be within the same track. You may select events on different tracks and move them as a group along the timeline.

1. Use the **[Ctrl]** key, the **[Shift]** key, or the Selection Edit tool  to select the events. For more information, see [Selecting multiple events on page 49](#).
2. Place the mouse cursor over one of the selected events.
3. Click and drag the events along their respective timeline(s).

If you move the events along their original tracks' timeline, their appearance (color) remains the same.



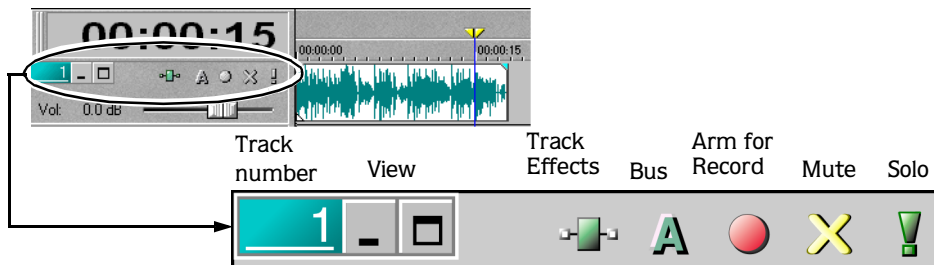
You may move the events to different track timelines. In that case, the events appear as simple outlines and you will see their original tracks and positions. When you release the mouse, Vegas Pro automatically creates new tracks as needed for events.



4. Release the mouse to set the events' timeline occurrences.
5. Repeat Steps 1-4 to move more events collectively along the timeline.

Track navigation

Once an event is placed on a track, Vegas Pro automatically displays track controls that you can use to affect the event or events contained within the track.

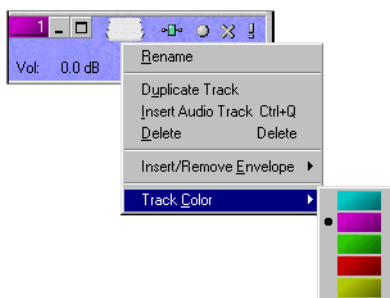


Track Number

This area identifies the track's order number in a multitrack project. You may rearrange the track order by dragging and dropping selected tracks "up" or "down" within the Track List.

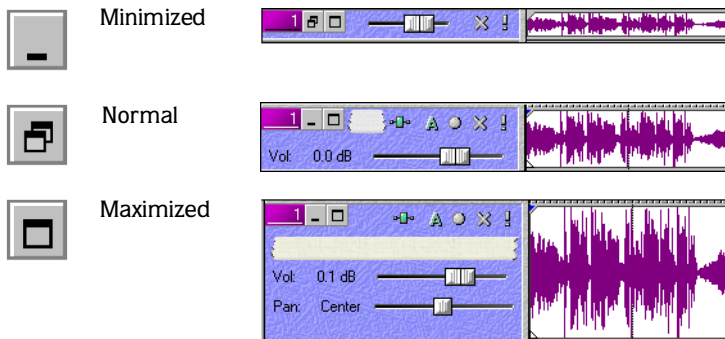
Track color

Change the color by right-clicking and choosing Track Color, and then selecting the color you prefer.



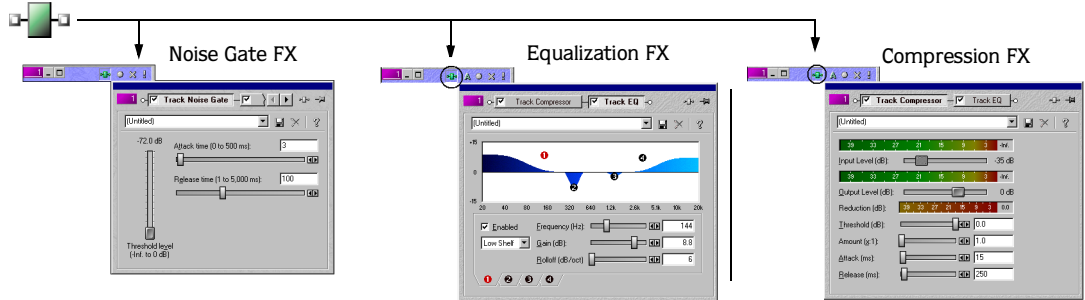
View buttons

These buttons control the track's appearance (size) in the Track View.



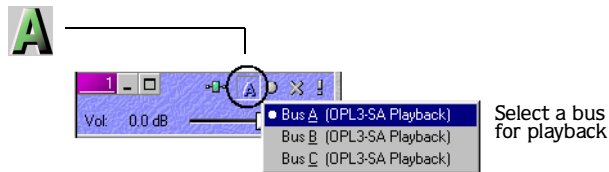
Track FX button

This button accesses Noise Gate, equalization (EQ), and compression FX controls that can be applied to the track's event(s). For more information, see [Adding track FX on page 130](#).



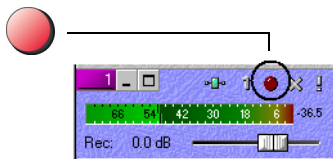
Bus assignment

This button allows you to designate and assign a track to a specific output bus. This option is available for projects being mixed for multiple stereo busses. (A bus is where various track signals are mixed together and output.) For more information, see [Assigning a track to a bus on page 130](#).



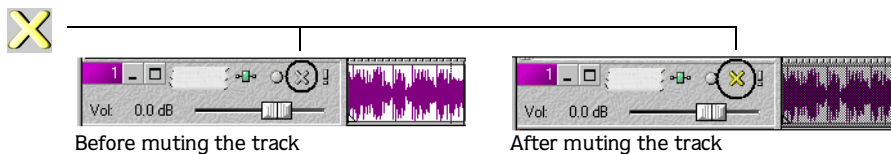
Arm for Record button

This button allows you to prepare a track for recording. You may record directly into tracks. A track is ready when you see the recording meter appear on it. For more information, see [Setting up to record into tracks on page 132](#).



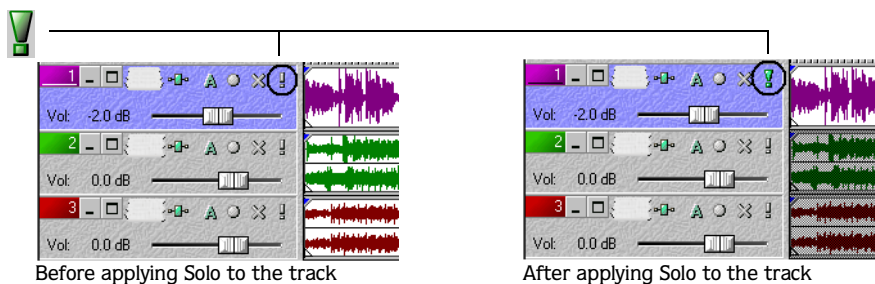
Mute button

This button enables you to temporarily disable playback of the track, so you can focus on another track's event(s). When a track is muted, it appears “grayed out” on the Track View. For more information, see [Muting a track](#) on page 129.



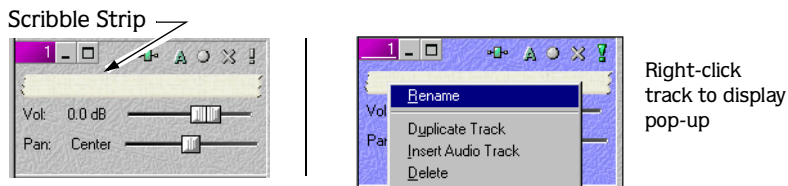
Solo button

This button, as its name implies, isolates a track's events for playback, while muting the other tracks' events. For more information, see [Soloing a track](#) on page 129.



Scribble Strip

This area lets you label a track. Simply double-click in the strip and type the track's name. Or, right-click anywhere in the Track List and choose **Rename** from the shortcut menu and then type the track's name. If you do not see the Scribble Strip, expand the track. For more information, see [Changing track height](#) on page 127.

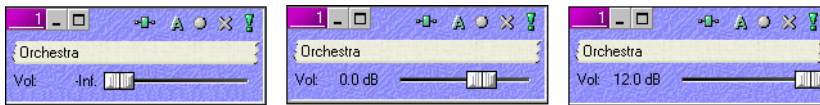


Volume fader

This fader controls the track's loudness relative to the other tracks when it is played back. Vegas Pro tracks are preset at 0.0 decibel (dB). Use this fader to emphasize or de-emphasize a particular track. A track's volume range is $-\infty$ to 12 dB.

To move the fader, do the following:

1. Place the mouse cursor on the fader.
2. Press and hold the left mouse button.
3. Move the fader left or right and release the mouse.

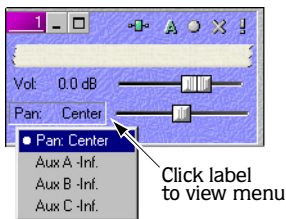


Double-click the slider to reset to 0.0dB.

Note: You may also move the fader by clicking it and using the right or left arrow keys on the keyboard.

Multipurpose slider

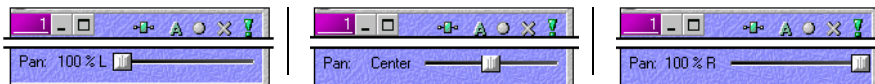
If you do not see this slider, expand the track. This slider controls the track's stereo panning and auxiliary bus volume. You may select what the slider controls by clicking its label. As you access the panning or auxiliary sends, Vegas Pro displays either its preset or your last setting preference. Each item's slider position is independent from the others.



Click label to view menu

Panning

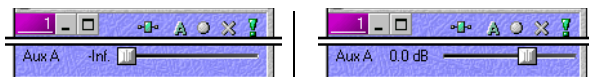
Vegas Pro tracks are preset to center the signal. Move the slider to adjust the signal's output left or right. As you move the slider, Vegas Pro displays the signal's percentage going to either the left or right channel. For example, moving the slider to 60%L means that 60 percent of the signal is mixed to the left channel, while 40 percent is mixed to the right. For more information, see [Adding a panning envelope](#) on page 136.



Double-click the slider to reset to Center.

Auxiliary bus

Vegas Pro projects that have multiple bus outputs enable you to send track signals to primary and secondary (auxiliary) busses. The primary bus is set using the Bus button on a track's toolbar. For more information, see [Bus assignment](#) on page 36. The auxiliary bus enables you to send a signal to a separate bus independent of the primary bus. Auxiliary busses do not affect the project's overall playback.



Double-click the slider to set its volume at 0.0 dB.

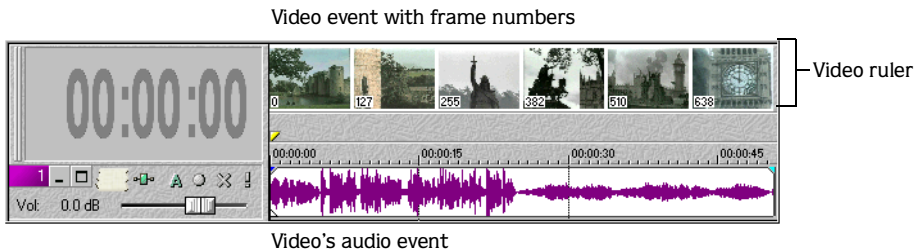
When you select an auxiliary bus, you need to adjust its playback volume with the slider. Auxiliary tracks' volume are preset to -inf. dB (mute) for playback. For more information, see [Assigning a track to an auxiliary bus](#) on page 131.

FX send

If you add an FX Chain to a track, Vegas Pro adds that chain to the multi-purpose slider's shortcut menu. You will be able to control the chain's volume using this slider.

Video event basics

Video events are placed on the Video Ruler. If the video event has audio, Vegas Pro creates an audio track and places the video's audio on the “top” track in the track list. *For more information, see [Placing a event on the Video Ruler](#) on page 32.*



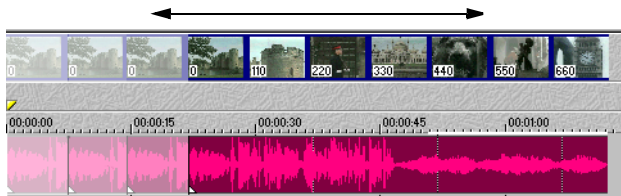
Once the event is in place, you may move the video event along the timeline, delete its audio, and preview the event in the Video Preview window. You may also replace the video by placing a new event on the Video Ruler. *For more information, see [Dragging/dropping or double-clicking a video event](#) on page 32.*

Moving the video event

Moving a video event is identical to moving an audio event. However, a video event is slightly different in that it may have audio grouped with it. If a video event has audio, Vegas Pro is preset to group the video event with its audio when it is placed. As a result, the video event and its audio will always be moved together along the project's timeline.

To move a video event, do the following:

1. Place the mouse pointer on either the video event or its audio.
2. Click and drag the events to the desired starting point on the timeline.



3. Release the mouse when the events are in the desired location.

Note: *Ungroup a video and audio by right-clicking either event. From the shortcut menu, choose **Group**, and then **Clear**.*

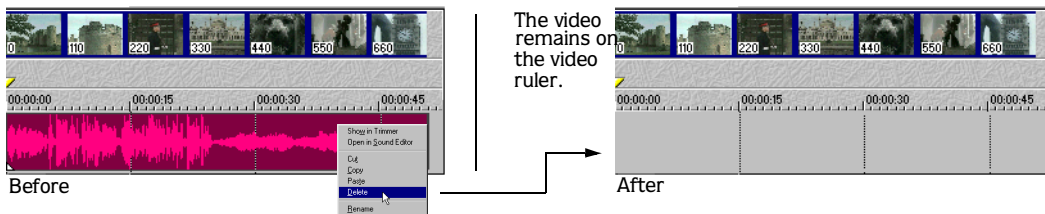


Removing the video's audio

As mentioned earlier, video events with audio get placed together in your project. However, you may delete the original audio completely or replace it with new audio. This feature is nice for redubbing poor quality audio.

To remove the audio, do the following:

1. Right-click either the video or its audio event to display a shortcut menu.
2. From the shortcut menu, choose **Group**, then **Clear** to ungroup the video and audio. Otherwise, both events will be removed.
3. Click to select the video's audio event.



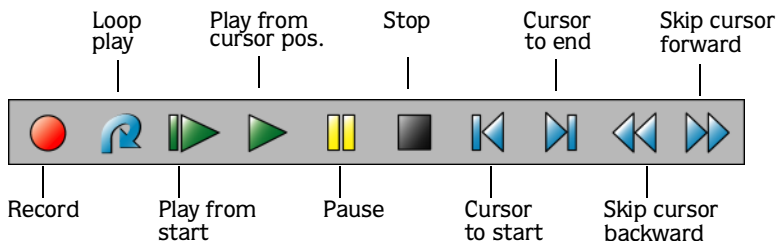
4. Right-click to display the shortcut menu. From the shortcut menu, choose **Delete**.
Or, from the **Edit** menu, choose **Delete**.

Playing back the project

Vegas Pro allows you to play back your project in two ways: directly within Vegas Pro, or by mixing the entire project to a preview file.

Play back within Vegas Pro

Vegas Pro has a Transport bar that allows you to play back your entire project or portions of your project based on either a time selection or current cursor position. Only non-muted tracks and events are played back.




If your project includes video, make sure the Video Preview window is displayed for playback: from the **View** menu, choose **Video Preview** or press the **[Alt]+[6]** keys.

Play back entire project











1. Press the **[K]** button to position the cursor at the beginning of the project.
2. Press the **[▶]** button to start playback.
 - Or, press the **[▶]** button to begin playback at the beginning of the project.
3. Press the **[■]** button to stop playback.

Play back a time selection

1. Place the mouse pointer above the ruler (on the Marker bar). The mouse arrow includes a left/right arrow ()
2. Click and drag to select the time region. To increase or decrease the time selection, click and drag its start and end points.
3. Press the **[▶]** button to begin playback. Only the non-muted tracks and events within the time selection will play back.
4. Press the **[🔄]** button to have Vegas Pro continually play back the events within the time selection.
5. Press the **[■]** button to stop playback.

Playback reference

The following table describes all the playback buttons and keyboard equivalents. You may use these playback functions at any time while working in your project.

Button	Keyboard	Function
	[Ctrl] + [R]	Begin recording into record-enabled tracks
	[L]	Turn on/off loop play during time selection playback
	[Ctrl] + [Shift] + [Space]	Begin playback from the start of the project
	[Space]	Begin playback from cursor position
	[Enter]	Pause playback, cursor stops and holds at pause position
	[Space] or [Esc]	Stop playback, cursor stops and returns to prior cursor position
	[Ctrl] + [Home]	Place cursor at the beginning of project
	[Ctrl] + [End]	Place cursor at the end of the project
	[Page Up]	Moves the cursor to the left in grid increments (if grid is displayed)
	[Page Down]	Move the cursor to the right in grid increments

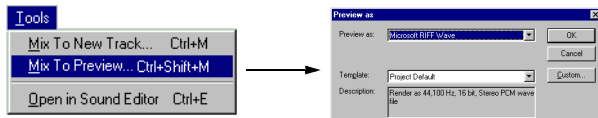
Previewing to media player

A preview file is mixed according to the project's properties that you set and is played back using the media player associated with the file type.

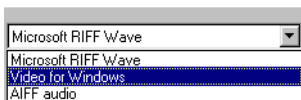
Mixing project for preview

This feature mixes all non-muted events to a file and automatically plays it back on the associated media player.


1. From the **Tools** menu, choose **Mix to Preview**. The Preview dialog appears.



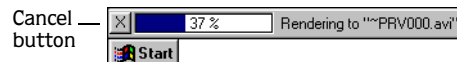
2. Select the preview option from the drop-down list.



3. Click the **OK** button to begin the mixing process. A status bar appears in the lower left portion of Vegas Pro.

Note: You may cancel the Mix to Preview by clicking the  button on the status bar.

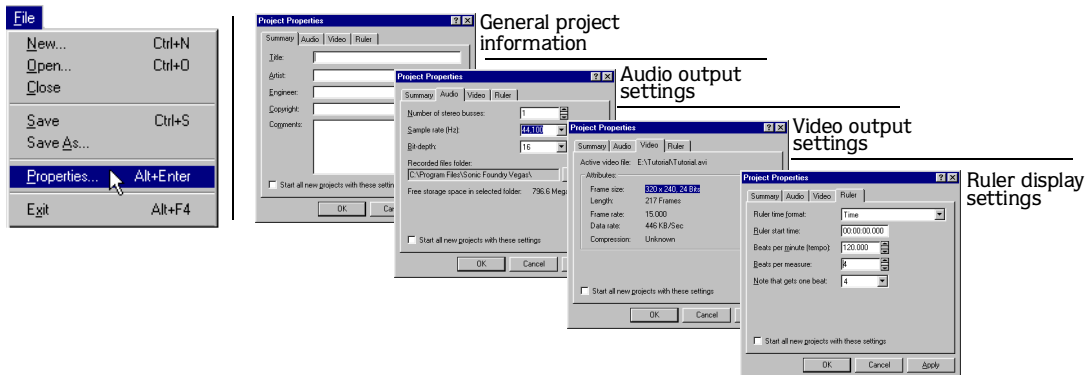
Status bar



When mixing is completed, the associated media player appears and begins playback.

Working with project properties

You can view and set the project's properties by choosing **Properties** from the **File** menu. The Properties dialog appears.




Saving the project

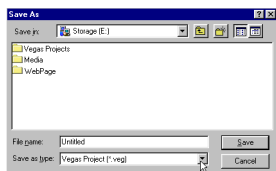
The first time a project is saved you will select a Vegas Pro format to use. The format that you choose affects the project's file size and its portability. There are two formats from which to choose:

Format Name	Extension	Definition
Vegas Pro Project	*.veg	Saves all of the information about a single project. This file format does not contain any media. It saves the references to media files used in the project. Also saved is project information, track FX, envelopes, bus assignments, and output properties.
Vegas Pro Project with External Media	*.veg	All of the media that is being used in the project is copied into the same folder as the project file. This option makes transporting the project easy and convenient.

To save the project, do the following:

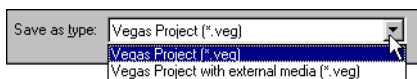
1. Select one of the save methods:
 - From the **File** menu, choose **Save**.
 - Click on the  button.
 - Press **Ctrl+S** on the keyboard.

The first time you save a project, the Save As dialog appears. Skip to step 2.



The subsequent times you save, the above dialog is bypassed, your existing file name is retained, and your project is updated to include any implemented changes.

2. Select the drive and directory where you want to store the project.
3. Type the project name in the File Name field.
4. In the Save as type box, select the format for which you want to save the project (as described in the previous table).



5. Click the **Save** button.

Renaming or rendering a project (using Save As...)

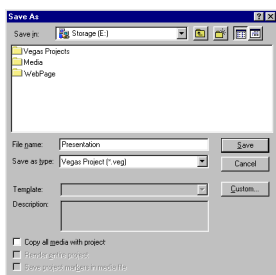
After you have been working with your project, you may use the **Save As** command in the **File** menu to rename the project. This option also allows you to render the project to a different file format. Typically rendering to a different format means that the project is finished and ready for distribution.

Renaming a Vegas Pro project

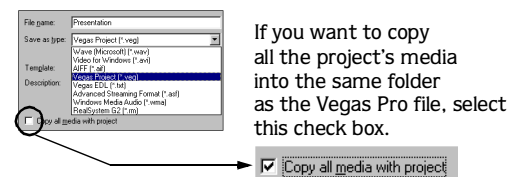
You may use **Save As** from the **File** menu to save the project the first time. The only difference from the previous procedure is that the Save As dialog includes other file formats.

To rename a Vegas Pro project, do the following:

1. From the **File** menu, choose **Save As**. The Save As dialog appears.



2. Select the drive and directory where you want to store the project.
3. Type a new name in the File Name field.
4. In the Save as Type drop-down list, select Vegas Pro Project (*.veg).



5. Click the **Save** button.

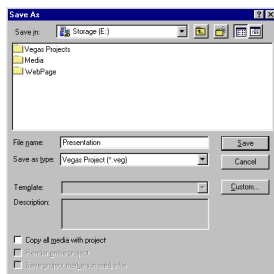
Rendering a Vegas project

Rendering refers to the process of converting the Vegas Pro project into one file and formatting it for the desired playback method: media player, Internet streaming media, CD-ROM, etc. The project file is not affected (overwritten, deleted, or altered) during the rendering process. You may return to the original project to make edits or adjustments and render it again. The following table describes the formats available for rendering your Vegas Pro project:

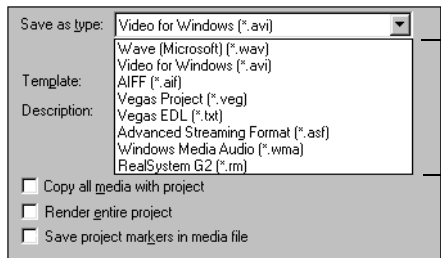
Format Name	Extension	Definition
Windows Media Format	*.asf	The Microsoft standard used for streaming media via the Web.
Wave (Microsoft)	*.wav	The standard audio file format used for audio used on Windows-based computers.
Video for Windows	*.avi	The standard video file format used on Windows-based computers. This option renders both audio and video into one file.
Audio Interchange File Format	*.aif	The standard audio file format for audio used on Macintosh computers.
RealSystem G2	*.rm	The RealNetworks standard for streaming media via the Web. This option renders both audio and video into one file.
Windows Media Audio	*.wma	The Microsoft audio-only format used to create files for streaming or downloading via the Web.
Vegas Pro project	*.veg	This option saves the references to media files used in the project. Also saved is project information, track FX, envelopes, bus assignments, and output properties. The *.veg file does not combine events into a single file.
Vegas Pro EDL	*.txt	This option creates a text version of event placements in the Track View. This text description can then be imported into a database or text application for modification or other purposes.

To render a Vegas Pro project, do the following:

1. From the **File** menu, choose **Save As**. The Save As dialog appears.



2. Select the drive and directory where you want to save the rendered project.
3. Type a new name in the File name field, if necessary.
4. In the Save as type drop-down list, select the desired file format for rendering.



Select a rendering format

The check box options in the lower left of the Save As dialog are available depending on the rendering format that you chose. (They are all shown available here for display purposes only).


Copy all media with project Used with Vegas Pro (*.veg) projects only. This option takes all of the media that is referenced in the project and copies it to the same folder to which you are saving the project.

Render entire project If you have a time selection in your project, select this option to ensure that the entire length of the project is rendered. If you do not select this option, only the time selection in the project will be rendered.

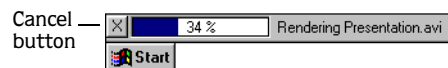
Save project markers in media file If your project contains defined markers or regions, you may save that information in the rendered file. Saving markers into a media file can enhance the end user's interaction with the media file.

5. Select any applicable check boxes, if necessary.

6. Click the **Save** button. A status bar appears in the lower left portion of Vegas Pro. Upon completion of the render, your Vegas Pro project is ready for distribution and playback.

Note: You may cancel the rendering process by clicking the  button on the status bar.

Status bar





Tutorial

Welcome to the Vegas Pro tutorial. It is designed to familiarize you with the basic features and tools of Vegas Pro while creating a project. The following sections are primarily step oriented and less descriptive, although descriptions are given. If you would like to learn more about a particular topic in the tutorial, access the online help. *For more information, see [Accessing help](#) on page 15.*

This tutorial will teach you how to place media files in the project, edit them, and save them together into a video file. We provide you with the files you need to create this sample project.

We will take a video that has poor audio quality and replace its audio with a voice-over recorded in a studio. The new audio will need to be synchronized with the video. The voice-over will also require some editing and equalization. In addition, the video has theme music that we are going to replace with a new music bed.

The video length is approximately 15 seconds. As you work, you will see how easy it is to master the powerful features that Vegas Pro has to offer.

If you make a mistake during the tutorial, just undo it by pressing **Ctrl+Z**.

Let's get started!

Getting the tutorial folder

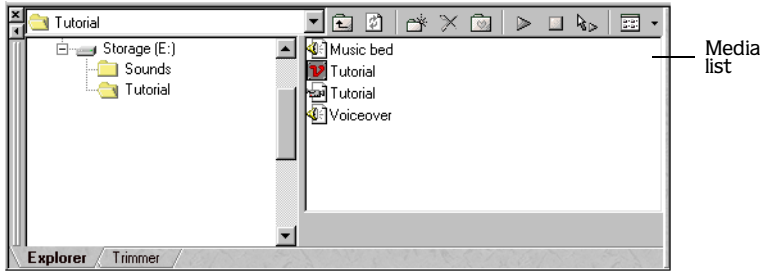
First, we need to get the sample media files copied to your hard drive. The tutorial folder is located on the Vegas Pro CD-ROM.

1. Insert the CD-ROM into the disc drive.
2. Locate the Tutorial folder on the CD-ROM and copy it to your hard drive.
3. After the folder is copied, start Vegas Pro.

Using the Explorer window

The Explorer window allows you to view and access your media files without leaving the work area. This window works just like the Explorer you use with Microsoft Windows.

1. Locate the Tutorial folder on your hard drive.
2. Select the Tutorial folder so that its contents appear in the media list.

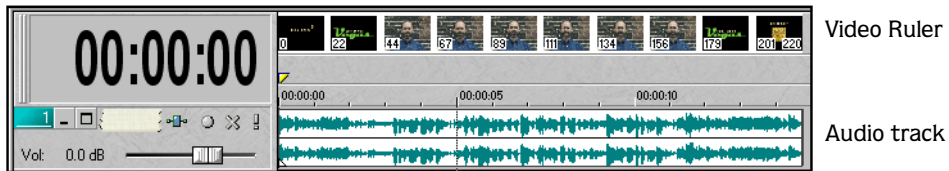


Once a media file is placed into the project, it is referred to as an event.

Placing the video

In the media list you will see several files; we are going to place the Tutorial file (📹).

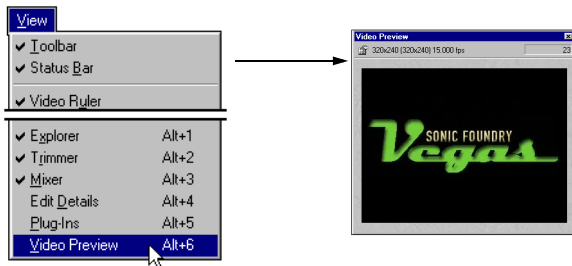
1. Press **Ctrl+Home** to place the cursor at the beginning of the project.
2. Select the Tutorial file in the media list.
3. Place it by double-clicking on it. This will place the video on the Video Ruler and the audio on the first track at the cursor's position.



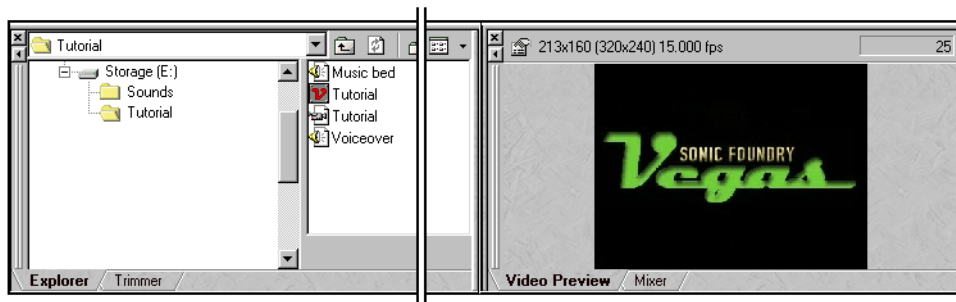
Displaying the Video Preview

We need to display the Video Preview window and move it to the Docking Area. This way we can watch the video as it is played back.

1. From the **View** menu, choose **Video Preview**. The Video Preview window appears.



2. Place the mouse pointer on the Video Preview's title bar and drag it to the lower right portion of the work area (over the Mixer window).



3. When the Video Preview's title bar disappears, release the mouse. The Video Preview window docks into position below the Track View.

Play back the video

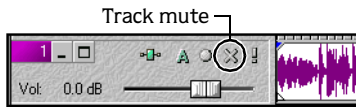
During playback, you will see and hear a number of elements: an opening and closing graphic with a music sound track, and background noise recorded along with our narrator.

1. Press the ► button on the Transport bar to start playback. Playback begins at the current cursor position. So, if playback starts in the middle of the project, press the ► button to start playback from the beginning.

Transport bar



2. Press the ■ button to stop playback.
3. Press the audio track's ✖ button to mute the video's audio track.



We are preparing to place and work with the new voice-over. Eventually, we will delete the original audio, but for now let's use it as a reference point.

Placing the new voice-over

The new voice-over will replace the poor quality audio that is muted on the first track.

1. In the media list, select the file titled Voiceover.
2. Drag the file so that its starting point is approximately when our narrator appears on the timeline. Drop the file, and Vegas Pro creates a new track for it.
3. Press either the ► or ► button to play the voice-over.
4. Press the ■ button to stop playback.

During playback, you will hear the narrator's pause to review notes and cough. Below is the "anatomy" of the voice-over.



These errors (B and D) will be removed later. Also, during playback you probably saw that the new voice-over and the video are out of sync. Next, we will align the voice-over with the video.

Aligning new voice-over with video

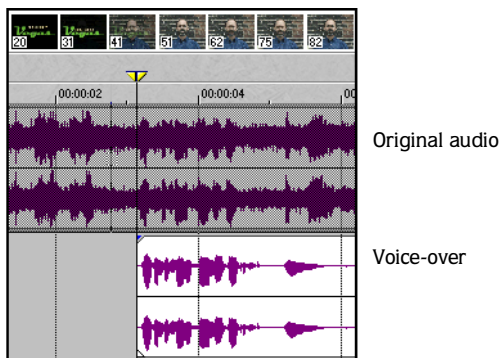
We will now position the voice-over so that it will be synchronized with the video. We will use the poor quality audio as a reference point. Since we can see the audio waveform, synchronizing is made easier. You can also refer to the video's frames on the ruler to see when the narrator begins to appear in the video.

To make it easier to see the audio events, we can zoom in on the project. There are a several ways to manage the project's view. *For more information, see [Changing track height](#) on page 127.*

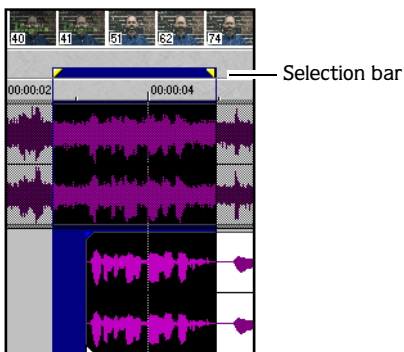
1. Press **Alt+0** so the Track View takes focus of keyboard commands.

Or, click in the Track View.

2. Press and hold the **Ctrl+Shift** keys.
3. Press either the **↑** or **↓** keys. You will toggle through different Track heights.
4. Click and drag the new voice-over's starting point to approximately when the narrator begins to speak. The original audio waveform, although distorted, reveals the narrator's voice.



5. On the timeline, click and drag the mouse to select a time region.



6. Press the ► or ►► button to play just the time selection. Press the 🔁 button, on the Transport bar, to have playback loop continuously within the selection.
7. Watch the Video Preview window to see if the new voice-over is close.
8. Press the ■ button to stop playback.
9. Repeat steps 3-7 until you have the starting points of the voice-over and the video synchronized.

Next we will edit the “ums” from the voice-over and synchronize the remaining voice-over with the video.

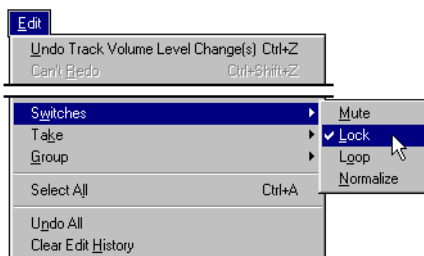
Editing the voice-over

When you played back the new voice-over, you noticed the interruption errors that it contained. We will remove those errors and synchronize the remaining voice-over to the video. Vegas Pro allows you to edit both time and events. We will use both methods to edit the voice-over. In addition, we will split an event to “separate” it from the parts we want to keep.

Lock the original audio

Time selection edits affect all tracks in the project unless a specific Track is selected. Before we start editing the voice-over, we will lock the original audio, which is our reference, to prevent it from accidentally being edited too.

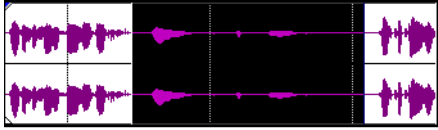
1. Click the video’s original audio to select it.
2. From the **Edit** menu, choose **Switches** and then **Lock**.



Editing a time selection

By looking at the waveform, you will see where the “um” and cough occur. You will also see where the narrator is speaking. We will delete the “um” using time selection.

1. On the timeline, click and drag to make a time selection where the “um” occurs.



2. Press the ► button to play back the error to ensure that your time selection does not include part of the voice-over that we need.
3. Increase or decrease the time selection by clicking and dragging an edge of the selection.
4. Once the time selection is made, choose **Delete** from the **Edit** menu, or press the Delete key to remove the “um.”

Next, we will split the event that contains the narrator’s cough and then delete the error.

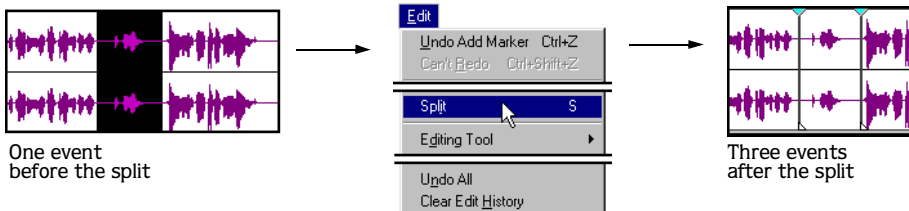
Splitting an event using time selection

Splitting creates events from an existing one. We will make a time selection that contains the narrator’s cough and split it from the audio, then delete the cough.

1. On the timeline, click and drag to make a time selection where the cough occurs.



2. Press the ► button to play back the error to ensure that your time selection does not include part of the voice-over that we need.
3. Increase or decrease the time selection by clicking and dragging an edge of the selection. The start and end points will be the split points.
4. Once the time selection is made, choose **Split** from the **Edit** menu, or press the S key to split the event.



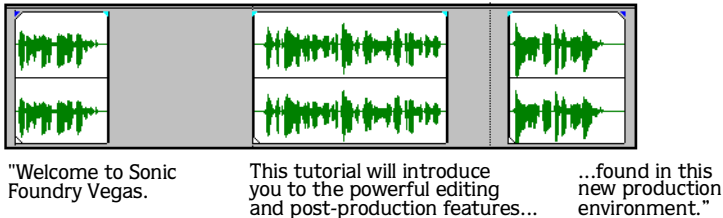
Editing an event

We have the cough as a new event that can now be deleted.

1. Click the event with the cough.



2. From the **Edit** menu, choose **Delete** or press the **Delete** key to remove the cough event. After the edits have been made, the voice-over should look something like this:



Aligning the remaining voice-over events

With the voice-over edited, we need to align the remaining audio to the video. When you move events, they snap to other event edges. You may extend or shorten an event's length by clicking and dragging its edges, which is useful for fine-tuning the alignment. Moreover, you may turn off snapping by choosing **Enable Snapping** from the **Options** menu.

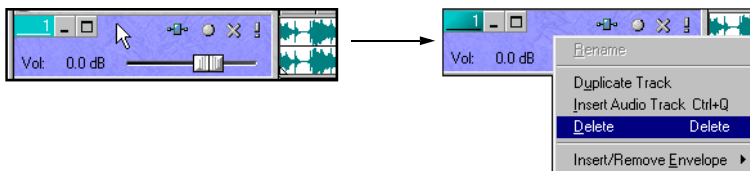
1. Select the event that begins "This tutorial will introduce you...."
2. Click and drag the event to the approximate point where our narrator is saying this. Use the original audio as a reference.
3. On the timeline, click and drag the mouse to select a time region.
4. Press the **▶** or **▶▶** button to play just the time selection. Press the **🔁** button, on the Transport bar, to have playback loop continuously within the selection.
5. Watch the Video Preview window to see if the new voice-over is close.
6. Press the **■** button to stop playback.
7. Repeat steps 2-6 until you have the voice-over and the video synchronized.
8. Repeat the above steps for the event that begins "found in this new...."

Next, we will group the synchronized events with the video and delete the original audio from the project.

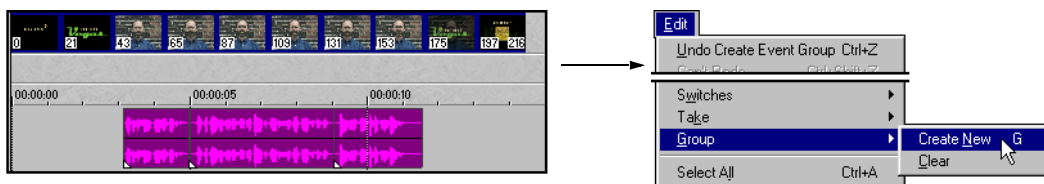
Grouping the voice-over and video

The voice-over and video are synchronized, and we want to make sure that they stay together. The Grouping feature will do that for us. However, first, we will delete the original audio.

1. Select the original audio's track by clicking it.



2. Right-click and choose **Delete** from the shortcut menu. The entire track is removed from the project and the new voice-over becomes the first track.
3. Press the **Ctrl** key and click the video event and the three voice-over events to select them.



4. From the **Edit** menu, choose **Group** and then **Create New** or press the **G** key, to group the events.

Next, we will place a new audio file to serve as a music bed for the video and add a volume envelope.

Working with the music bed

We will place an event that will play for the entire video. We will add a volume envelope to lower the volume while the narrator speaks, and then increase the volume again for the remainder of the video.

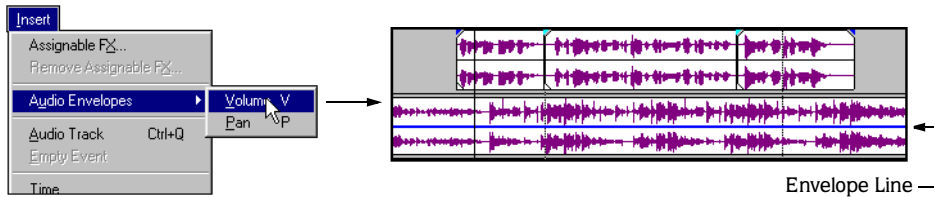
Placing the music bed

1. Press the **Ctrl**+**Home** key to move the cursor to the beginning of the project.
2. In the media list, double-click the Music bed file to place it at the beginning of the project.
3. Press the **▶** button to play the project.

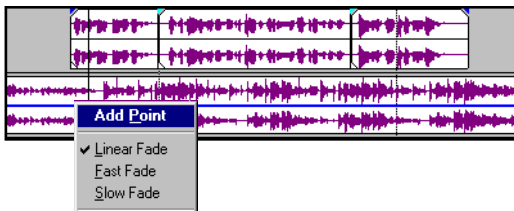
Adding a volume envelope

The music bed's volume needs to be lowered while the narrator speaks. A volume envelope will automatically lower the volume, and then raise it again when the narrator finishes speaking. We will use the voice-over's starting and ending points as a reference for the envelope.

1. Select the music bed track or event.
2. From the **Insert** menu, choose **Audio Envelopes** and then choose **Volume**. A blue line appears across the track.



3. On the music bed, place the mouse pointer slightly ahead of the voice-over's starting point. The mouse pointer appears as a hand (d^{lm}).
4. Right-click and choose **Add Point** from the shortcut menu. A square point appears on the envelope line.

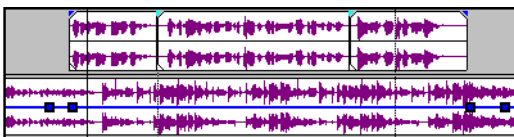


5. Repeat step 4 to add three more points on the line. You want a total of four points.

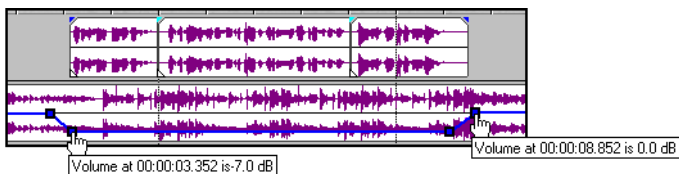
Setting the volume envelope

Now we will use the points on the envelope to lower and raise the volume so that the music bed does not interfere with the voice-over. When you click or hover over a point, information about it appears.

1. Click and drag the points so that they are positioned with two near the start of the voice-over, and two at the end.



- Click and drag the two inner points so that their volume level is at approximately -7.0 dB.



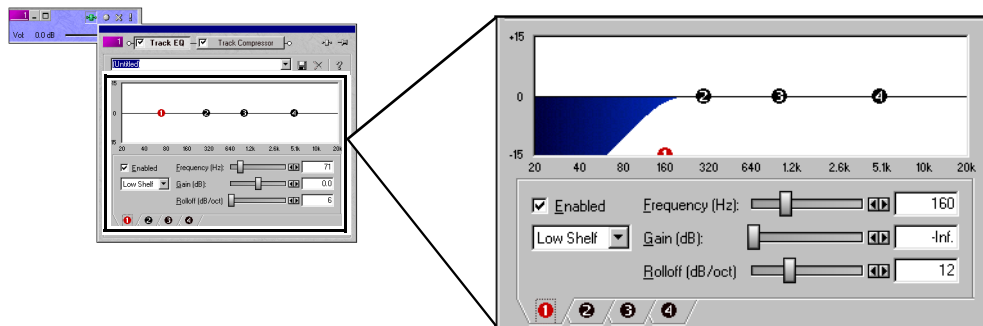
You can only set one point at a time or use the Envelope tool to select and move multiple points at a time.

- Set the outer points so that their volume level is at 0.0 dB.
 - Press either or to play the project and check the timing of the volume envelope.
 - Adjust the outer and inner points along the timeline as needed.
- Next, we will add some equalization to the voice-over.

Add EQ to the voice-over

The voice-over has a strong bass quality to it. We will adjust that quality slightly with EQ on the first band.

- Click the button on the voice-over's track. The Track FX dialog appears.



You can set the EQ settings by typing in the appropriate field, dragging the slider, or clicking the arrow buttons between the slider and the setting field.


- Set the Frequency to 160 Hz.
- Set the Gain to -inf.
- Set the Roll-off to 12 (dB/oct).
- Close the Track FX dialog by clicking anywhere outside it.
- Press either or to play the project with the new EQ settings.

Next, we will save the project as a Vegas project file.

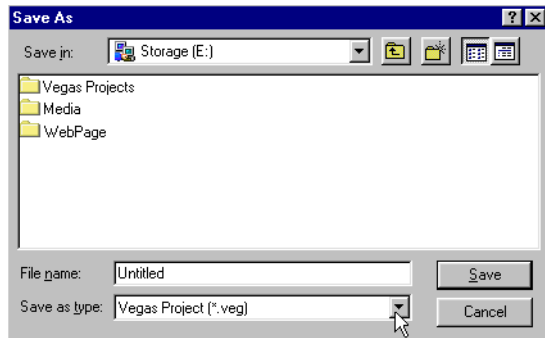
Saving a Vegas project (*.veg)

A Vegas project file contains all of the information about a single project. However, it does not contain any media, but maintains the references to media files used in the project.

1. Select one of the following to save the Vegas Pro project:

- From the **File** menu, choose **Save**.
- Click on the  button.
- Press **Ctrl+S** on the keyboard.

The first time you save a project, the Save As dialog appears.



2. Select the drive and directory where you want to store the project.
3. Type the project name “MyTutorial” in the File Name field.
4. Click the **Save** button.

The subsequent times you save the project, the above Save As dialog is bypassed, your existing file name is retained, and your project is updated to include any implemented changes.

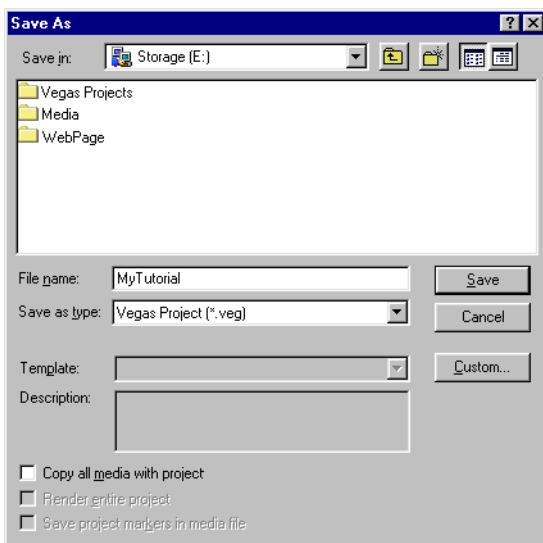
Rendering the project as an *.avi

Rendering refers to the process of converting the Vegas project into one file and formatting it for the desired playback method: media player, Internet streaming media, CD-ROM, etc. The Vegas project is not affected (overwritten, deleted, or altered) during the rendering process.

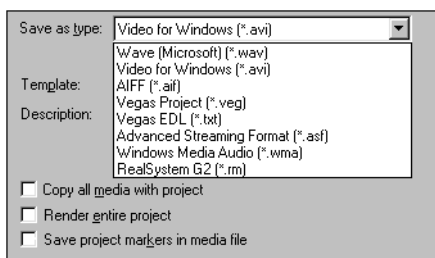
The following procedure is broken into two sections: setting the format and applying compression.

Setting the format

1. From the **File** menu, choose **Save As**. The Save As dialog appears.



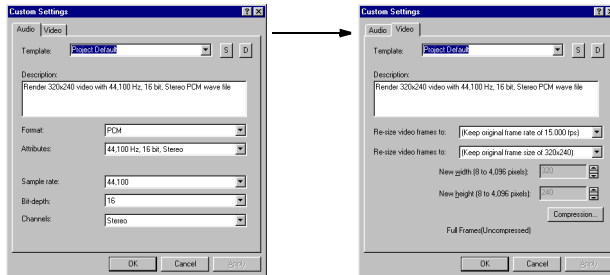
2. Select the drive and directory where you want to save the rendered project.
3. Type a new name in the File name field, if necessary.
4. In the Save as type drop-down list, select Video for Windows (*.avi).



Applying compression

To ensure that the video plays back in sync, we will set compression values.

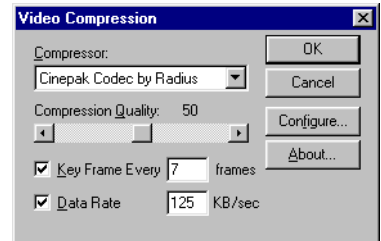
1. On the Save As dialog, click the **Custom** button. The Custom Settings dialog appears.




2. Click the **Video** tab, then click the **Compression** button. The Video Compression dialog appears.
3. Set the compression to the following settings.

- From the Compressor drop-down list, choose **Cinepak Codec by Radius**.
- Set the key frame rate to **7 frames**.
- Set the data rate to **125 KB/sec**.

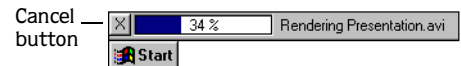
4. Click the **OK** button to set the video compression.
5. Click the **OK** button on the Custom Settings dialog.



6. Click the **Save** button on the Save As dialog. A status bar appears in the lower-left portion of Vegas Pro. Upon completion of the render, your new media file is ready for distribution and playback.

Note: You may cancel the rendering process by clicking the  button on the status bar.

Status bar



Congratulations! You have just completed your first project using Vegas Pro.



General Editing

Vegas Pro projects are multitrack compilations of events that occur over time. The events in your project are references to source media files on your hard-drive or other storage device. Vegas Pro is a non-destructive editor, so the audio events in your project will always contain their referenced information. As a result, editing events in Vegas Pro is as simple as adjusting the events' edges (in/out points), placing, and moving the events along the timeline.

The following chapter explains general editing techniques and features that apply to a project as a whole.

Using the cursor

When editing and playing back the project, the cursor identifies where you are along the project's timeline. The cursor can also be used when placing events in the project. *For more information, see [Placing a media file on a track](#) on page 31.*

By clicking and dragging you may select a time range in which you can preform edits, record into, and play back. *For more information, see [Selecting a time range](#) on page 65.*

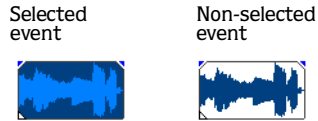
The cursor may be controlled by the mouse or keyboard commands.

Go to beginning of selection or view (if no selection)	Home or W	Center in View	\
Go to end of selection or view (if no selection)	End or E	Swap on selection	Num. pad 5
Go to beginning of project	Ctrl+Home	Move left to marker(s)	Ctrl+Left (arrow)
Go to end of project	Ctrl+End	Move right to marker(s)	Ctrl+Right (arrow)
Move left by grid marks	Page Up	Move left to event edit points including fade edges	Ctrl+Alt+Left (arrow)
Move right by grid marks	Page Down	Move right to event edit points including fade edges	Ctrl+Alt+Right
Go to	Ctrl+G	Make time selection	Shift+Left or Right (arrow)


Editing event and time selections

Vegas Pro gives you the flexibility to select one or more events, a time range, or events *and* time range. All selection options can apply to a single track or multiple tracks.

To select an event, simply point and click on it.



Selecting multiple events

By using the **Ctrl** key, the **Shift** key, or the Selection Edit tool () , you may select individual or multiple events in your project. Multiple events may be selected within a track or across tracks. Once events are selected, you may apply any of the **Edit** menu commands or editing shortcut keys to them collectively.

Whichever method you choose, you may include or exclude events from a selection area by holding down the **Ctrl** key and clicking on an event.

Using the Ctrl key to select an event

The **Ctrl** key allows you to select events manually.

1. Hold down the **Ctrl** key.
2. Select the events by clicking on them. To deselect an event, simply click it again (this is called “togglng” the event selection on or off).


Using the Shift key to select events


The **Shift** key on your keyboard allows you to select project events sequentially.

1. Hold down the **Shift** key.
2. Click the first event that you want to select.
3. Click the last event that you want to select. All events between the first and last selected events are highlighted.

Using the Selection Edit tool

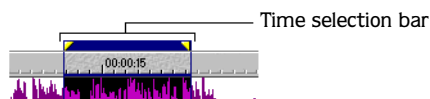
The Selection Edit tool () allows you to select events as a block.

1. On the Toolbar, click the  button.
2. Point the cursor in a corner of the area that you want to select.
3. Press and hold the left mouse button.
4. Drag the cursor to the opposite corner of the area you want to select.
5. Release the mouse button. The events are highlighted.

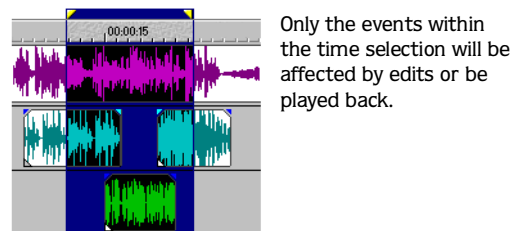
Note: While using the  button, you may toggle through 3 selection modes by right-clicking.

Selecting a time range


Vegas Pro has a time selection bar that is located above the ruler. This bar displays, with a shaded box, the time range that you have selected. You may use the time selection bar for playing back a smaller portion of your project or to apply cross-track edits.



Unless an event is locked, a selected time range affects all events, or portions of events, that occur within the range. If you are editing the time range, only events that occur within the time range will be affected.

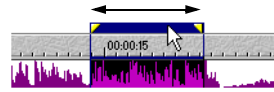


To select a time range, do the following:

1. Place the mouse pointer above the ruler (on the Marker bar). The mouse pointer includes a left/right arrow ()
2. Click and drag to select the region. All events, or portions of events within the region are highlighted.

- Place the mouse pointer over the time selection's start or end point to increase or decrease your time range selection.

Note: You may move the entire selection range by dragging the Time selection bar.

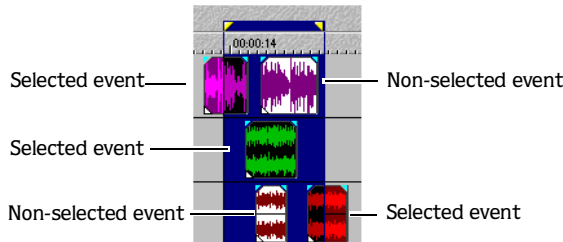


If you want to play back the time range, press the Play button (▶) to listen to only the events within the time range. Press the Loop button (🔄) to have Vegas Pro continually play back the events within the time selection.

Selecting events and a time range

Selecting a time range does not automatically select events. It simply selects a time frame of the project. Excluding locked events, all items within the time range will play back and be affected by **Edit** menu commands such as cutting, pasting, etc. However, you may select specific events to edit or play back, and then select a time range.

- Use the **Ctrl** key, the **Shift** key, or the Selection Edit tool (🔍) to select the events. For more information, see [Selecting multiple events](#) on page 64.
- Place the mouse pointer above the ruler (on the Marker bar). The mouse pointer includes a left/right arrow (↔).
- Click and drag to select the region. Notice that events that were not selected remain unselected (not highlighted).



- Place the mouse pointer over the time selection's start or end point to increase or decrease your time range selection.

Basic event editing


Vegas Pro allows you to perform simple event level editing. This editing includes common copying, pasting, and deleting procedures that you are accustomed to with other programs. However, these editing procedures and how they are implemented depend on what type of selection is made: event only, time only, or event and time selections.

Copying events

Vegas Pro allows you to copy events, or portions of events, to the clipboard and paste them into your project. You may copy a single event or multiple events. Copying preserves the original event information that is being copied.


To copy events, do the following:

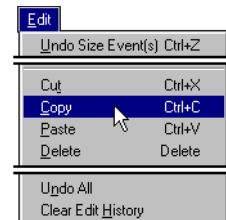
1. Click on the event.

To copy multiple events, use the **Ctrl** key, the **Shift** key, or the Selection Edit tool  to select the events. *For more information, see [Selecting multiple events](#) on page 64.*

2. Select your time range, if applicable. Otherwise, skip to step 3.

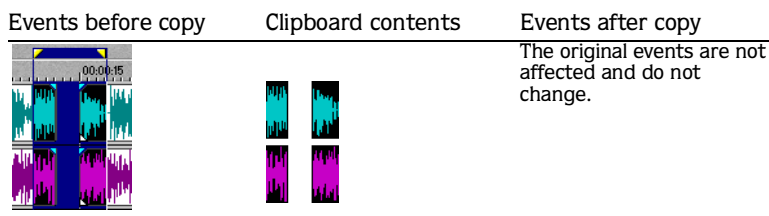
3. Copy the event to the clipboard by doing one of the following:

- Press the **Ctrl**+**C** keys.
- Click the Copy button  on the Toolbar.
- From the **Edit** menu, choose **Copy**.



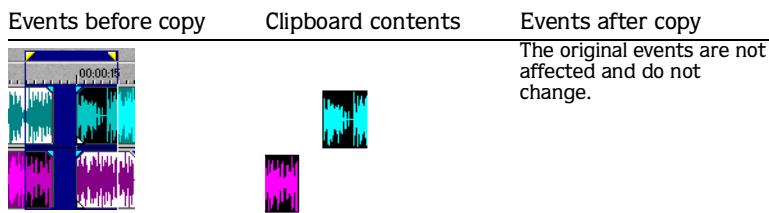
Copy time selection

Events within the time selection are reproduced and placed on the clipboard. Also, the time information is placed on the clipboard.



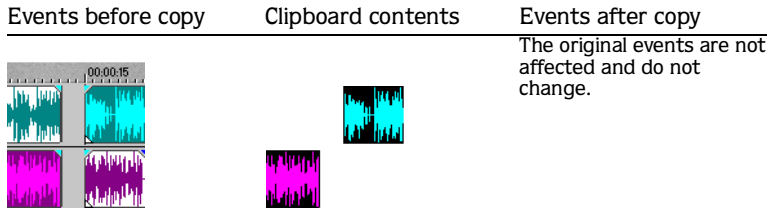
Copy time and event selection

Events and portions of events within the time selection are reproduced and placed on the clipboard. Also, the time information is placed on the clipboard.



Copy event selection

Selected events are reproduced and placed on the clipboard. Also, the time information is placed on the clipboard.

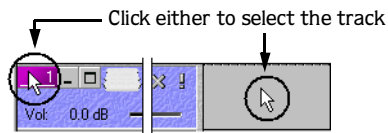


Pasting events

Once information is copied to the clipboard, you may choose a variety of ways to paste the clipboard items into tracks. The following procedures explain pasting basics. Whichever way you paste into a track, Vegas Pro always pastes at the cursor's position along the timeline.


To paste events from the clipboard, do the following:

1. Move the cursor to the desired timeline location.
2. Click either the track number or within the track where you want to paste the event.

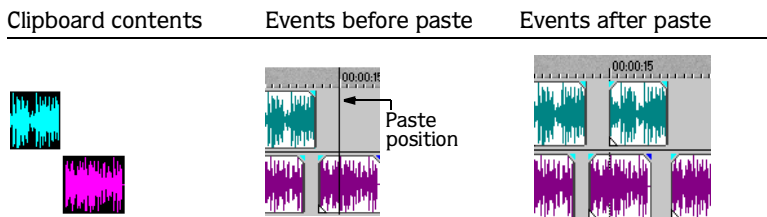
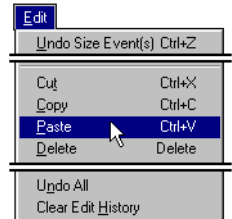


If you are pasting multiple events from different tracks, Vegas Pro automatically creates new tracks as needed for events, or simply places events in existing tracks.

3. Paste the event into the track by doing one of the following:

- Press the **Ctrl+V** keys.
- Click the Paste button  on the Toolbar.
- From the **Edit** menu, choose Paste.

Clipboard events are pasted at the cursor position on the track. Existing track events are overlapped with newly-pasted information.

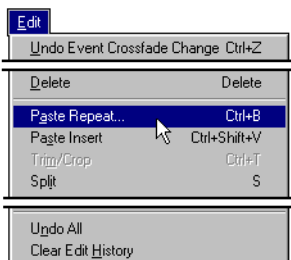


Paste repeat (Ctrl+B)

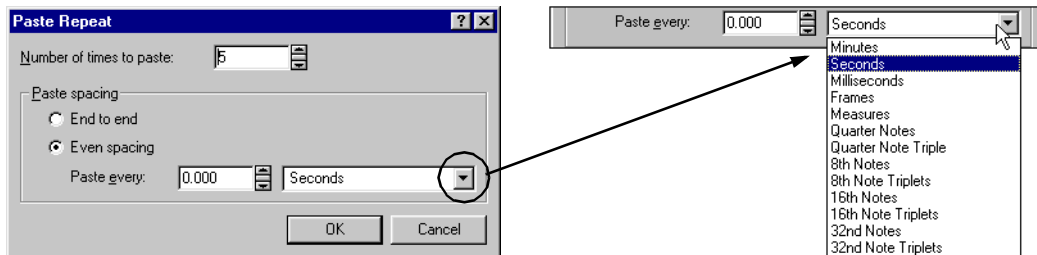
You specify how many times the clipboard events are pasted at the cursor position on the selected track and specify the space between each pasted event.

After you have made your selection and copied it to the clipboard, do one of the following:

- Press the **Ctrl+B** keys.
- From the **Edit menu**, choose **Paste Repeat**.



Vegas Pro displays the Paste Repeat dialog. Specify the number of times to paste the clipboard events and their space from each other.



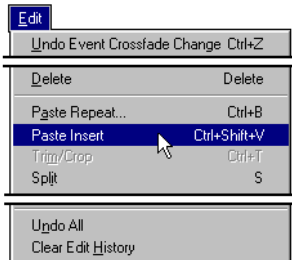
Press the **OK** button to paste the clipboard events the number of times you specified. Vegas Pro begins pasting from the cursor's position along the timeline. The clipboard contents are pasted one after another unless you have specified a paste spacing. In that case, a space will appear between each pasted event.

Paste insert (Ctrl+Shift+V)

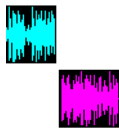
Clipboard events are placed at the cursor position on the selected track. Existing events on a track are moved later in the timeline by the total length of pasted information.

After you have made your selection and copied it to the clipboard, do one of the following:

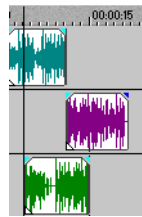
- Press the **Ctrl**+**Shift**+**V** keys.
- From the **Edit menu**, choose **Paste Insert**.



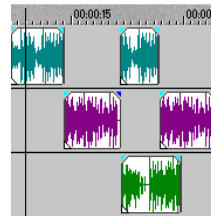
Clipboard contents



Events before paste



Events after paste





Cutting events

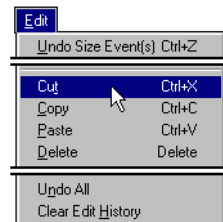
Vegas Pro allows you to cut events, portions of events, and any time information from your project. Cutting events removes them from their respective tracks, but places the cut information (events and time) on the clipboard. Once on the clipboard, you may paste the information into your project. You may cut a single event, multiple events, and events with a time selection.

To cut events, do the following:

1. Click on the event to be cut.

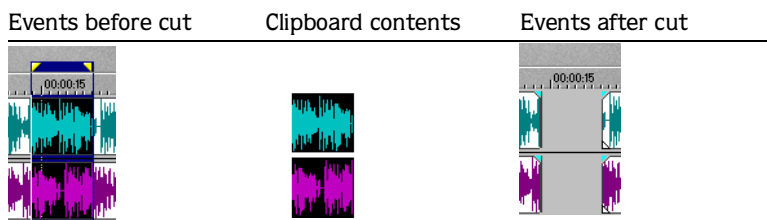
To cut multiple events, use the **Ctrl** key, the **Shift** key, or the Selection Edit tool  to select the events. For more information, see [Selecting multiple events](#) on page 64.

2. Select your time range, if applicable. Otherwise, skip to step 3.
3. Cut the event to the clipboard by doing one of the following:
 - Press the **Ctrl**+**X** keys.
 - Click the Cut button  on the Toolbar.
 - From the **Edit** menu, choose Cut.



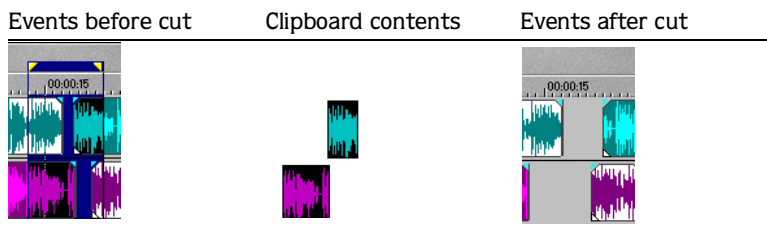
Cut time selection

Events within the time selection are reproduced and placed on the clipboard. Also, the time information is placed on the clipboard.



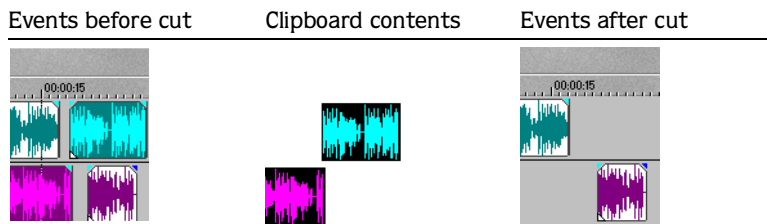
Cut time and event selection

Events and portions of events within the time selection are reproduced and placed on the clipboard. Also, the time information is placed on the clipboard.



Cut event selection

Selected events are reproduced and placed on the clipboard. Also, the time information is placed on the clipboard.




Trimming/Cropping events

Vegas Pro allows you to trim/crop events, or portions of events, from your project. Trimming events removes all events *outside* the time selection from their respective tracks. However, the removed information is **not** placed on the clipboard. Trimming is different from cutting in that the events within the time selection are preserved.

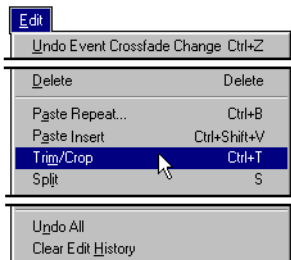
To crop events, do the following:

1. Click on the event to be trimmed, if applicable. Otherwise, skip to Step 2.

To trim multiple events, use the **Ctrl** key, the **Shift** key, or the Selection Edit tool  to select the events. *For more information, see [Selecting multiple events](#) on page 64.*

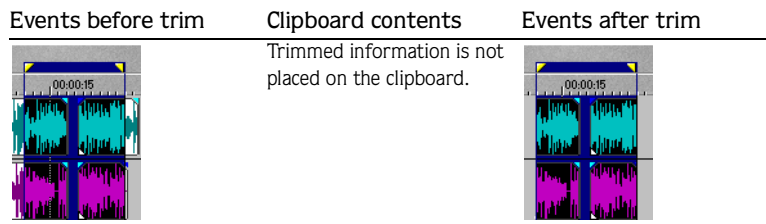
2. Select your time range.
3. Trim the event(s) by doing one of the following:

- Press the **Ctrl**+**T** keys.
- From the **Edit** menu, choose Trim/Crop.



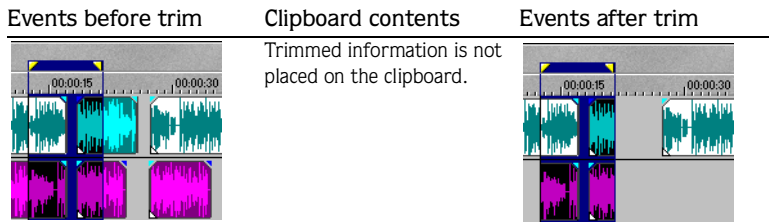
Trim/Crop time selection

Events *outside* the time selection are removed from the project. However, the time information is not removed.



Trim/Crop time and event selection

Only selected events *outside* the time selection are removed from the project. Non-selected events remain. The time information is not removed.




Deleting events

Vegas Pro allows you to delete events, or portions of events, from your project. Deleting events removes all events within the time selection from their respective tracks. However, the removed information is **not** placed on the clipboard.

To delete events, do the following:

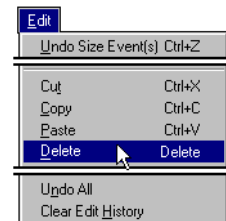
1. Click on the event to be deleted.

To delete multiple events, use the **Ctrl** key, the **Shift** key, or the Selection Edit tool  to select the events. *For more information, see [Selecting multiple events on page 64](#).*

2. Select your time range, if applicable. Otherwise, skip to step 3.

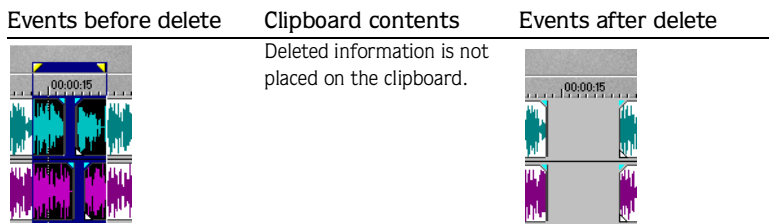
3. Delete the event(s) by doing one of the following:

- Press the **Delete** key.
- From the **Edit** menu, choose Delete.



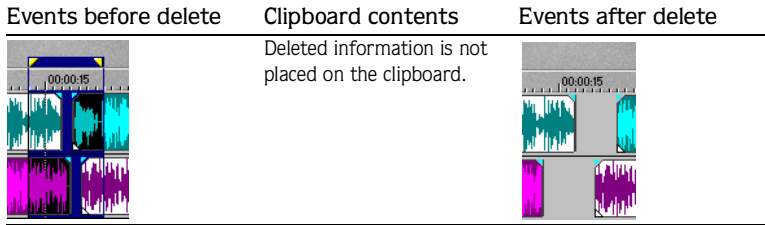
Delete time selection

Events within the time selection are removed from the project. However, the time information within the selection is not removed.



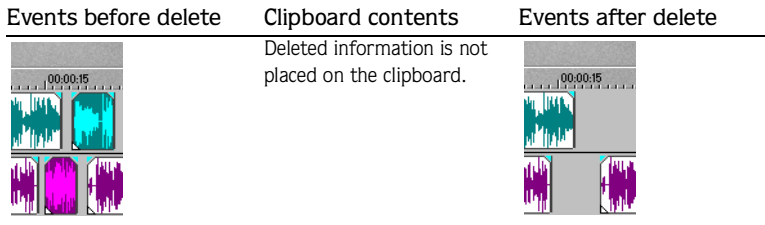
Delete time and event selection

Only selected events within the time selection are removed from the project. Non-selected events remain. The time information within the selection is not removed.



Delete event selection

Selected events are removed from the project. The time information between events is not removed.




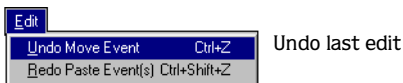
Using the Undo and Redo commands

Vegas Pro gives you unlimited undo and redo functionality while working on your project. While you are working with a project, Vegas Pro creates an undo history of the edits that you performed. Each time you undo something, that edit is placed in the redo history. These histories remain available as you save the project. However, if a redo history exists (you've undone an edit) and you perform another edit, the redo history is cleared.


When you close the project or exit Vegas Pro, both the undo and redo histories are cleared.

Undo command


Pressing the **Ctrl**+**Z** keys or Undo () button on the Toolbar will undo the last edit performed. Repeatedly using the keyboard command or Toolbar button will continue undoing edits in reverse order. Moreover, you may undo the last edit by choosing it from the **Edit** menu (it will be the first item on the menu).

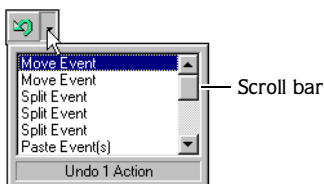


Undoing a series of edits

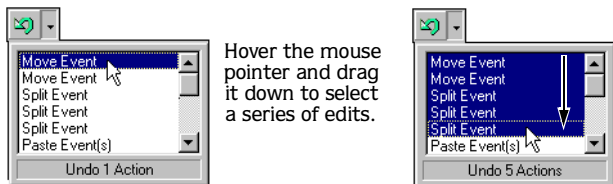
The undo history may be viewed by clicking the down arrow to the right of the  button on the Toolbar. A drop-down list will appear (a scroll bar also appears if numerous undos are listed). The top listed item is the most recent edit. If you want to undo a specific edit that appears farther down the list, all edits “above” it must be undone as well.

To undo a series of edits, do the following:

1. Click on the arrow to the right of the  button.



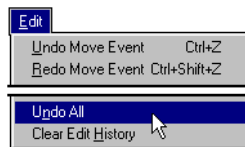
2. From the drop-down list, use the scroll bar to locate the last series item to undo.




3. Place the mouse pointer on the item that you want to undo. Items “above” it will be selected automatically. (Click outside the drop-down list to cancel undo.)
4. Click the last series item to undo it and all selected edits. Vegas Pro will restore your project to the state prior to those edits.

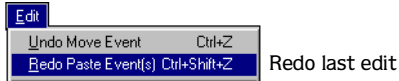
When you undo an edit or a series of edits, they are added to the redo history. This feature allows you to restore your project to a specific state.

Note: You may also undo all edits by choosing **Undo All** from the **Edit** menu. All edits will be undone and added to the redo history.




Redo command


Pressing the **Ctrl**+**Shift**+**Z** keys or the Redo () button on the Toolbar will redo the last undo performed. Repeatedly using the keyboard command or Toolbar button will continue redoing undos in reverse order. In addition, you may redo the last edit by choosing it from the **Edit** menu (it will be the second item on the menu).

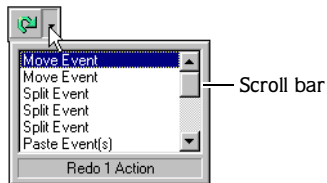


Redoing a series of edits

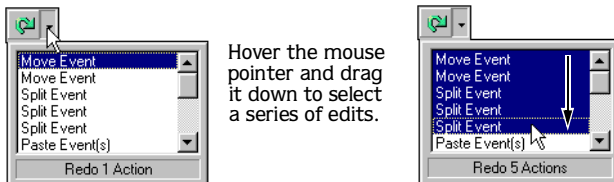
The redo history may be viewed by clicking the down arrow to the right of the  button on the Toolbar. A drop-down list will appear (a scroll bar also appears if numerous redos are listed). The top listed item is the most recent undo edit. If you want to redo a specific edit that appears farther down the list, all edits “above” it must be redone as well.

To redo a series of edits, do the following:

1. Click on the arrow to the right of the  button.



2. From the drop-down list, use the scroll bar to locate the last series item to redo.



3. Place the mouse pointer on the item that you want to redo. Items “above” it will be selected automatically. (Click outside the drop-down list to cancel redo.)
4. Click the last series item to redo it and all selected edits. Vegas Pro will restore your project to the state to include those edits.

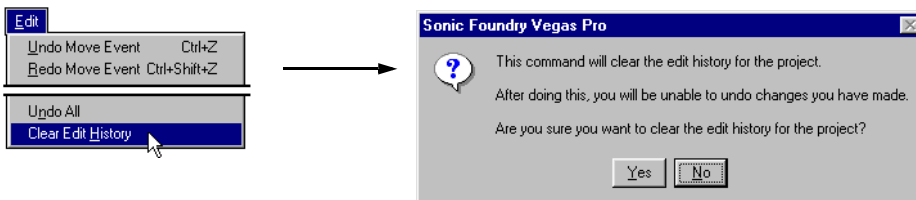
When you redo an edit or a series of edits, they are added to the undo history again. At this point, the redo history is cleared when a new edit is performed.

Clearing the edit history

You may clear both undo and redo histories without closing your project or exiting Vegas Pro. Once the histories have been cleared, Vegas Pro will begin creating new ones as you continue working on the project.

To clear the edit histories, do the following:

1. From the **Edit** menu, choose **Clear Edit History**. A confirmation dialog will appear.



2. Click the **Yes** button to clear the edit histories. Or, click the **No** button to cancel and keep the edit histories.

Using project markers and regions

Vegas Pro allows you to use three types of project markers that identify parts of your project and provide functionality for rendered projects. The three types of markers are:

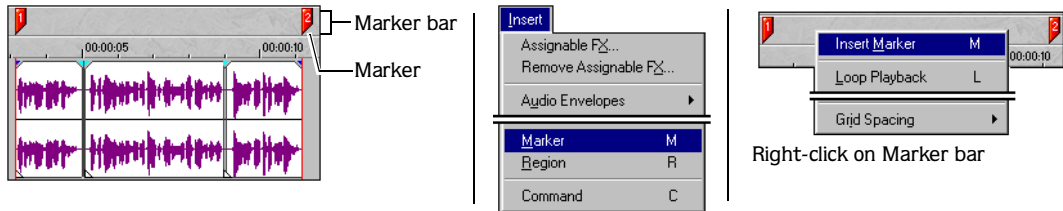
- **Markers**—points that you place along the project’s timeline. They are typically used to mark interesting parts in the project for later reference.
- **Regions**—sets that subdivide your project. Typically, regions identify ranges of time that you need to get back to later. Regions can function as “permanent” time selections.
- **Command markers**—indicate when an instruction (function) will occur in a streaming media files. These markers can be used to display headlines, captions, link to web sites, or any other function you define.

Working with markers

Markers are useful for identifying and navigating to specific points in longer projects. As you place markers in your project, Vegas Pro automatically numbers them in the order that they were placed. You may name them and move them along the project’s timeline.

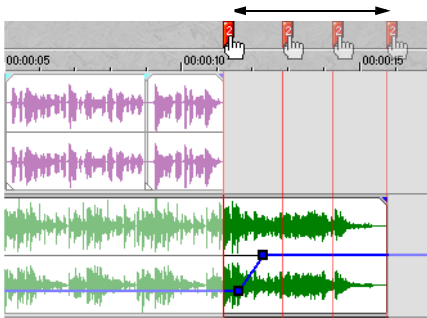
Placing and moving a marker

Markers are placed at the cursor’s position via the **Insert** menu, right-clicking on the Marker bar, or pressing the **M** key. You may place a marker by positioning the cursor or on-the-fly while your project is playing back. Markers appear as red tags above the ruler.



To move a marker, do the following:

1. Place the mouse pointer on the marker you want to move. The pointer will appear as a hand (☞).
2. Click and drag the marker to the new position along the timeline.

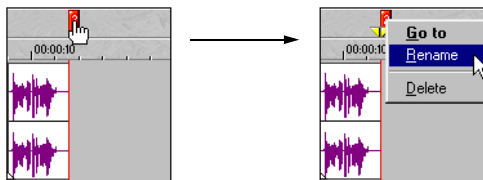


3. Release the mouse to set the marker.
4. Repeat steps 1-3 to move the marker again.

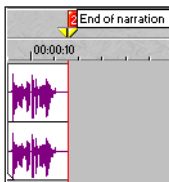
Naming a marker

You may name each marker in your project by doing the following:

1. Place the mouse pointer on the marker you want to name or rename. The pointer will appear as a hand (☞).



2. Right-click to display a shortcut menu.
3. From the shortcut menu, choose **R**ename. A text box will appear next to the marker.




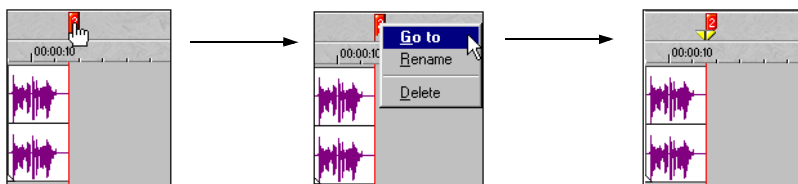
4. Type the marker name.
5. Press the **[Enter]** key or click anywhere in the Track View to set the marker's name.

Navigating to a marker

You may have scrolled to a portion of the project and do not see the cursor any more. You may click in the Track View to move and view the cursor or you may use markers to bring the cursor into view.

To navigate using markers, do the following:

1. Place the mouse pointer on the marker that you want to position the cursor. The pointer will appear as a hand ()



2. Right-click to display a shortcut menu.
3. From the shortcut menu, choose **Go to**. The cursor's yellow tags will appear below the marker tag.

Note: You may also move the cursor to each marker by pressing the **[Ctrl] + [←]** or **[→]** keys.

Deleting a marker

You may remove markers from your project by doing the following:

1. Place the mouse pointer on the marker that you want to delete. The pointer will appear as a hand (☞).



2. Right-click to display a shortcut menu.
3. From the shortcut menu, choose **Delete**. The marker will be removed from your project.

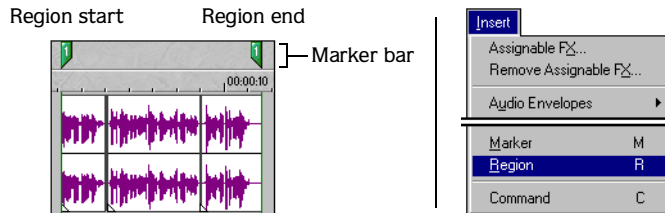
The marker numbers will remain the same, Vegas Pro will not renumber the tags as you remove them. For example, if you have five markers in your project and delete markers 3 and 4, the remaining markers will be listed as 1, 2 and 5. However, as you add markers again, Vegas Pro will begin numbering the missing sequence first. In our example, if you add three more markers, they will be numbered 3, 4, and 6.

Working with regions

Regions are sets that subdivide your project. Typically, regions identify ranges of time that you need to get back to later. Regions can function as “permanent” time selections.

Placing and adjusting a region

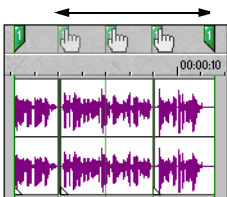
Region markers may be placed at the cursor position and at the beginning and end points of a time selection via the **Insert** menu or pressing the **[R]** key.



To adjust a region marker, do the following:

1. Place the mouse pointer on either the region’s start or end point. The pointer will appear as a hand (☞).

- Click and drag the marker to the new position along the timeline.

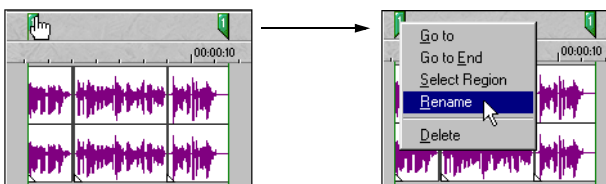


- Release the mouse to set the region marker.
- Repeat steps 1-3 to move either the region marker's start or end point.

Naming a region marker

You may name a region marker's start or end point by doing the following:

- Place the mouse pointer on the region marker you want to name or rename. The pointer will appear as a hand (☞).



- Right-click to display a shortcut menu.
- From the shortcut menu, choose **Rename**. A text box will appear next to the region marker.



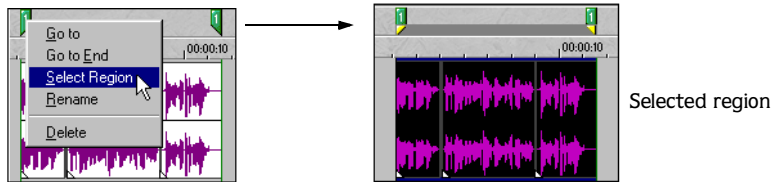
- Type the regions marker's name.
- Press the key or click anywhere in the Track View to set the name.

Selecting a region

You may select the events, across all tracks, within the region to edit the events or to play back only the region.

To select the region, do the following:

1. Right-click on one of the region markers to display a shortcut menu.



2. From the shortcut menu, choose **Select Region**.

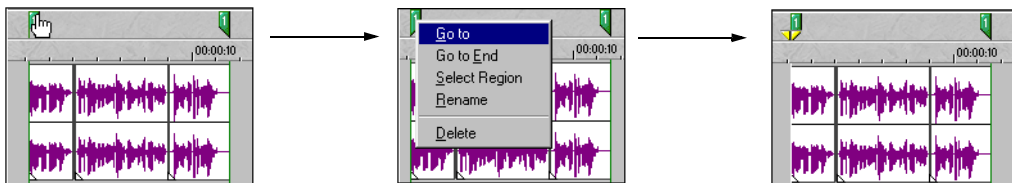
Note: You may double-clicking between the region marker tags on the Marker bar to select the region.

Navigating to a region

You may have scrolled to a portion of the project and do not see the cursor any more. You may click in the Track View to move and view the cursor or you may use region markers to bring the cursor into view.

To navigate using region markers, do the following:

1. Place the mouse pointer on any region marker that you want to position the cursor. The pointer will appear as a hand (☞).



2. Right-click to display a shortcut menu.
3. From the shortcut menu, choose **Go to** or **Go to End**.

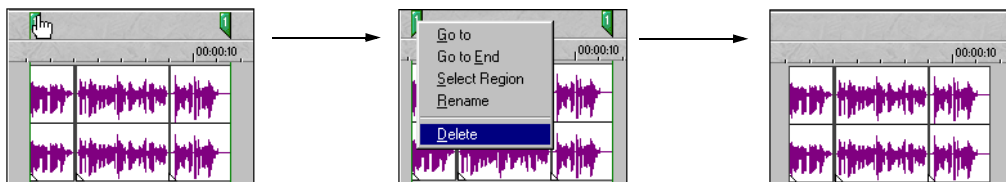
The difference is that **Go to** places the cursor at the region's starting point and **Go to End** places it at the region's ending point. The cursor's yellow tags will appear below either the region's starting or ending tag.

Note: You may also move the cursor to each marker by pressing the **Ctrl** + **←** or **→** keys.

Deleting a region

You may remove a region from your project by doing the following:

1. Place the mouse pointer on either the region marker's starting or ending point. The pointer will appear as a hand (☞).



2. Right-click to display a shortcut menu.
3. From the shortcut menu, choose **Delete**. The marker will be removed from your project.

The region marker numbers will remain the same, Vegas Pro will not renumber the tags as you remove them. For example, if you have five regions in your project and delete region 3 and 4, the remaining regions will be listed at 1, 2 and 5. However, as you add regions again, Vegas Pro will begin numbering the missing sequence first. In our example, if you add three more regions, they will be numbered 3, 4, and 6.

Working with command markers

Command markers indicate when an instruction (function) will occur in a streaming media file. These markers can be used to display headlines, captions, link to web sites, or any other function you define.

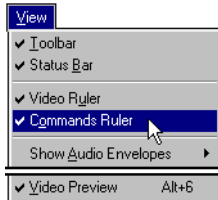
Vegas Pro enables you to place five types of command markers:

- **URL** command markers indicate when an instruction is sent to the user's internet browser to change the content being displayed. With this command marker, you enter the URL that will display at a specific time during playback of your rendered project.
- **Text** command markers display text in the captioning area of the Windows Media Player located below the video display area. You enter the text that will display during playback.
- **Caption** command markers display text in a captioning window defined by an HTML layout file.
- **Body** command markers display text that you specify in a text window defined by an HTML layout file.
- **Headline** command markers display a headline text that you specify in a headline window defined by an HTML layout file.

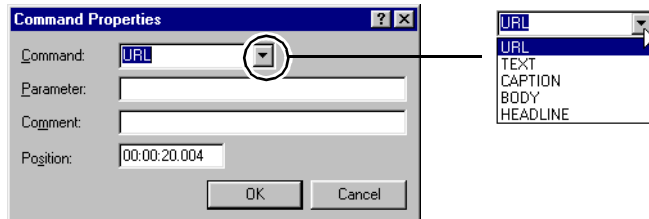
Placing a command marker

Command markers are placed at the cursor's position via the **Insert** menu, right-clicking on the Command Ruler, or pressing the **[C]** key. You may place a command marker by positioning the cursor or on-the-fly while your project is playing back. Command markers appear as blue tags on the Command Ruler, which is above the Marker bar.

If you do not see the Command Ruler, choose **Command Ruler** from the **View** menu.



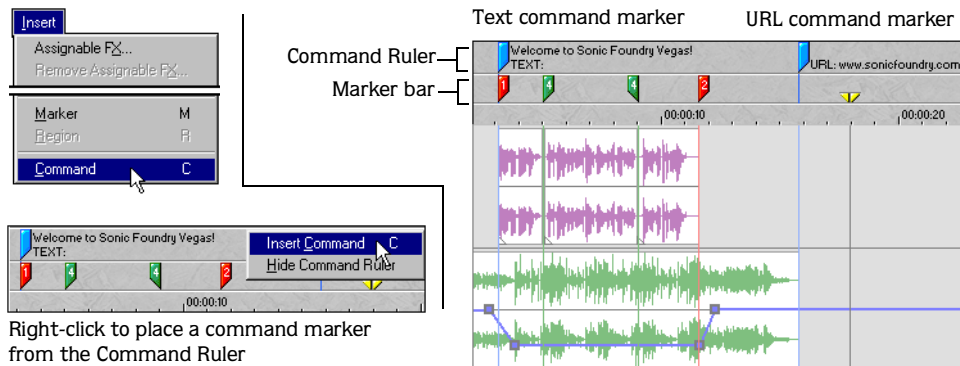
When you place command markers, the Command Properties dialog will appear (if the Command Ruler is not displayed, Vegas Pro will automatically make it visible).



Use this dialog to define your own command or select a command from the drop-down list. This dialog is also where you edit the behavior of the selected command markers.

- The **Command** drop-down list allows you to select the type of command to place.
- The **Parameter** field defines the behavior of the command.
- The **Comments** field is generally used to remind you of what the command is while you work on the project. (Its function is similar to naming markers and regions.)
- The **Position** field allows you to specify when in the rendered file the command will occur. When you place a command marker, its time is automatically set to the current cursor position.

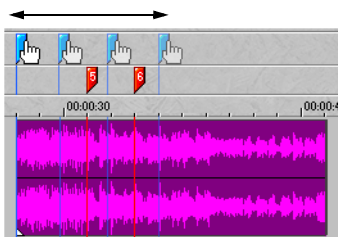
Once the command properties are set, click the **OK** button to place the command marker on the Command Ruler.



Moving a command marker

To move a command marker, do the following:

1. Place the mouse pointer on the command marker you want to move. The pointer will appear as a hand (☞).
2. Click and drag the command marker to the new position along the timeline.

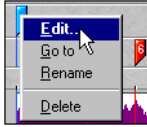


3. Release the mouse to set the command marker.
4. Repeat steps 1-3 to move the command marker again.

Editing a command marker

You may change the command markers properties at any time by doing the following:

1. Place the mouse pointer on the command marker you want to edit. The pointer will appear as a hand (☞).
2. Right-click the marker to display a shortcut menu.



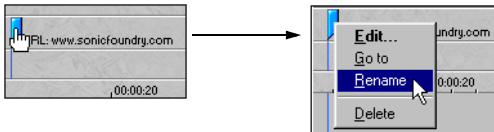
3. From the shortcut menu, choose **Edit**. The Command Properties dialog will appear.
4. Change the command type, retype parameters or comments, or enter a new position along the timeline.
5. Click the **OK** button to assign the new properties to the command marker.

Or, click the **Cancel** button to keep the command marker's original properties.

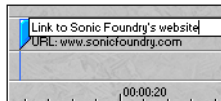
Naming a command marker

The name you give to a command marker will appear in the Comments field on the Command Properties dialog. You may name each command marker in your project by doing the following:

1. Place the mouse pointer on the command marker you want to name or rename. The pointer will appear as a hand (☞).



2. Right-click to display a shortcut menu.
3. From the shortcut menu, choose **Rename**. A text box will appear next to the command marker.



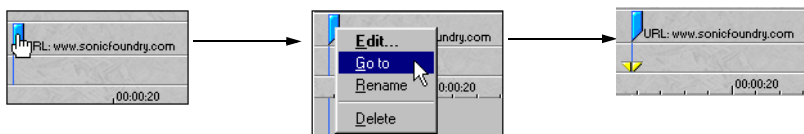
4. Type the command marker's name.
5. Press the **Enter** key or click anywhere in the Track View to set the marker's name.

Navigating to a command marker

You may have scrolled to a portion of the project and do not see the cursor any more. You may click in the Track View to move and view the cursor or you may use command markers to bring the cursor into view.

To navigate using command markers, do the following:

1. Place the mouse pointer on the marker that you want to position the cursor. The pointer will appear as a hand (☞).



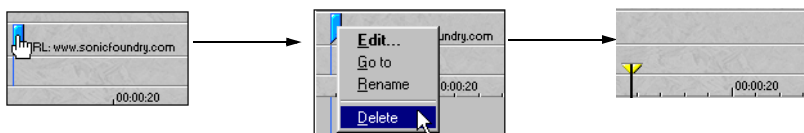
2. Right-click to display a shortcut menu.
3. From the shortcut menu, choose **Go to**. The cursor's yellow tags will appear below the marker tag.

Note: You may also move the cursor to each marker by pressing the **Ctrl** + **←** or **→** keys.

Deleting a command marker

You may remove a command marker from your project by doing the following:

1. Place the mouse pointer on the command marker that you want to delete. The pointer will appear as a hand (☞).



2. Right-click to display a shortcut menu.
3. From the shortcut menu, choose **Delete**. The command marker will be removed from your project.

Using a sound editor program

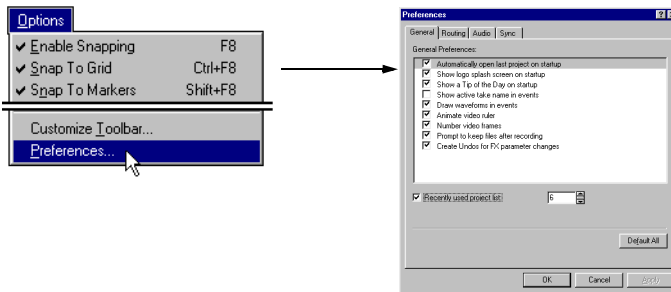
Vegas Pro is a non-destructive editing environment, which means that all the events' data in your project is maintained and available as necessary. Destructive edits may be done in a separate application such as Sonic Foundry's Sound Forge® to modify an audio event's referenced file. By setting up a separate sound editor, you can quickly access the program from Vegas Pro via the **Tools** menu or **[Ctrl]+[E]** shortcut keys.

Setting up the sound editor program

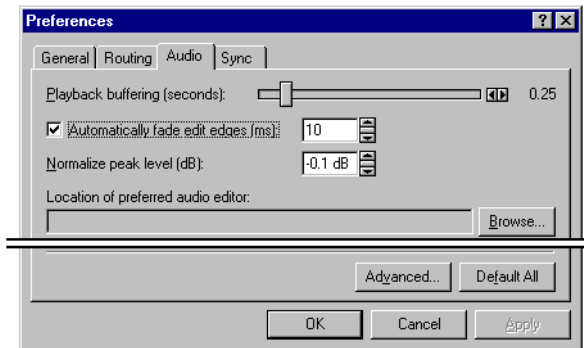
If you already had Sound Forge loaded on your computer when you installed Vegas Pro, the installation should have detected it and made it your sound editor program. However, if you do not have Sound Forge or want to specify a different sound editor, you may do so in the Preferences dialog.

To set up the sound editor program, do the following:

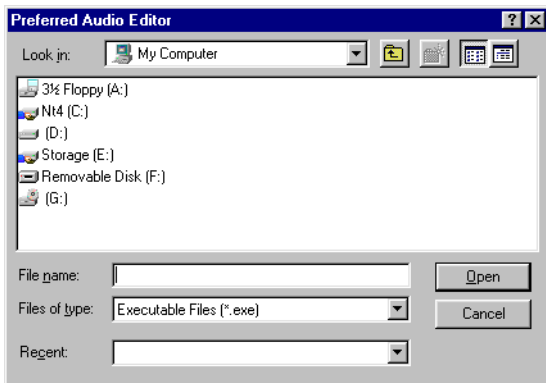
1. From the **Options** menu, choose **Preferences**. The Preferences dialog will appear.



2. On the Preferences dialog, choose the **Audio** tab.

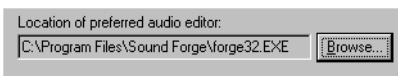


3. Click the **Browse** button. The Preferred Audio Editor dialog will appear.



4. From this dialog, navigate to the application to use for editing audio events.
5. Select the application's executable icon (*.exe) and click the dialog's **Open** button to set the application as your sound editor.

The application's path will be displayed in the Location of preferred audio editor field.

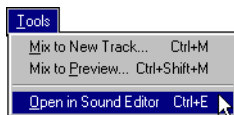


Opening the sound editor from Vegas Pro

All events in your Vegas Pro project are actually references to media files on a storage device (hard drive). When you edit an event in a sound editor, you are editing the media file to which the event is referenced. Any changes you make and save in the sound editor, will be reflected in the Vegas Pro project event.

To edit an event in the sound editor, do the following:

1. Select the event to be edited. You need to select the entire event.
2. From the **Tools** menu, choose **Open in Sound Editor** or press the **Ctrl+E** shortcut keys.



Your selected sound editor application will open and the event's referenced media file will appear in the application. Make the necessary changes and save the file in the sound editor. If you keep the media file's name and location the same, its event will be updated immediately in your project. However, if you change the media file's name or location, you will need to import the edited event into Vegas Pro.



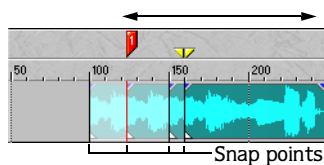
Advanced Audio Editing

Vegas Pro provides many tools for working with the events in your project. The events may be edited and controlled to create the desired playback interaction you want. The tools described in this chapter are designed to achieve better work flow and playback effects that are intuitive and easy to use.

The following sections describe event-specific editing and techniques.

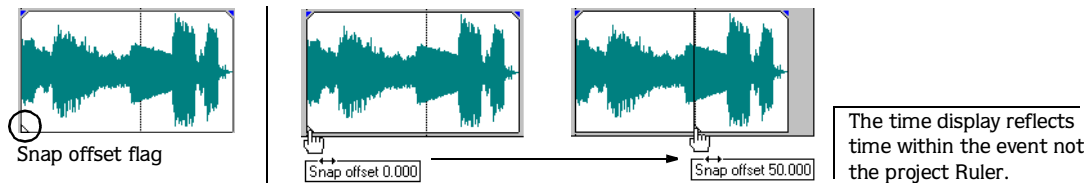
Snapping events

Vegas Pro is preset to “snap” an event’s edges to grid lines, markers, the cursor position, or time selection. As you move an event along the timeline, its edge will automatically align to designated snap points.




Using the event snap offset

Each event in your project has a snap offset flag that can be moved along the length of the event. The flag is the white triangle that is located in the lower-left corner of each event in your project. This flag allows you to designate where in the event snapping will occur.



To set the snap offset, do the following:

1. Place the mouse pointer on the snap offset triangle. The pointer turns into a hand () .
2. Click and drag the snap offset flag to the new position in the event. As the flag is moved, you will see a time display appear. This time display indicates where the snap offset flag occurs in time in the event.
3. Release the mouse to set the snap offset flag.

Snapping to grid lines

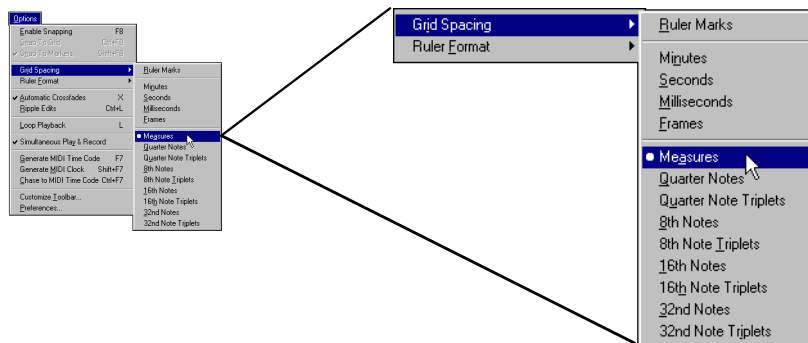
Vegas Pro allows you to specify what type of grid you want to use in your project. The grid lines that appear can then be used as snapping points for events and markers.

Enabling/disabling snapping to grid

You may enable and disable grid snapping by choosing **Snap to grid** from the **Options** menu or by pressing the **Ctrl+F8** keys. When the grid is disabled for snapping, it will still be visible for reference. However, unlike a snap-enabled grid, it will disappear when the lines get too close together when zooming the view.

Changing the grid type

Vegas Pro includes many grid types that you may apply to your project. From the **Options** menu, choose **Grid Spacing** and then the type of grid you want from the sub-menu.



Note: In some cases, the grid lines and the Ruler will not “match.” This is because they are two independent functions.

Snapping to markers


Vegas Pro allows you place markers in your project. *For more information, see [Using project markers and regions](#) on page 77.* The marker (or region) lines that appear across all tracks can be used as snapping points for events, cursor, and time selections.

Enabling/disabling snapping to markers

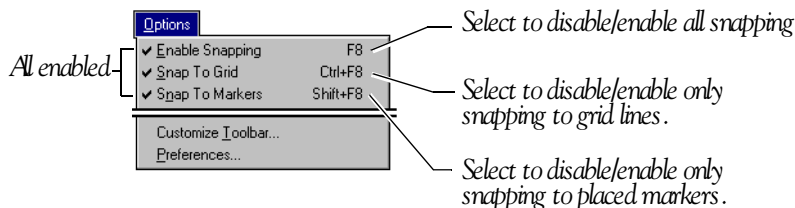
You may enable and disable snapping to markers by choosing **Snap to Markers** from the **Options** menu or by pressing the **[Shift]+[F8]** keys. When you disable snapping to markers, the the marker lines will not appear across the tracks. The events, however, will not snap to them.

Disable snapping

Vegas Pro allows you to snap events to project markers that you have placed and the grid lines that appear in the Track View. You may disable snapping to either markers, grid lines, or disable snapping altogether.

To disable/enable all snapping, you may click the Snap () button on the Toolbar.

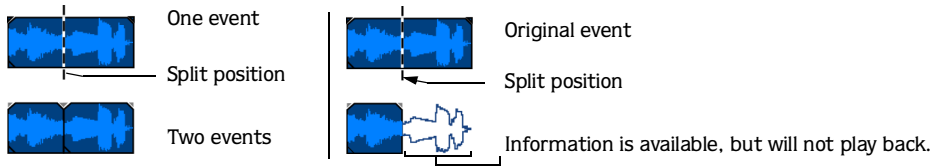
Or, you may toggle the snap commands located on the **Options** menu. When a command is enabled, you will see a check mark next to it. To disable a snap command, simply select its check marked command to disable it.



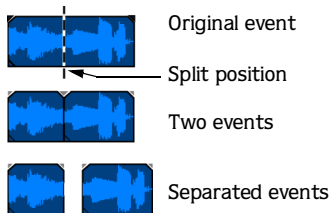
Note: If you disable all snapping, an event will still snap to the cursor or region in/out points.

Splitting events

Vegas Pro allows you to create multiple, independently-functioning events from a single event by splitting them. Splitting creates a new ending point for the original event and creates a starting point for the newly-created event.



Splitting an event does not delete or cut any information from the original event. The original event's information is there, but omitted for playback based on where either the event's starting or ending point occurs on the timeline.




Also, when you split an event, the events abut each other so playback is unaffected on the timeline unless you move either of the abutting events or adjust their starting/ending points.

You may split single selected events, multiple selected events, or a time range of events.

To split an event, do the following.

1. Select the event to be split.

To split multiple events, use the **Ctrl** key, the **Shift** key, or the Selection Edit tool  to select the events. *For more information, see [Selecting multiple events](#) on page 64.*

2. Place the cursor at the timeline position where the split will occur.

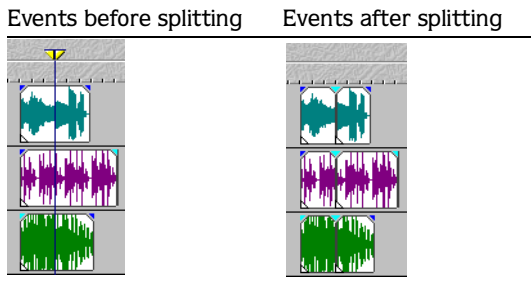
Or, select your time range, if applicable.

3. Split the event(s) by doing one of the following:

- Press the **S** key.
- From the **Edit** menu, choose **Split**.

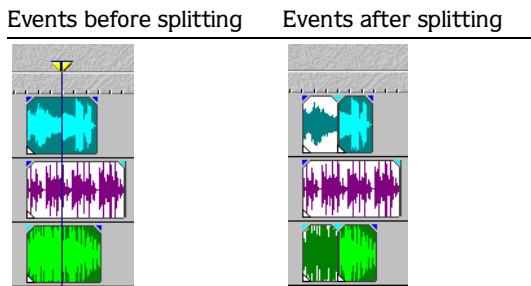
Splitting without a selection

All events will be split at the cursor's position (unless the event is locked). The split will occur across all tracks.



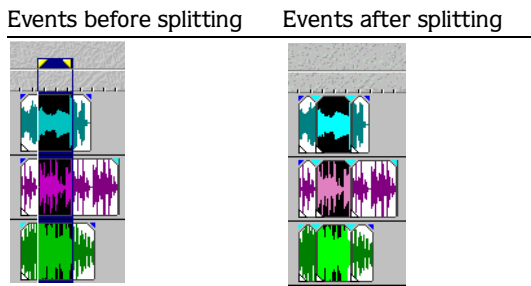
Splitting event selection

Only the selected events will be split at the cursor's position.



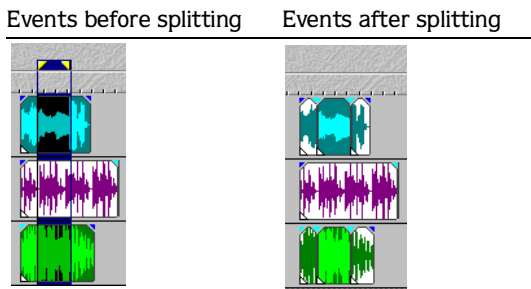
Splitting time only selection

Unless locked, all events within the time selection will be split at the starting and ending points of the time range. The split will occur across all tracks.




Splitting a time and event selection

Only selected events within the time selection will be split at the starting and ending points of the time range.



Using the Ripple Edits

Vegas Pro includes a Ripple edit feature. This feature is a timeline based procedure that allows you to cut, delete, and paste events or portions of events within a time selection and simultaneously adjust existing events' timeline position on a selected track. The existing events' timeline position is adjusted by the total amount of the time selection that is being cut, deleted or pasted from the clipboard.


You may turn on Ripple Edit mode by clicking its Toolbar button () or pressing the **Ctrl+L** shortcut keys.


Ripple edits are only available when there is a time selection present.

Cutting events in ripple mode


Cutting events or portions of events removes them and their time information from their respective tracks. This information is placed on the clipboard from which you may paste the information back into your project.

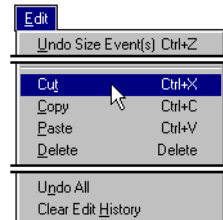
To cut events, do the following:

1. Click the Ripple Edits button () on the Toolbar.
2. Click on the event to be cut, if applicable. Otherwise, skip to step 3.

To cut multiple events, use the **Ctrl** key, the **Shift** key, or the Selection Edit tool () to select the events. *For more information, see [Selecting multiple events](#) on page 64.*

3. Select your time range.
4. Cut the event to the clipboard by doing one of the following:

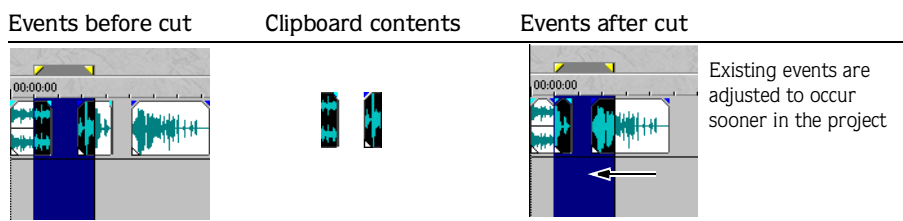
- Press the **Ctrl**+**X** keys.
- Click the Cut button  on the Toolbar.
- From the **Edit** menu, choose Cut.



The cut events and their time information are removed from the selected track(s) and placed on the clipboard. Existing events in the selected track(s) are adjusted to occupy the space created by the cut.

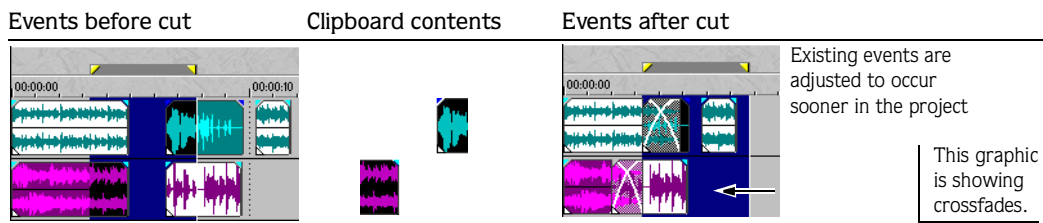
Cutting time selection with ripple mode

Events within the time selection are reproduced and placed on the clipboard. Also, the time information is placed on the clipboard. Existing events occurring after the time selection are moved forward in the project by the length of the time selection.



Cutting time and event selection with ripple mode


Events and portions of events within the time selection are reproduced and placed on the clipboard. Also, the time information is placed on the clipboard. Existing events occurring later than the time selection are moved forward by the length of the time selection. Only tracks containing selected events are affected by the ripple edit.




Deleting events in ripple mode

Deleting events or portions of events removes them and their time information from their respective tracks. However, this information is **not** placed on the clipboard. Existing events are adjusted forward when information is deleted from a selected track.

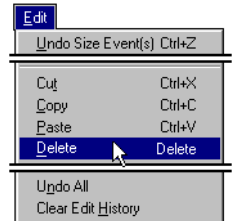
To delete events, do the following:

1. Click the Ripple Edits button () on the Toolbar.
2. Click on the event to be cut, if applicable. Otherwise, skip to step 3.

To cut multiple events, use the **Ctrl** key, the **Shift** key, or the Selection Edit tool () to select the events. *For more information, see [Selecting multiple events](#) on page 64.*

3. Select your time range.
4. Delete the event(s) by doing one of the following:

- Press the **Delete** key.
- From the **Edit** menu, choose Delete.



Deleting time selection with ripple mode

Events within the time selection and their time information are removed from the project. Existing events occurring after the time selection are moved forward in the project by the length of the time selection. When information is deleted from your project, it is **not** placed on the clipboard.

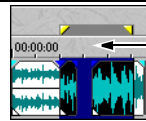
Events before delete



Clipboard contents

Deleted information is not placed on the clipboard.

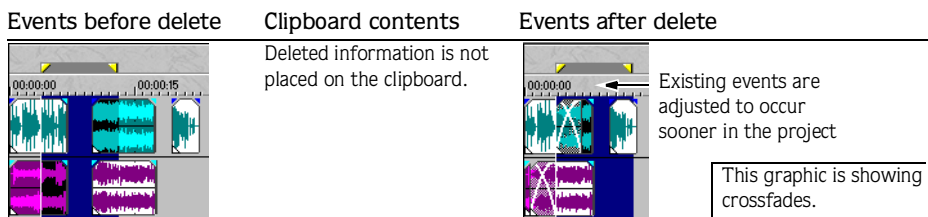
Events after delete



Existing events are adjusted to occur sooner in the project

Deleting a time and event selection with ripple mode


Events within the time selection and their time information are removed from the project. Existing events occurring after the time selection are moved forward in the project by the length of the time selection. When information is deleted from your project, it is **not** placed on the clipboard.

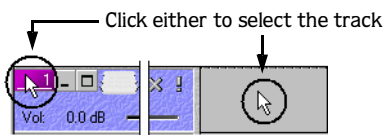


Pasting events in ripple mode

Once information is copied to the clipboard, you may choose a variety of ways to paste the clipboard items into tracks. *For more information, see [Pasting events](#) on page 68.* The following procedures explain pasting information when Ripple mode is enabled. Vegas Pro always pastes at the cursor's position along the timeline.


To paste events from the clipboard, do the following:

1. Click the Ripple Edits button () on the Toolbar.
2. Move the cursor to the desired timeline location.
3. Click either the track number or within the track where you want to paste the event.

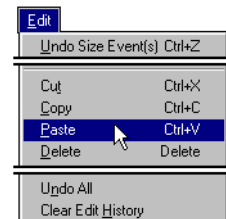


If you are pasting multiple events from different tracks, Vegas Pro automatically creates new tracks as needed for events, or simply places events in existing tracks.

4. Paste the event into the track by doing one of the following:

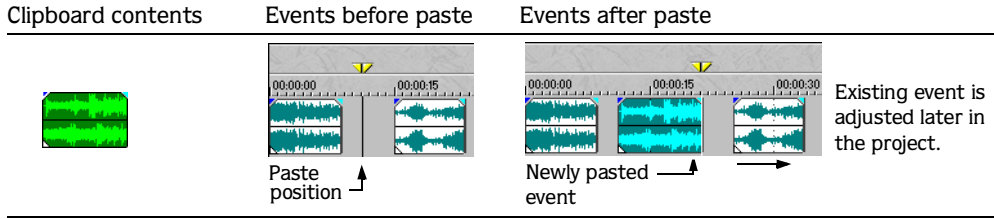
- Press the **Ctrl+V** keys.
- Click the Paste button () on the Toolbar.
- From the **Edit** menu, choose **Paste**.

Clipboard information is pasted at the cursor's position on the selected track. Existing track events or portions of events after the cursor are adjusted to occur later in the project. The amount of adjustment is based on the total length of the information being pasted.



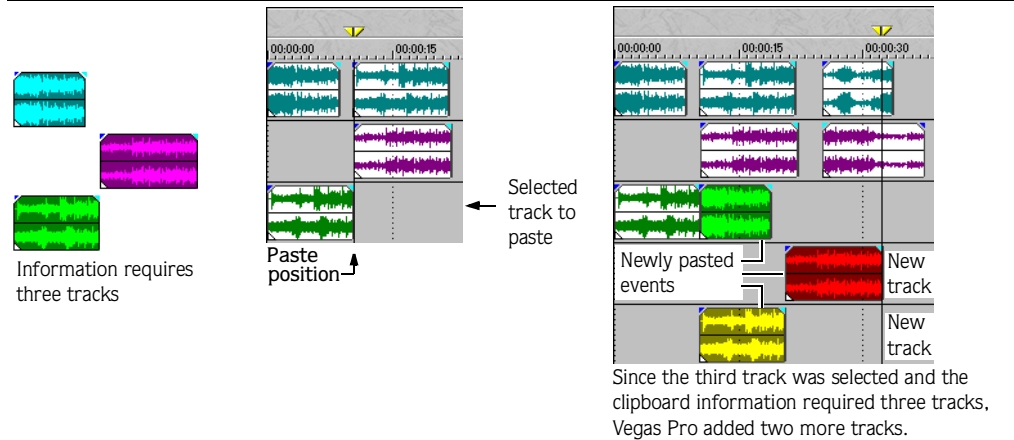
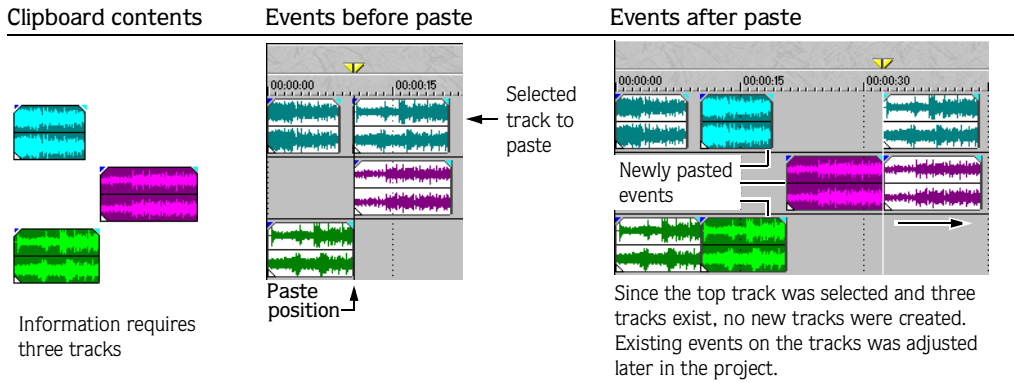
Pasting single track information with ripple mode

The information on the clipboard determines how many tracks will be affected when you paste. If you have copied or cut information from one track, only the selected track will be affected by the pasted event and time information.



Pasting multitrack information with ripple mode

When you have copied or cut information from multiple tracks, how the information is pasted is determined by the track that you select for the paste. Vegas Pro will add tracks if necessary or simply paste the information into an existing track.



Accessing event properties

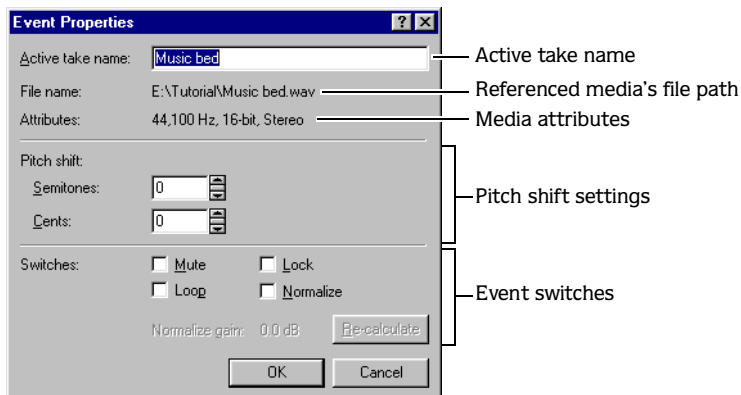
Vegas Pro allows you to adjust individual event properties. When you set an event's properties different from the original referenced media, the original referenced media is not affected. The event settings are only used in Vegas Pro.

You may view an event's properties by doing the following:

1. Right-click the event to display a shortcut menu.



2. From the shortcut menu, choose Properties. The Event Properties dialog will appear.



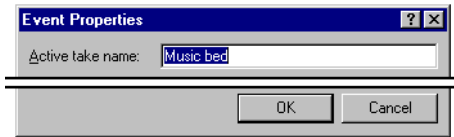
The event properties settings that you may change are the Active take's name, its pitch shift value, its switch use, and its normalization.

Changing the active take's name

Because Vegas Pro is a non-destructive audio editor, the new name that you give to an event does not affect the referenced media files name. In fact, you are simply giving the event a new take name. Typically, you would change an event's name after recording multiple takes into a track or event. *For more information, see [Working with multiple recorded takes](#) on page 148.*

To change an event's name, do the following:

1. Right-click the event to display a shortcut menu.
2. From the shortcut menu, choose **Properties**. The Event Properties dialog will appear.
3. Type the new name in the Active take name field. (If the name is not selected, click in the field and select the name and then retype it.)

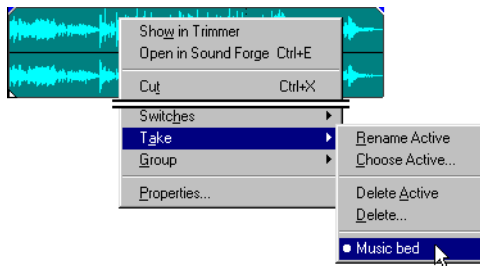


4. Click the **OK** button to set the new take name.

Viewing the take name

When you change an event's name the new name will appear in the event's Take list that you may access by doing the following:

1. Right-click the event to display a shortcut menu.
2. From the shortcut menu choose **Take**. A sub-menu list of takes will appear.

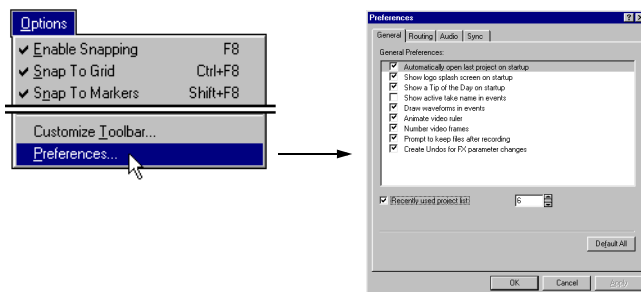


Displaying take names on event

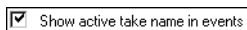
You may also see the take names right on the events in the Track View. The events in your project will display their respective active take names in the lower left portion of the waveform. Enable the Show active take names in events check box on the Preferences dialog to use this feature.

To enable this preference, do the following:

1. From the **Options** menu, choose **Preferences**. The Preferences dialog will appear.

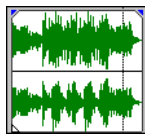


2. Click the Show active take names in events check box to enable it.

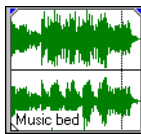


3. Click the **OK** button to set the preference.

Each event in your project will display their respective take names.



Before preference
is enabled



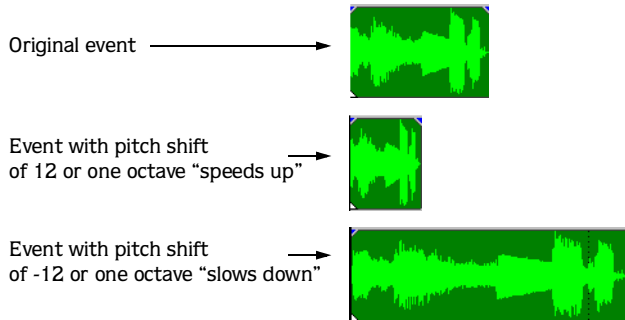
After preference
is enabled

Note: To disable this feature, repeat steps 1-3 and “uncheck” the Show active take names in events check box.

Using the pitch shift

Vegas Pro allows you to apply pitch shift to selected events. A pitch shift is a way speed up or slow down the audio to modify its timbre or fit the audio into a certain length of time. Generally, when you increase an event's pitch, it "speeds up" and the events overall length is shortened. Conversely, when you decrease an event's pitch, it "slows down" and lengthens the event.

The semitone range in Vegas Pro is -24 to 24. Twelve semitones equal one octave, so you may increase or decrease an event up to two octaves. Within a semitone is a finer pitch adjustment called cents. One hundred cents equal one semitone, so you have quite a range to finely adjust an event's pitch. Increasing or decreasing cents affect the overall length of the event, but in smaller increments.



To change an event's pitch shift, do the following:

1. Right-click the event to display a shortcut menu.
2. From the shortcut menu, choose **Properties**. The Event Properties dialog will appear.
3. Adjust the pitch shift in the Semitone, Cents, or both using the arrows or simply typing in the desired value.



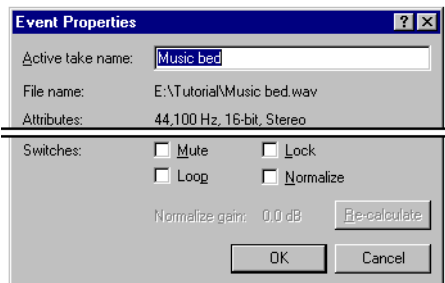
4. Click the **OK** button to set the pitch shift for the event.

Setting event switches

You may apply event switches via the properties dialog. Switches allow you to edit specific track events by muting, locking, looping, or normalizing the waveform. You may apply one or all switches to an event. More information on using switches is in the next section.

To change apply a switch from the Event Properties dialog, do the following:

1. Right-click the event to display a shortcut menu.
2. From the shortcut menu, choose **Properties**. The Event Properties dialog will appear.
3. Click the check box(es) of the switch that you want to apply to the event.

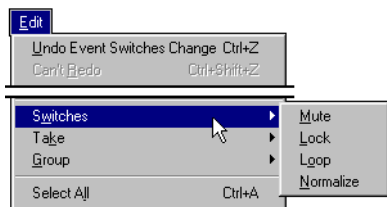


4. Click the OK button to set the switch(es) for the event.

Using event switches

Event switches are functions that you can apply to events. You may apply switches to a single-selected event or multiple-selected events at the same time. Switches allow you to edit specific track events by muting, locking, looping, or normalizing the waveform. You may apply one or all switches to an event.

You may access switches from the **Edit** menu and choosing **Switches** to display its sub-menu. Or, you may right-click a selected event and choose **Switches** to display its sub-menu. In addition, you may access switches via the Events Properties dialog, which was discussed in the previous section.



Below are brief descriptions of how an event is affected when each switch is used.


- **Mute** prevents the event from playing back, but it may be moved along the timeline.
- **Lock** prevents the event from being moved along the timeline, but it will play back.
- **Loop** allows you to extend the event along the timeline (in a loop) by dragging the right edge of the event. Vegas Pro loops the *entire* event's waveform not a displayed portion.
- **Normalize** maximizes the event's volume without clipping it during playback.

Muting an event

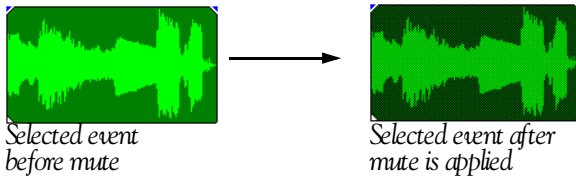
You may mute an event to prevent it from playing back. Mute may be applied to one or more selected events. When you switch an event to mute, the **Switch** sub-menu displays a check mark indicating that **Mute** is enabled. The event remains muted until you disable the switch.

To mute an event, to do the following:

1. Click on the event to be muted.

To mute multiple events, use the **Ctrl** key, the **Shift** key, or the Selection Edit tool  to select the events. *For more information, see [Selecting multiple events](#) on page 64.*

2. From the **Edit** menu, choose **Switch** and then **Mute** from the sub-menu.



Unmuting an event

1. Click the muted event(s).
2. From the **Edit** menu, choose **Switch** to display the sub-menu. The **Mute** switch will have a check mark.
3. From the sub-menu, choose **Mute** to disable it on the selected event(s).


Note: You may also access the event's properties and deselect the **Mute** check box.

Locking an event

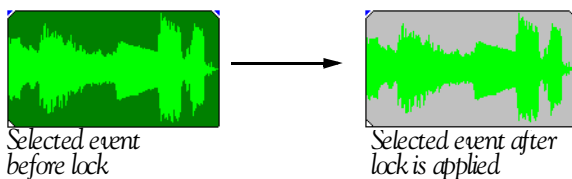
You may lock an event to prevent it from being moved or edited. Lock may be applied to one or more selected events. When you switch an event to lock, the **Switch** sub-menu displays a check mark indicating that **Lock** is enabled. The event will remain locked until you disable the switch.

To lock an event, to do the following:

1. Click on the event to be locked.

To lock multiple events, use the **Ctrl** key, the **Shift** key, or the Selection Edit tool  to select the events. *For more information, see [Selecting multiple events](#) on page 64.*

2. From the **Edit** menu, choose **Switch** and then **Lock** from the sub-menu.



Unlocking an event

1. Click the locked event(s).
2. From the **Edit** menu, choose **Switch** to display the sub-menu. The **Lock** switch will have a check mark.
3. From the sub-menu, choose **Lock** to disable it on the selected event(s).


Note: You may also access the event's properties and deselect the **Lock** check box.

Looping an event

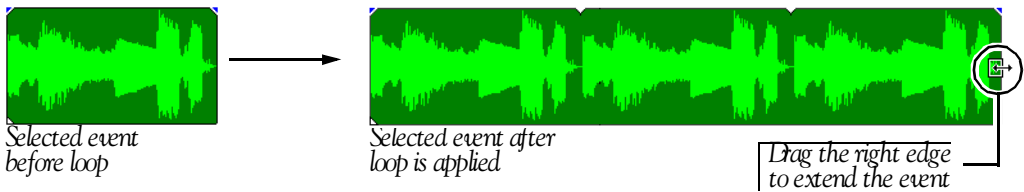
You may loop an event so that you can extend it along the timeline by dragging the right edge of the event. Loop may be applied to one or more selected events. When you switch an event to loop, the **Switch** sub-menu displays a check mark indicating that **Loop** is enabled. The event will remain looped until you disable the switch.

To loop an event, to do the following:

1. Click on the event to be looped.

To loop multiple events, use the **Ctrl** key, the **Shift** key, or the Selection Edit tool  to select the events. For more information, see [Selecting multiple events](#) on page 64.

2. From the **Edit** menu, choose **Switch** and then **Loop** from the sub-menu.



Unlooping an event

1. Click the looped event(s).
2. From the **Edit** menu, choose **Switch** to display the sub-menu. The **Loop** switch will have a check mark.
3. From the sub-menu, choose **Loop** to disable it on the selected event(s). The original waveform is restored.


Note: You may also access the event's properties and deselect the **Loop** check box.

Normalizing an event

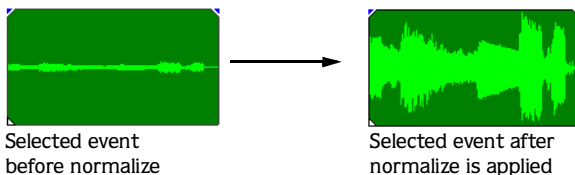
You may normalize an event to maximize its volume, based on the waveform's highest peak, without clipping the event during playback. Normalize may be applied to one or more selected events. When you switch an event to normalize, the **Switch** sub-menu displays a check mark indicating that **Normalize** is enabled. The event will remain normalized until you disable the switch.

To normalize an event, to do the following:

1. Click on the event to be normalized.

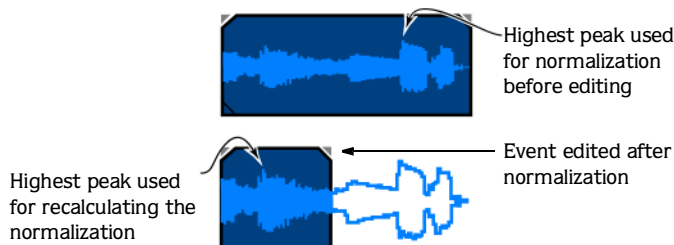
To normalize multiple events, use the **Ctrl** key, the **Shift** key, or the Selection Edit tool  to select the events. For more information, see [Selecting multiple events](#) on page 64.

2. From the **Edit** menu, choose **Switch** and then **Normalize** from the sub-menu.



Recalculating an events normalization

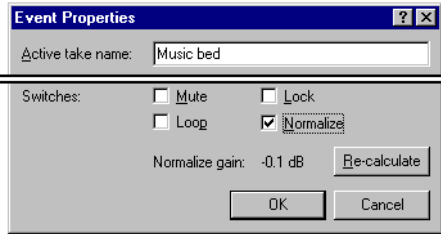
When you normalize an event, Vegas Pro analyzes the event and raises the volume based on the waveform's highest peak and then adjusts the rest of the event accordingly. However, if while you are editing the event, you may have adjusted its edge to exclude the highest waveform peak. In this case, you may want to recalculate the event's normalization.



You may have Vegas Pro recalculate the normalization by doing the following:

1. Right-click the event to display a shortcut menu.
2. From the shortcut menu, choose **Properties**. The Event Properties dialog will appear.

3. Click the **Re-calculate** button to normalize the event again.



4. Click the **OK** button to normalize the event.

Disabling event normalization

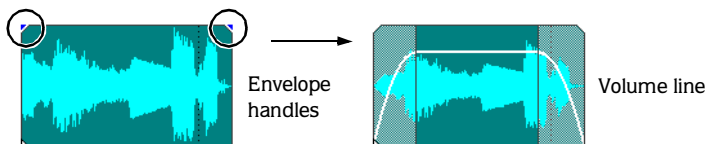
1. Click the normalized event(s).
2. From the **Edit** menu, choose **Switch** to display the sub-menu. The **Normalize** switch will have a check mark.

Note: You may also access the event's properties and deselect the **Normalize** check box.


Using event envelopes (ASR)

You may apply envelopes to individual events. Envelopes, also known as ASRs (attack, sustain, and release), give you the ability to control each event's volume. The fade-in, fade-out, and over-all level of the event may be controlled. These envelopes are different than track envelopes in that they move with the event. Track envelopes affect the entire track and do not move with the events.


When you place an event into your project, Vegas Pro adds "handles" that are used to set the envelope. As you use these handles, a volume line will appear indicating how the event is being affected. Also, the waveform will graphically display the volume change.

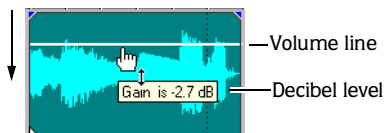


Setting an event's volume

When you place the mouse pointer at the top of the event the pointer changes to a hand cursor () with which you may use to lower the event's overall volume.

To set the event's volume, do the following:

1. Place the mouse pointer at the top of the event.
2. When you see the envelope cursor () , click and drag the volume line to the desired level. As you drag the volume line down Vegas Pro displays the event's decibel level.




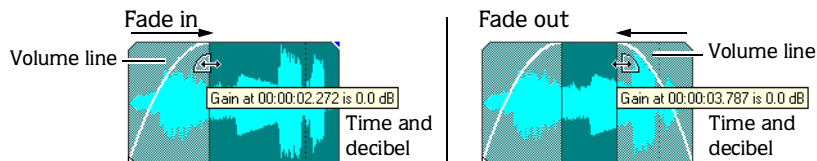
3. Release the mouse to set the volume.

Setting an event's fade in and out

The event handles allow you to affect an event's fade in and out volume. Also, you can change the type of curve that the event uses to control the volume's fade in or out.

To set the event's fade in or out do the following:

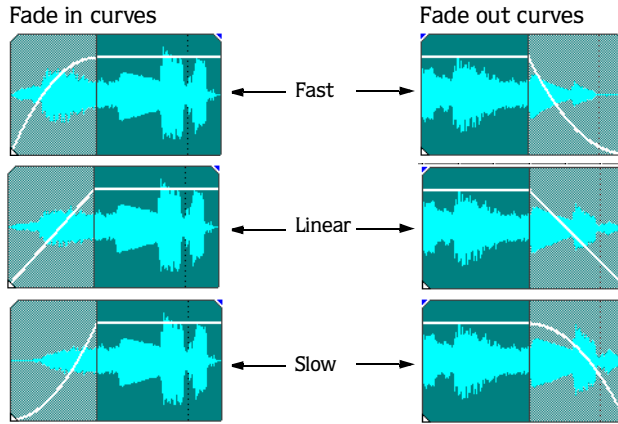
1. Place the mouse pointer on a handle and the pointer changes to the envelope cursor () .
2. Click and drag the envelope cursor, the volume line appears. As you drag the cursor, Vegas Pro displays both the time, in the event, when the volume will be maximized and its decibel level.




3. Release the mouse to set the fade in or out.

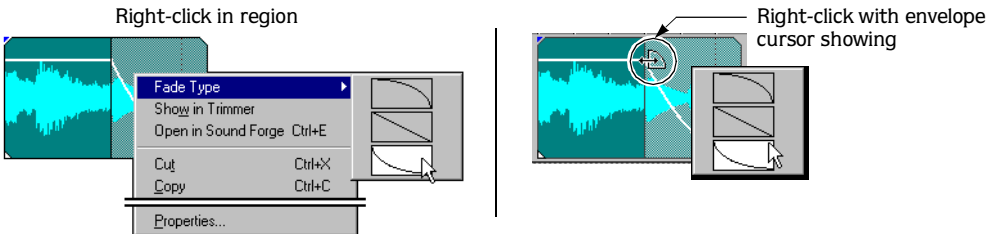
Changing the event's fade curve

You can set the fade curve (fast, linear, or slow) that an event uses to raise or lower the volume over time.



There are two ways to access the fade curve types. You may right-click anywhere in the event's fade-in or -out region to display a shortcut menu. From the shortcut menu, choose **Fade type** to display the fade types sub-menu. Click the desired fade type to set it.

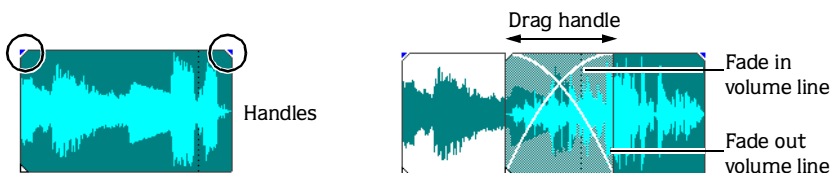
The second way is to go directly to the fade types sub-menu. When the envelope cursor () is displayed, right-click to display the sub-menu. Click the desired fade type to set it.






Crossfading events

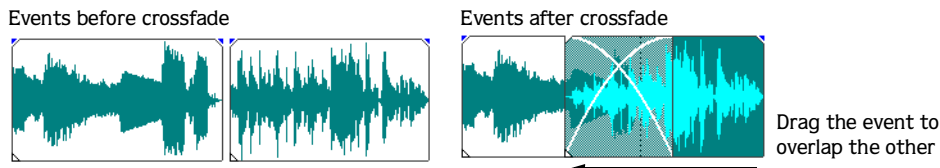
Vegas Pro allows you to crossfade between two events on the same track. Crossfading gives you the ability to fade out one event's volume while another event's volume is fading in on the same track. This function allows you to introduce transitions between events on a track.

When you place an event into your project, Vegas Pro adds "handles" that are used to set the crossfade. These handles allow you to adjust the crossfade, even when you are using automatic crossfades. Volume lines also appear indicating how and when the events' volume are being affected. Also, their respective waveforms will graphically display how the crossfade volume is affected.



Automatic crossfades

On the Toolbar, the Automatic Crossfade button () allows you to overlap event edges and Vegas Pro will apply a crossfade for you. Simply, click  the button or press the  short cut key to enable or disable Automatic Crossfades.



The crossfade "x" will automatically adjust itself as you move one event over another as long as one event's edge is *crossing* the other event's edge. In the case where edges do not cross (one event is wholly contained in another), the shorter event will be place "on top" of the longer event. You may still set a crossfade in this situation. *For more information, see [Manually setting a crossfade](#) on page 114.*

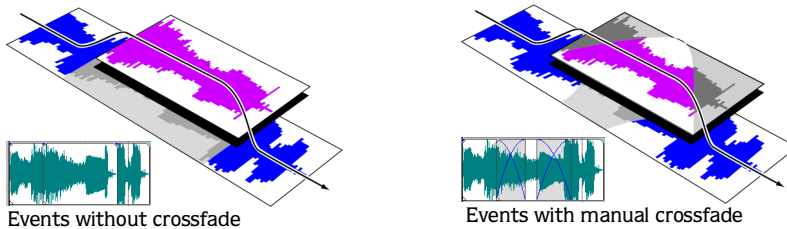
Use the event's handles to adjust the desired crossfade between the two events.

Manually setting a crossfade

If you are using automatic crossfades, Vegas Pro will not insert a crossfade if a shorter event is placed on “top” and within the same time of a longer event. In this case, during play back, the longer event will begin playing, then the shorter event will play, and then the longer event will resume playing at the timeline position.

To manually set the a crossfade between the edges of the overlapping events, do the following:

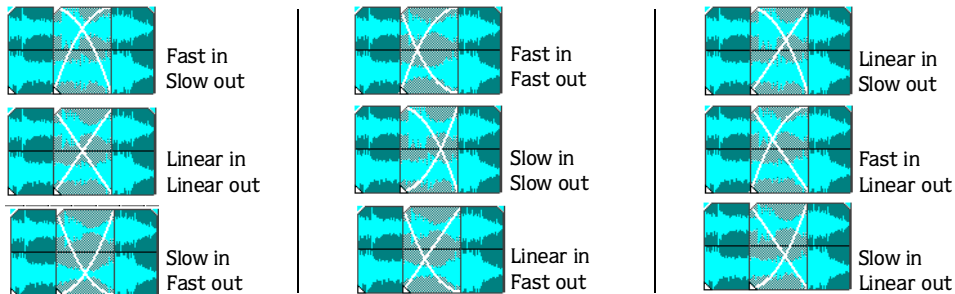
1. Place the mouse pointer on one of the shorter event’s handles. The envelope cursor will appear (Ⓔ).
2. When you see the envelope cursor appear (Ⓔ), click and drag the handle to the desired position.



3. Repeat Step 1-2 to set the second crossfade, if necessary, or to edit the crossfade.

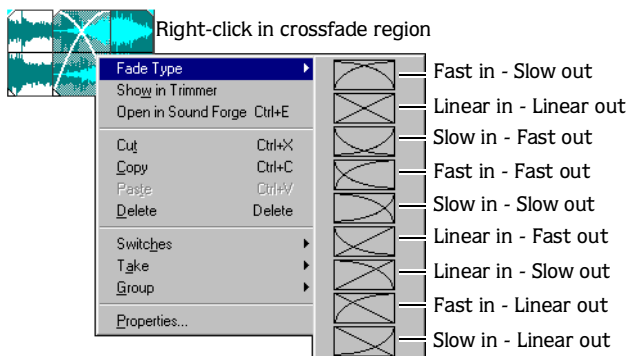
Changing crossfade curves

You can set the crossfade curve(s) that Vegas Pro uses to fade in and out between two events. The crossfade curve determines how Vegas Pro raises and lowers the events’ volume over time.



You may change the crossfade curve by doing the following:

1. Right-click anywhere in the crossfade region to display a shortcut menu.
2. From the shortcut menu, choose **Fade type** to display the fade types sub-menu.



3. Click the desired fade type to set it.

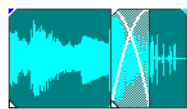
Changing the crossfade volume

You may set a cross-faded event's volume and Vegas Pro will adjust the crossfade "x" to graphically reflect the volume change. When you change the volume in the cross-faded region, the event being faded in is affected. For the event being faded out, simply adjust its volume. For more information, see [Setting an event's volume on page 111](#).

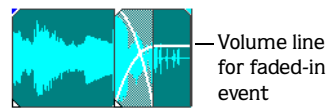
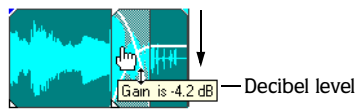
When you place the mouse pointer at the top of the cross-fade region, the pointer changes to a hand cursor (☞) with which you may use to lower the faded-in event's overall volume.

To set the cross-fade volume, do the following:

1. Place the mouse pointer at the top of the cross-fade region.
2. When you see the envelope cursor (☞), click and drag the volume line to the desired level. As you drag the volume line down Vegas Pro displays the event's decibel level.



Crossfade before volume change



Crossfade after volume change

Volume line for faded-in event

3. Release the mouse to set the volume.

Grouping events


Vegas Pro allows you to group events together within tracks or across separate tracks. Once a group is created, all the events within it may be moved together as a unit and have event specific edits applied at the same time. Edits that may be applied are copy, paste, and delete. Or, you may apply an event switch to the entire group at once.

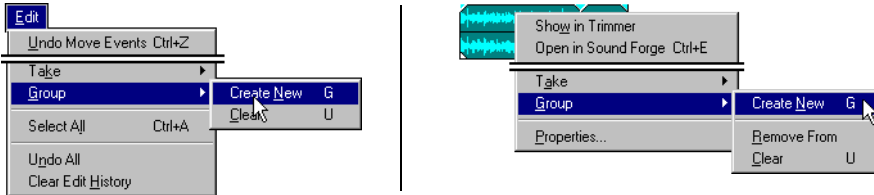
You may still edit properties of individual events within a group without affecting the other group events. *For more information, see [Accessing event properties](#) on page 101.*

Creating a new group

Grouping is useful when you want to preserve timing of events and move them together along the timeline or duplicate the group and distribute it along the timeline.

To create a new group, do the following:

1. Select the events you want to group. Use the **Ctrl** key, the **Shift** key, or the Selection Edit tool  to select them. *For more information, see [Selecting multiple events](#) on page 64.*
2. After the events are selected, you may group them in one of three ways:
 - From the **Edit** menu, choose **Group** to display a sub-menu and then choose **Create New**.



- On one of the selected events, right-click to display a shortcut menu. From the shortcut menu choose **Group** and then **Create New**.
- Press the **G** shortcut key to create the group.

If you want to add events to an existing group, simply select the events and the group and repeat the above steps.

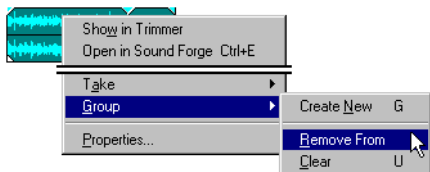
Note: *Events can only be in one group at a time. Adding an event to an existing group essentially deletes the old group and creates a new one to include all of the selected events.*

Removing an event from a group

You may remove a single event from a group. The other grouped events will not be affected when you remove an event from the group. Also, the event you are removing from the group is not deleted from the project, but remains at its timeline position.

To remove an event from the group, do the following:

1. On the event you want to remove from the group, right-click to display a shortcut menu.



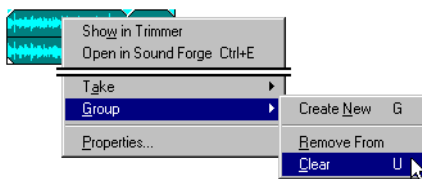
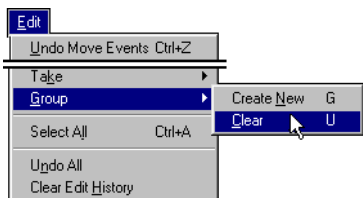
2. From the shortcut menu, choose **Group** and then choose **Remove From** on the sub-menu. The event will be removed from the group, but keep the rest of the grouped events intact.
3. Repeat Steps 1-2 to remove more events from the group.

Clearing a group

You may ungroup events by clearing the group. Clearing a group does not delete or remove events from your project. The events will remain at their timeline position.

To clear a group, do the following:

1. Select one of the grouped events. The entire group will be selected.
2. After the group is selected, you may clear it one of three ways:
 - From the **Edit** menu, choose **Group** to display a sub-menu and then choose **Clear**.



- On one of the selected events, right-click to display a shortcut menu. From the shortcut menu choose **Group** and then **Clear**.
 - Press the **[U]** shortcut key to clear the group.
3. From the **Edit** menu, choose **Group** and then **Clear** from the sub-menu.

The events will be released from the group and may be moved or edited independently.

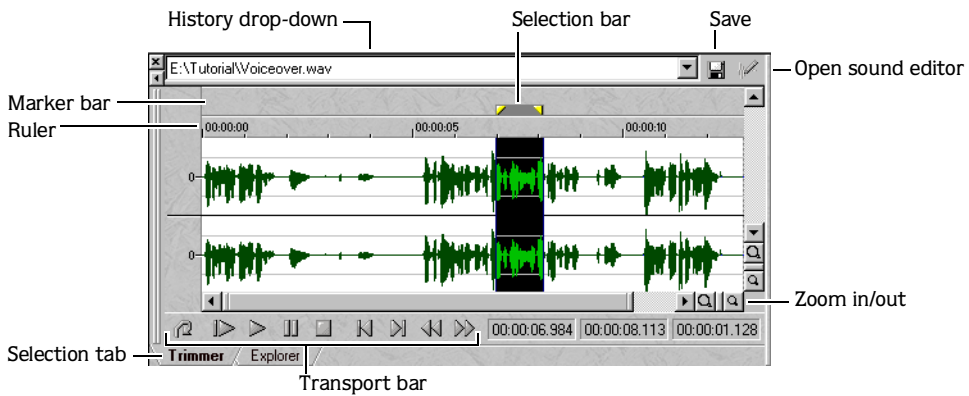
Using the Trimmer window



Events may be placed in the Trimmer window directly from your project, in which case they are referred to as media files. The Trimmer allows you to work with one media file at a time. Many of the shortcut keys and right-click shortcut menus are available in the Trimmer.

You, also, may place a media file directly into the Trimmer from the Vegas Pro Explorer window.

The Trimmer window may be placed in the Docking area of Vegas Pro or “float” over the work area. *For more information, see [Window Docking Area](#) on page 20.*

From the **View** menu choose Trimmer or press the **Alt+Z** shortcut keys to display the Trimmer window, if it is not displaying already.



History drop-down	This drop-down list displays all the events in your current project. You may open a media file in the Trimmer by selecting its filename from the list.
Marker bar	This area displays the markers that you place along the media file's timeline. The marker bar is identical to the one in the Track View (p. 77).
Save button ()	If you have added markers or regions to a media file in the Trimmer, you can save that data to the referenced media file for use in the sound editor or in later projects.
Selection bar	The selection bar is identical to the one found in the Track View. Use it to select portions of audio that you would like to place on a track or for setting regions (p. 65).
Selection tab	Click this tab to bring the Trimmer to the front when it is “behind” other docked windows.
Sound editor button ()	This button opens the event in your sound editor application (p. 88).
Transport bar	The Transport bar is identical to the one found in the Track View (p. 19).
Ruler	The ruler is identical in functionality as the one in the Track View (p. 18).
Zoom buttons	These buttons are identical to the ones in the Track View (p. 24).

Showing an event in the Trimmer

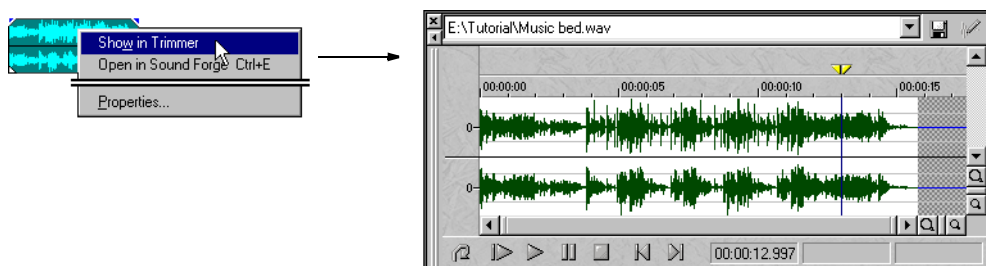
Showing an event in the Trimmer is actually displaying the event's referenced media file. You may place a media file directly into the Trimmer from the Vegas Pro Explorer. The main functions of the Trimmer are to select portions of a media file to place in the project or to add regions or markers to the media file for use later in other projects or a sound editor.

Showing an event from the Track View

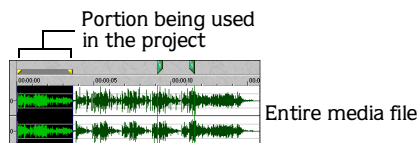
This procedure is typically used when you want to select a portion of the media file to place on tracks in your project or add regions or markers to the event's referenced media file.

To show an event's media file in the Trimmer, do the following:

1. Select the event.
2. Right-click to display a shortcut menu. From the shortcut menu, choose **Show in Trimmer**. The event's entire referenced media file will appear in the Trimmer window.



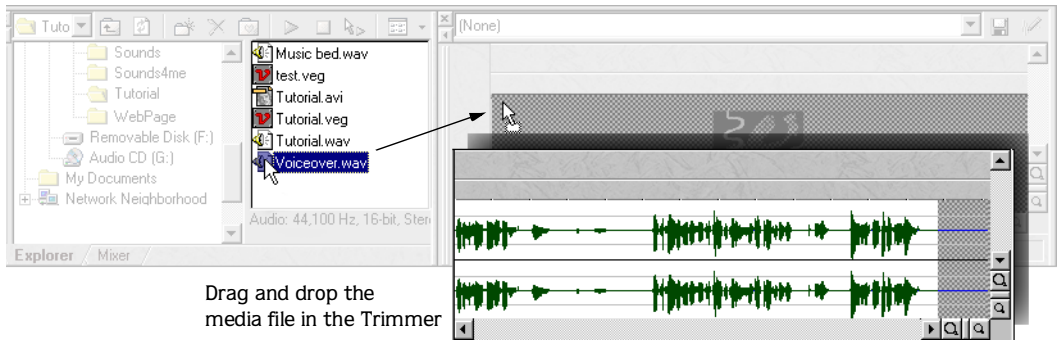
Note: If the event in your project is only using a portion of a larger media file, the Trimmer will “select” the portion being used.



Placing a media file from the Vegas Pro Explorer

This procedure is a useful way to select a portion of a long file and place it in the project. Rather than placing the entire event and cutting the unwanted portions. For example, if you had a long narration and only wanted to use the first five seconds, you could place the file into the Trimmer, select the five seconds, and drag it to the Track View.

1. In the media list, select the media file.
2. Drag and drop the file to the Trimmer window. The media file will appear in the Trimmer.



Working in the Trimmer window

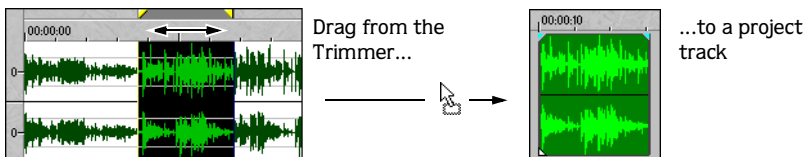
The Trimmer window's main function is to allow you to work with one media file for placing portions of it on a track and adding regions and markers. The Trimmer window also allows you to play back the media file and export it to your sound editor program.

Placing smaller portions of the event on track

After you have placed a media file in the Trimmer, you may select a segment of it and place it in your project. Selecting a portion of the media file will not affect the event already on a track. Vegas Pro treats the smaller portion as a separate event even though it is from the same reference media file.

To place a smaller segment into your project, do the following:

1. Click and drag the cursor or use the Selection bar to make a time selection. The portion of the event you want to place will be "inside" the selection.



2. Place the mouse pointer in the selected region and click and drag the portion onto the desired track.

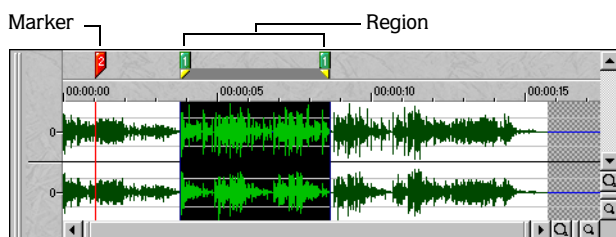
Adding regions and markers to a media file

The Trimmer allows you to add markers and regions to a media file the same way you add them to your project. However, these markers and regions are different from project markers and regions, which was described earlier in this manual. *For more information, see [Using project markers and regions on page 77](#)*. The difference between the two is simply that project markers and regions affect the project, while media file markers and regions are embedded in the media file.


When you add a marker or regions to a media file, Vegas Pro does not add the markers to the project. Markers and regions that are added from within the Trimmer are only temporary. You *must* save them if you want to use them again after you close the project. After the markers and regions are added and saved to the media file, they will be available when you open the media file in a sound editor program or in the Vegas Pro Trimmer.

Markers are placed at the cursor's position. You may also place a marker on-the-fly while the media file is playing back. Markers appear as red tags above the ruler.

A region is placed at the cursor's position or at either end of a time selection. You may also place a region on-the-fly while the media file is playing back. A region appears as green tags above the ruler.



To add markers or regions do the following:


1. Position the cursor or make a time selection.
2. Place the marker or region in one of the following ways:
 - From the **Insert** menu, choose **Marker** or **Region**.
 - Right-click on the Trimmer Marker bar and choose **Marker** or **Region** from the shortcut menu.
 - Press the **[M]** (marker) or **[R]** (region) shortcut keys.
3. Click the  button to save the markers and regions to the media file.

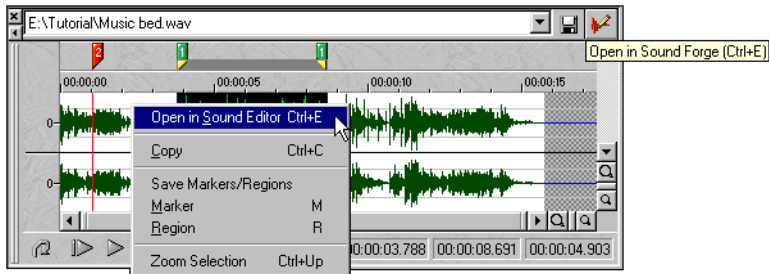
After a marker or region is placed, you may move, rename, and delete them from the media file. These procedures are identical to project markers and regions. *For more information, see [Using project markers and regions on page 77](#)*.

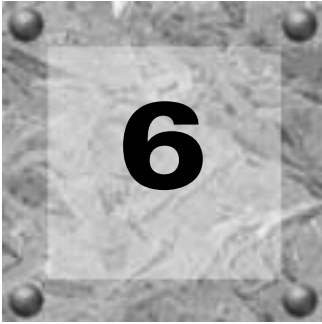
Opening the sound editor from the Trimmer

The Trimmer allows you to open your selected sound editor application to preform destructive edits to the media file. After you make the necessary changes and save the file in the sound editor, Vegas Pro will automatically update the event using that media file. However, remember to keep the media file's name and location the same. Otherwise, you will need to import the edited media file into Vegas Pro again. *For more information, see [Using a sound editor program on page 88](#).*

There are a few ways to open your sound editor from the Trimmer, when it is the active window:

- Click the  button.
- Right-click the media file and choose **Open in Sound Editor** from the shortcut menu.
- Press the **Ctrl+E** shortcut keys.





Working with Tracks

Vegas Pro is a true multitrack mixing environment. Tracks are the containers for audio events, which you place and arrange. A track can contain different events. There is not a limit to the number of tracks you use in Vegas Pro. Because tracks are containers for events, you may use track functions to affect all the events on them.

Vegas Pro provides track functions that allow you to organize your project and apply track features that enable you to achieve your project's goals. This chapter explains track editing, techniques, and features that you can apply to your project's tracks.

Track basics

Whether you are starting your first project or opening an existing one, you will need to manage the tracks in your project. The following procedures explain basic track management. The terms used to describe the track “parts” are explained in the Quick Start chapter of the manual. *For more information, see [Track navigation](#) on page 35.*

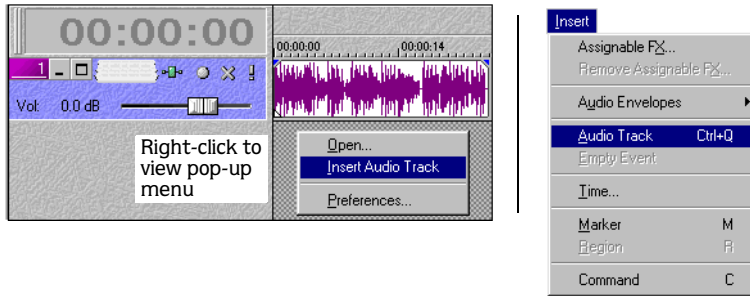
Adding an empty track

Typically, when you add an event to your project by double-clicking it from the Explorer window, Vegas Pro automatically creates a new track and places the event on it.

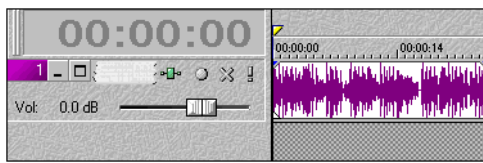
You can add empty (eventless) tracks to a project. These tracks can be used to directly record into, or serve as placeholders for specific audio that you will add later. For example, your project may contain special audio, but it needs to be recorded and mixed or retrieved from another location.

To add an empty track, do the following:

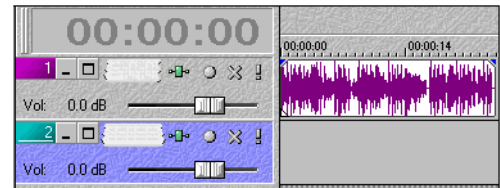
1. Place the mouse pointer in either the Track View or the Track List.
2. Right-click to display a shortcut menu.
3. From the shortcut menu, choose **Insert Audio Track**.



Alternatively, you may add an empty track from the **Insert** menu by choosing **Audio Track** or pressing the **Ctrl+Q** shortcut keys. Vegas Pro creates and adds an empty track at the “bottom” of the Track List.



Before track is added



After track is added

4. Repeat steps 1-3 to add more empty tracks.

Duplicating a track

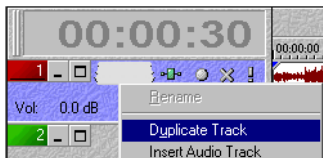
You may duplicate tracks in your project and all the events contained on them. When a track is duplicated, the duplicated track is placed directly below the original track. Other existing tracks are moved “down” on the Track List. You may duplicate one track or choose multiple tracks to duplicate at a time.

To duplicate a track, do the following:

1. Place the mouse pointer over the track that you want to duplicate.

Note: To select multiple tracks, click them while holding down either the **Shift** key to select adjacent tracks, or the **Ctrl** key to select random tracks.

2. Right-click and choose **Duplicate Track** from the shortcut menu.



3. Repeat steps 1-2, if necessary, to duplicate more tracks.

Deleting a track

You may delete tracks from your project and all events contained on them. You may delete one track or choose multiple tracks to delete at a time.

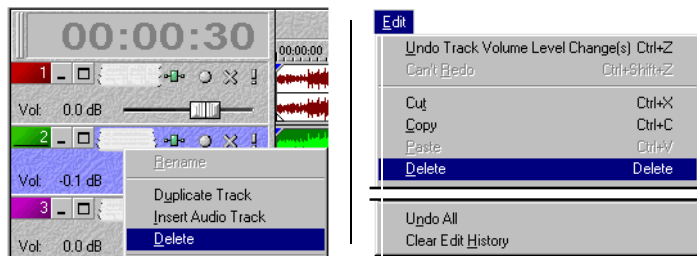
To delete a track, do the following:

1. Place the mouse pointer over the track that you want to delete.

Note: To select multiple tracks, click them while holding down either the **Shift** key to select adjacent tracks, or the **Ctrl** key to select random tracks.

2. Right-click and choose **Delete** from the shortcut menu.

Or, from the **Edit** menu, choose **Delete**.



3. Repeat steps 1-2, if necessary, to delete more tracks.

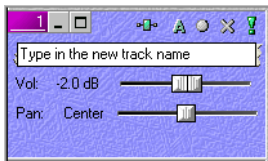
Naming or renaming a track

Every track in your project has a Scribble Strip where you can type a name for the track. The track name may be up to 255 characters. (If you do not see the Scribble Strip, expand the track to reveal it. When a track's view is minimized, the Scribble Strip does not display.)

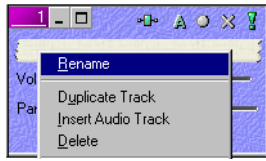
You may name or rename the track at any time by doing the following:

1. Double-click in the Scribble Strip and type the track name.

Or, right-click the on the track to display a shortcut menu. Choose **Rename** from the shortcut menu. Any existing name is highlighted on the strip. Type the new track name.



Double-click and type the name



Right-click

If the track already has been named, you will see the previously entered name.

2. Press the **Enter** key to save the track's name.

Organizing tracks

Vegas Pro is flexible when organizing your tracks. You can leave your tracks alone and work with them as they are added. How you organize tracks is strictly based on your preferences. However, if your project contains several tracks, organizing them can save time in editing.

Reordering tracks

When you create tracks, Vegas Pro arranges them in the order that they were added. You may reorder the tracks. Only the order changes in the Track List and Track View; project playback is unaffected. You may reorder one or more tracks at a time.

To move a track, do the following:

1. On the Track List, place the mouse pointer on the track that you want to move.
2. Drag and drop the track to the new position in the Track List.
3. Repeat step 2, if necessary, to continue moving the track up or down.

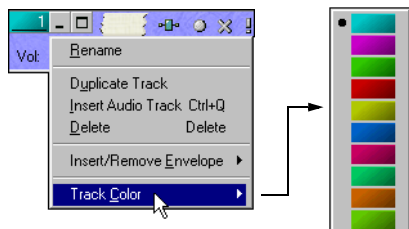
Note: To select multiple tracks, click them while holding down either the **Shift** key to select adjacent tracks, or the **Ctrl** key to select random tracks.

Changing a track's color

When you add a track to Vegas Pro, a color is assigned to that track. This color may be changed. This feature is useful if you want to organize similar tracks together. For example, you may want all your background vocals to have a different color from your lead vocals.

To change a track's color, do the following:

1. In the Track List, right-click on a track to display a shortcut menu.



2. From the shortcut menu, choose Track Color to display a sub-menu.
3. From the sub-menu, select a color for the track's number and events.

Changing track height

There are two ways to control track height in your project: toggling the tracks' height and expanding an individual track.

Toggling the tracks

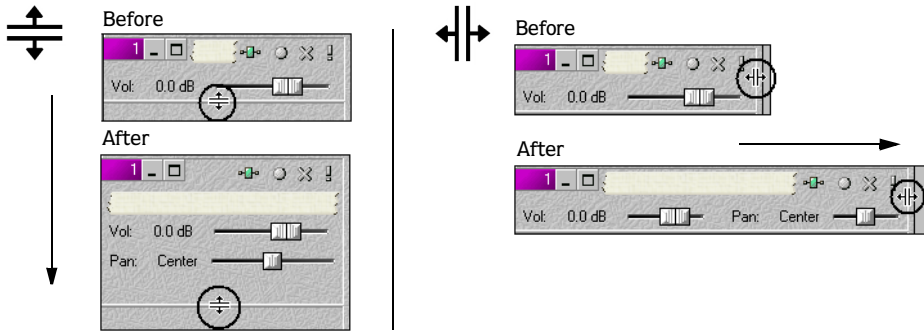
You may change an individual track's height in the Track View by clicking the view (☐, ☐, ☐) buttons on the track. Alternatively, you may use the **Ctrl+Shift+↑** or **Ctrl+Shift+↓** shortcut keys to toggle through different track-height scenarios. The shortcut keys affect all tracks in your project and make them the same height.

Click	Track height	Press command keys
		Ctrl+Shift+↑ or Ctrl+Shift+↓
		Ctrl+Shift+↑ or Ctrl+Shift+↓
		Ctrl+Shift+↑ or Ctrl+Shift+↓

Expanding an individual track

You may resize a track by “pulling” the lower or right portion of it. Place the mouse pointer at the bottom or right side of the track. The pointer turns into an up/down or left/right arrow.

Click and drag while moving the arrow up/down (height) or left/right (width). Release the mouse to set the desired track size.



Working with tracks

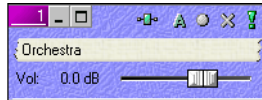
Each track in your project has its own controls, faders, and sliders. You can work with these controls to affect the event(s) that are contained on the track. Each track’s controls work independently from the other tracks in your project.

Using the track fader

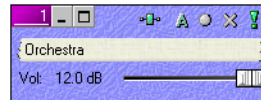
This fader controls the volume of the events on the particular track. The fader’s range is $-.inf$ to 12dB. To adjust the fader, simply click and drag it to the desired volume level. As you drag the fader, you will see the volume level displayed to the left of the fader. Double-clicking the fader will reposition it to 0.0 dB.



Click and drag left



Double-click the slider to reset to 0.0dB.



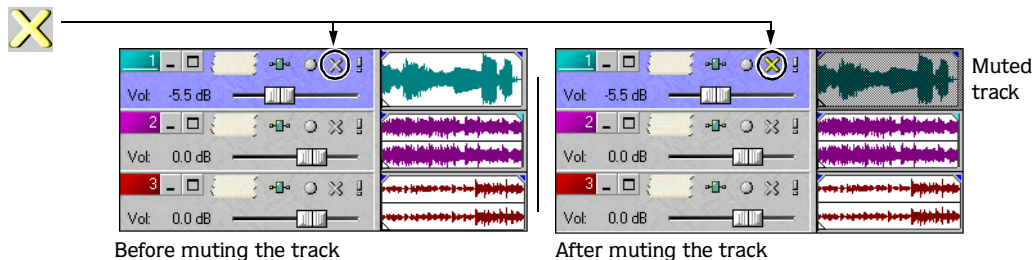
Click and drag right

Note: You may also move the fader by clicking it and using the right or left arrow keys on the keyboard.

Muting a track

This track button enables you to temporarily disable playback of the track, so you can focus on another track's event(s). When a track is muted, it appears “grayed out” on the Track View. You may mute more than one track at a time.

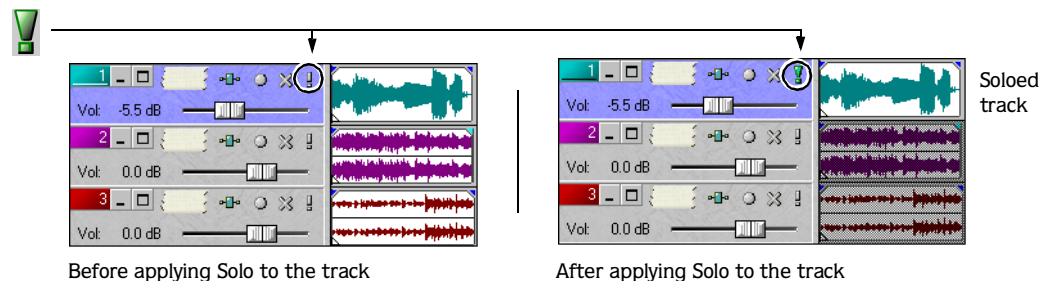
To mute the track, simply click the mute (X) button. Click it again to “unmute” the track.



Soloing a track

This track button isolates a track's events for playback and mutes the other tracks' events, so you can focus on a track. When you solo a track, the other tracks will be “grayed out” on the Track View. You may solo more than one track at a time.

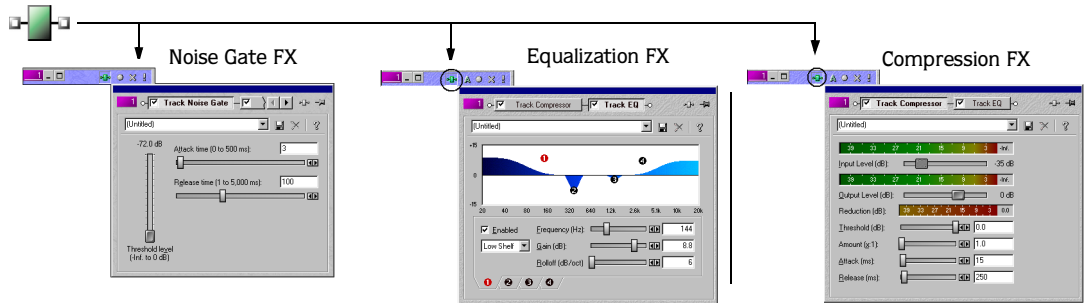
To solo the track, simply click the solo (S) button. Click it again to restore all tracks for playback.



Adding track FX

Each track in your project has built-in FX: equalization (EQ), compression, and Noise Gate. These FX can be accessed by clicking the FX (+) button on the track. When you apply Track EQ, Track Compression, or Noise Gate FX, the settings that you specify will only affect that track and the events contained on it.

These FX give you powerful flexibility and control of a track's events. How to set and work with these controls is discussed later in this manual. *For more information, see [Track FX](#) on page 155.*

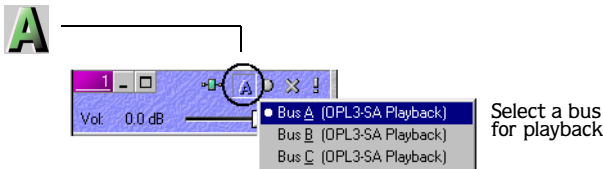


Assigning a track to a bus

A bus is where various track signals are mixed together and output. If your project contains multiple stereo busses, you may assign a track to a specific bus output.

To assign a track to a bus, do the following:

1. Click the Bus (A) button to display a drop-down list of available busses.
2. From the drop-down list, choose the bus to which you want to output the track.



Note: If you only have one stereo bus in your project, this button will not appear in the tracks controls. For more information, see [Working with project properties](#) on page 43.

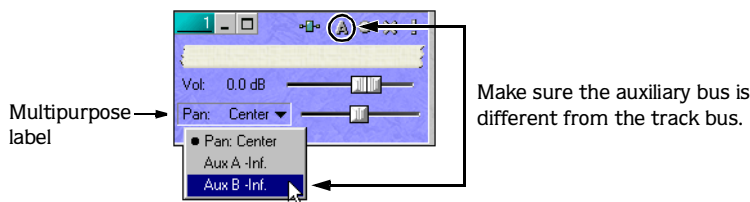
Assigning a track to an auxiliary bus

An auxiliary bus allows you to send track signals to a secondary bus independent of the primary bus. Auxiliary busses are usually used to separate signals from the rest of the project. For example, if a musician in a studio only wants to listen to the guitar portion of the project, you can set up an auxiliary bus for that purpose. Then the musician can play his or her part while only listening to the guitar.

An auxiliary bus do not affect the project's overall playback. As shown in the previous section, the primary bus is set using the Bus (A) button on a track's toolbar. Setting up the auxiliary bus works differently.

To set up and auxiliary bus, do the following:

1. If you do not see the multipurpose slider, expand the track to display it.
2. Click on the multipurpose label to display a drop-down list.

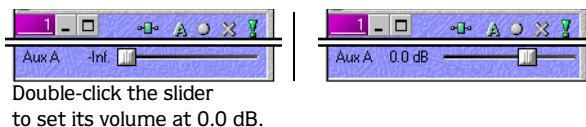


3. From the drop-down list, choose the auxiliary bus output.

Note: If you only have one stereo bus in your project, the drop-down list will not appear. For more information, see [Working with project properties](#) on page 43.

Adjusting the auxiliary bus volume

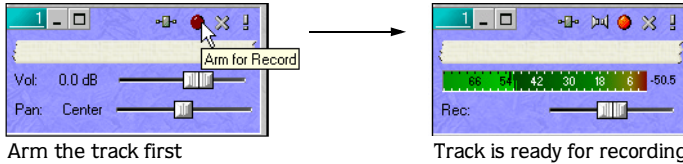
When you select an auxiliary bus, you will need to adjust its playback volume with the fader. Auxiliary tracks' volume are preset to -inf. dB (mute) for playback.



Setting up to record into tracks

Vegas Pro allows you to record into single or multiple tracks. You may record into tracks that are empty or tracks that contain events.

However, before you record into a track you need to “arm” the track. Setting up a track for recording is simply done by clicking the Arm for Record (●) button on the track(s). After you click this button, you will see a record meter appear on the track(s) to be recorded into.



More details on recording is discussed later in this manual. *For more information, see [Recording](#) on page 141.*

Using track envelopes

Track envelopes allow you to control volume and panning aspects of a particular track. Volume envelopes automate the volume used for events on a track, auxiliary bus, FX send, or all at the same time. A panning envelope automates the panning aspects used for events on a track.

Adding a volume envelope

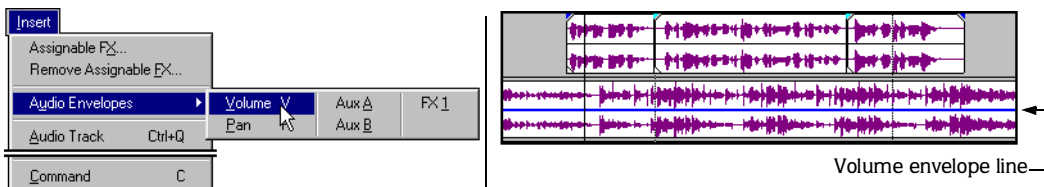
The type of volume envelope that you add will determine what Vegas Pro component's volume is automated. You may add volume envelopes to tracks, auxiliary busses, and FX sends. A volume envelope can be added to just one or all components at the same time. You can distinguish the volume envelopes by their color.

Envelope type	Color
Track	Blue
Auxiliary bus	Magenta
FX send	Green

The following procedure describes adding a track volume envelope; this procedure is identical for auxiliary busses and FX sends. The only exceptions being which component you select and the volume envelope's color.

To add a volume envelope, do the following:


1. Select the track that you want to add the volume envelope. (You may select multiple tracks.)
2. From the **Insert** menu, choose **Audio Envelopes** and then choose **Volume**. Or, press the **V** key. A blue line appears across the track(s).



Adding envelope points

Once a volume envelope is placed, you may add points to it. These points will be used to move the envelope line so that the volume will be automated.

To add envelope points, do the following:

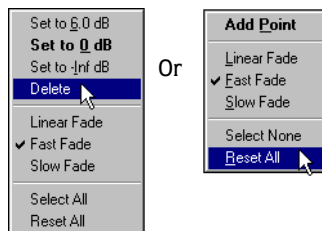
1. Place the mouse pointer on the volume envelope's line. The mouse pointer appears as a hand () .
2. Right-click and choose **Add Point** from the shortcut menu. A square point appears on the envelope line.

Or, simply double-click to add an envelope point.



3. Repeat step 2 as to add more points on the envelope.

Note: If you add too many points, you may delete a point by right-clicking it and choosing **Delete** from the shortcut menu. Or, you may start over adding envelope points by selecting **Reset All** from the shortcut menu.




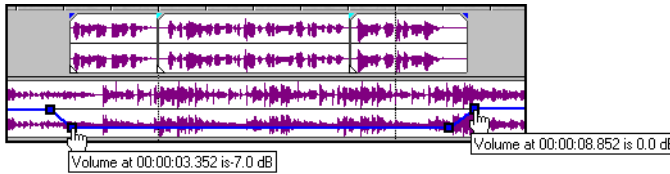
Or

Setting the volume envelope points

Once the envelope points have been added, you may raise and lower them to different decibel (dB) levels along the timeline to automate the track's volume. You may move one point at a time, even during play back and listen to the results in real-time. Also, you may set the type of fade curve between each envelope point.



To move an envelope points, do the following:

1. Place the mouse pointer on an envelope point. The mouse pointer appears as a hand () .
2. Click and drag the points to the desired position. As you move an envelope point, an information box displays both the point's occurrence on the timeline and its decibel level.

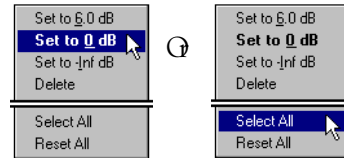


You can only set one point at a time or use the Envelope tool to select and move multiple points at a time.



3. Click either  or  to play back the project and check the timing of the envelope.
4. Repeat steps 2-3 until the envelope points are at the desired position.

Note: You may also set the volume by right-clicking an envelope point and choosing a volume setting from the shortcut menu. Or, choose Select All from the shortcut menu to raise or lower all points on the envelope.

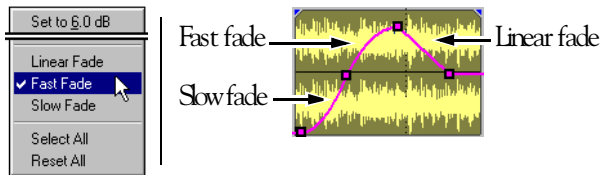


Changing the volume fade curves

Between each envelope point, you may set the type of volume fade curve: fast, linear, or slow. From the selected envelope point, fade curves are applied to the volume lines that occur later on the timeline.

To set the volume fade curve, do the following:

1. Right-click on a point to display a shortcut menu.



As the graphic shows, you may have more than one type of fade curve on an envelope.

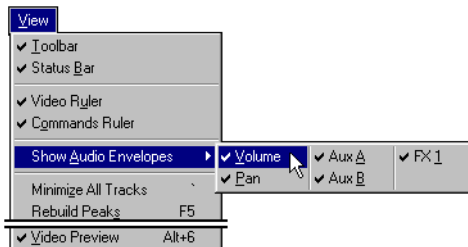
2. From the shortcut menu, choose the curve type. Curve types are applied to volume line.

Hiding the volume envelopes

After you have set your volume envelopes on the tracks, you may hide them from the Track View. Hiding volume envelopes will not affect playback. The points that you set will still automate the volume, you simply will not see the volume envelope's line until you display them again.

To hide a volume envelope, do the following:

1. From the **View** menu, choose **Show Audio Envelopes**. A sub-menu will appear. There will be a check mark next to **Volume**, indicating that those envelopes are currently displayed.



2. From the sub-menu, choose **Volume**. All volume envelopes in your project will no longer appear in the Track View.
3. Repeat steps 1-2 to display the volume envelopes again.

Removing track volume envelopes

You may remove a volume envelope from a track. When you remove the envelope, the events on the track will no longer have automated volume. Also, the volume envelope line will no longer be displayed.

It is important to remember that when you remove a volume envelope from a track and then add it again, you will need to reset the volume points.

To remove a volume envelope, do the following:

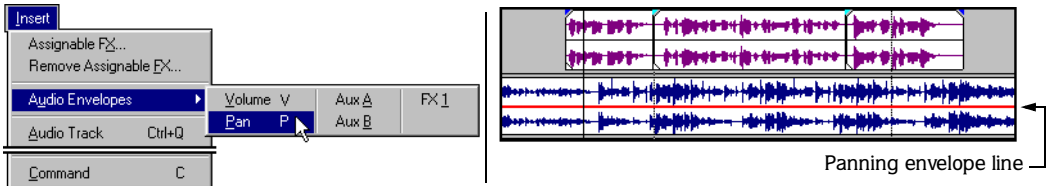
1. Select the track or tracks that you want to remove the volume envelope(s).
2. From the **Insert** menu, choose **Audio Envelopes**. A sub-menu will appear. There will be a check mark next to **Volume**, indicating that those envelopes are currently being used.
3. From the sub-menu, choose **Volume**. All volume envelopes on the selected tracks will be removed.

Adding a panning envelope

A panning envelope allows you to control how a track's events are mixed to either the right or left speaker. You may add panning envelopes to tracks, which can be assigned to an auxiliary bus and FX send. A panning envelope can be added to one or multiple tracks at the same time. A panning envelope line appears in red.

To add a panning envelope, do the following:

1. Select the track(s) that you want to add the panning envelope.
2. From the **Insert** menu, choose **Audio Envelopes** and then choose **Pan**. Or, press the **P** key. A red line appears across the track(s).

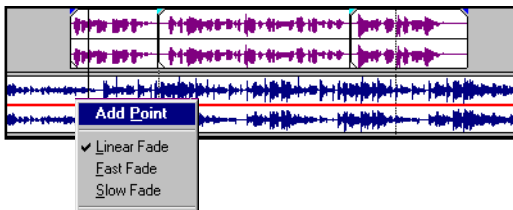


Adding pan envelope points

Once a pan envelope is placed, you may add points to it. These points will be used to move the envelope line so that the panning effect will be automated.

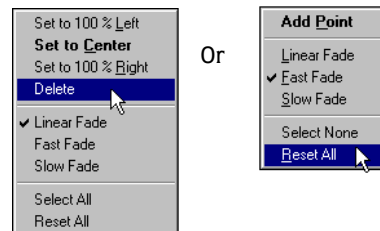
To add envelope points, do the following:

1. Place the mouse pointer on the envelope line. The mouse pointer appears as a hand (☞).
2. Right-click and choose **Add Point** from the shortcut menu. A square point appears on the envelope line. Or, simply double-click to add a envelope point.



3. Repeat step 2 as to add more points on the envelope.


Note: If you add too many points, you may delete a point by right-clicking it and choosing **Delete** from the shortcut menu. Or, you may start over adding envelope points by selecting **Reset All** from the shortcut menu.

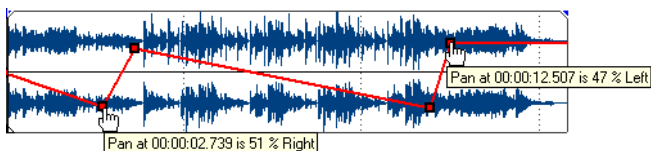


Setting the panning envelope points



Once the envelope points have been added, you may move them to different panning values along the timeline to automate the track's panning effect. You may move one point at a time, even during play back and listen to the results in real-time. Also, you may set the type of fade curve between each envelope point.

To move an envelope point, do the following:

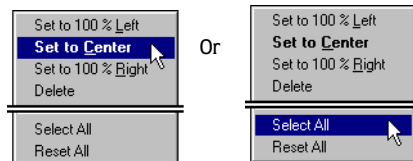
1. Place the mouse pointer on an envelope point. The mouse pointer appears as a hand () .
2. Click and drag the points to the desired position. As you move a pan point, an information box displays both the point's occurrence on the timeline and its decibel level.



You can only set one point at a time. Two are shown for display purposes.

3. Click either  or  to play the project and check the timing of the panning envelope.
4. Repeat step 2-3 until the envelope points are at the desired position.

Note: You may also set the pan by right-clicking an envelope point and choosing a pan setting from the shortcut menu. Or, choose Select All from the shortcut menu to raise or lower all points on the envelope.

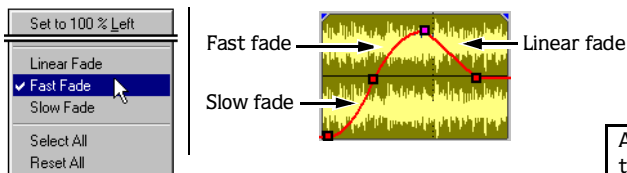


Changing the pan fade curves

Between each envelope point, you may set the type of pan fade curve: fast, linear, and slow. From the selected envelope point, fade curves are applied to the pan lines that occur later on the timeline.

To set the pan fade curve, do the following:

1. Right-click on a point to display a shortcut menu.



As the graphic shows, you may have more than one type of fade curve on an envelope.

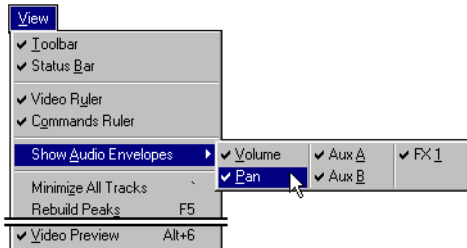
2. From the shortcut menu, choose the curve type to be applied to the pan line.

Hiding the panning envelopes

After you have set your panning envelopes on the tracks, you may hide them from the Track View. Hiding panning envelopes will not affect playback. The points that you set will still automate the panning, you simply will not see the panning envelope's line until you display them again.

To hide a panning envelope, do the following:

1. From the **View** menu, choose **Show Audio Envelopes**. A sub-menu will appear. There will be a check mark next to **Pan**, indicating that those envelopes are currently displayed.



2. From the sub-menu, choose **Pan**. All panning envelopes in your project will no longer appear in the Track View.
3. Repeat steps 1-2 to display the panning envelopes again.

Removing track panning envelopes

You may remove a panning envelope from a track. When you remove the envelope, the events on the track will no longer have automated panning. Also, the panning envelope line will no longer be displayed.

It is important to remember that when you remove a panning envelope from a track and then add it again, you will need to reset the pan points.

To remove a panning envelope, do the following:

1. Select the track or tracks that you want to remove the panning envelope(s).
2. From the **Insert** menu, choose **Audio Envelopes**. A sub-menu will appear. There will be a check mark next to **Pan**, indicating that those envelopes are currently being used.
3. From the sub-menu, choose **Pan**. All panning envelopes on the selected tracks will be removed.

Mixing multiple tracks to a single track

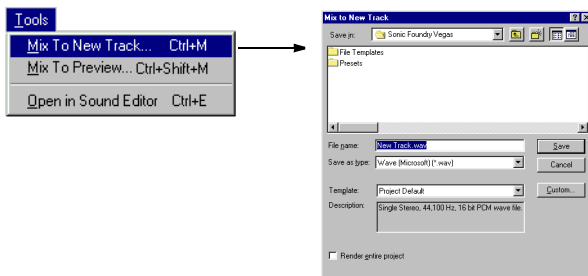
Vegas Pro allows you to mix down a time selection or an entire project to a single-track stereo event. However, if your project includes any muted tracks, Vegas Pro will not mix those events into the new mixed down track. The original tracks and their events are unaffected when you mix to a single track.

Typically, you would use this feature when you are finished refining a few tracks and want to combine them. Also, when you mix multiple tracks to a single-stereo track, any envelope or track effects that you applied will be rendered into the newly mixed down track.

This option allows you to “destructively” process any FX that you want to commit.

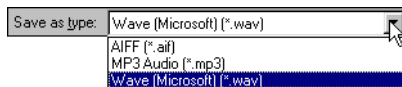
To mix multiple tracks to a single-stereo track, do the following:

1. To mix specific events, make a time selection. Otherwise, skip to step 2 to mix the entire project.
2. From the **Tools** menu, choose **Mix to New Track** or press the **[Ctrl]+[M]** shortcut keys. The Mix to New Track dialog will appear.

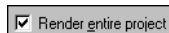
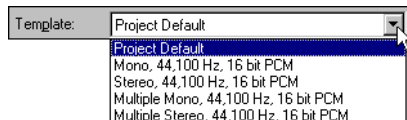


The Mix to New Track dialog has settings that you can apply to the newly mixed track.

- From the Save in drop-down list, select the drive or folder to save the new media file.
- Type a new media file in the File name field.




- From the Save as type drop-down list, choose the file format (*.wav is the preset).
- From the Template drop-down list, choose an audio format from the template list.



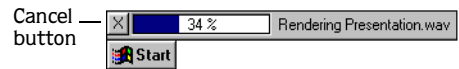
- Click the Render entire project check box if you did not remove the time selection but want to include all the events in your project in the new mixed down track, except muted tracks.

3. Click the **Save** button to mix down the time selection or project to a new track.

As the tracks are being mixed down, you will see a status bar appear in the lower left portion of Vegas Pro.

Note: You may cancel the rendering process by clicking the  button on the status bar.

Status bar



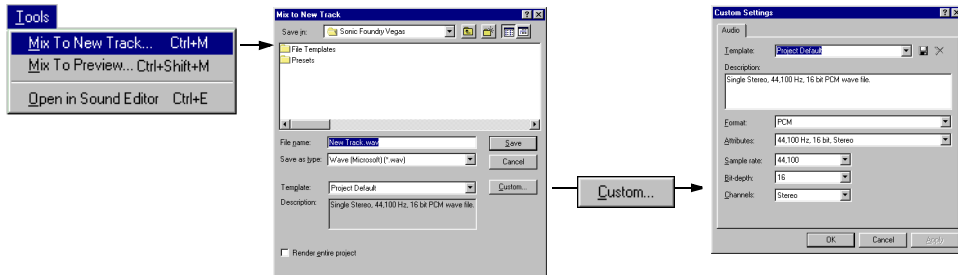
After Vegas Pro mixes down the new track, it will appear at the bottom of the Track View. If you mixed down the entire project, you may delete the other tracks from the project, since they are all contained on the new track.

Creating a mix to new template

You may create your own templates for mixing down tracks or projects. When you create a template you may choose its name from the Template drop-down list in the Mix to New Track dialog.

To create a custom template, do the following:

1. From the **Tools** menu, choose **Mix to New Track** or press the **Ctrl+M** shortcut keys. The Mix to New Track dialog will appear.




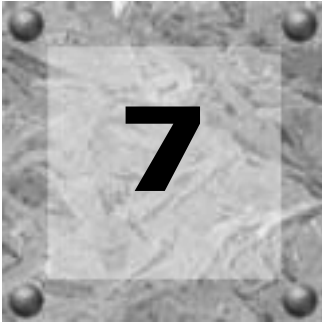
2. Click the **Custom** button to display the Custom setting dialog.

The settings that you may change are as follows:

Template	Enter the name of your template	Sample rate	Choose a rate from the drop-down list
Description	Enter the template's parameters	Bit-depth	Choose a bit-depth from the drop-down list
Format	Choose an audio format from the drop-down list	Channels	Choose a channel option from the drop-down list

3. Click the  button to save the template.

Or, click the  button to delete a selected template.



Recording

Vegas Pro will record into multiple mono or stereo audio tracks while simultaneously playing back existing audio tracks. You are limited only by the performance of your computer system and audio hardware. You may record into an empty track, a time selection, an event, or a combination of time and selection. Audio playback during recording is not recorded with the new audio.

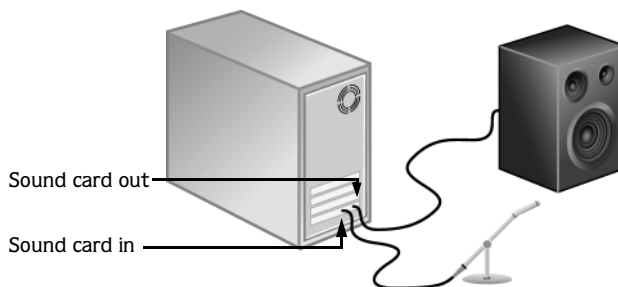
Recording in Vegas Pro is a non-destructive operation. Even when recording into an existing event, you are not overwriting the data that is already displayed in that event. Instead, the data is recorded into a new take for that event.

Setting up your equipment

Following are general setup scenarios. There are numerous ways to connect your equipment to your system. Refer to your equipment's documentation for specific setup instructions.

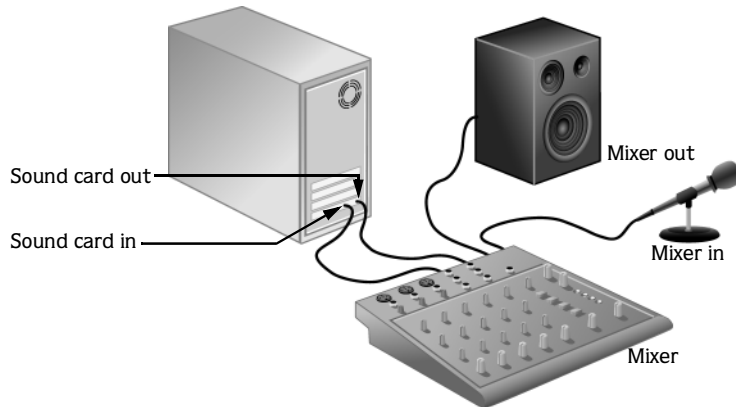
Basic setup

This setup includes a simple microphone and speaker that are connected to the computer's sound card. With a more sophisticated microphone, you would typically want to use a preamplifier for input to the sound card.



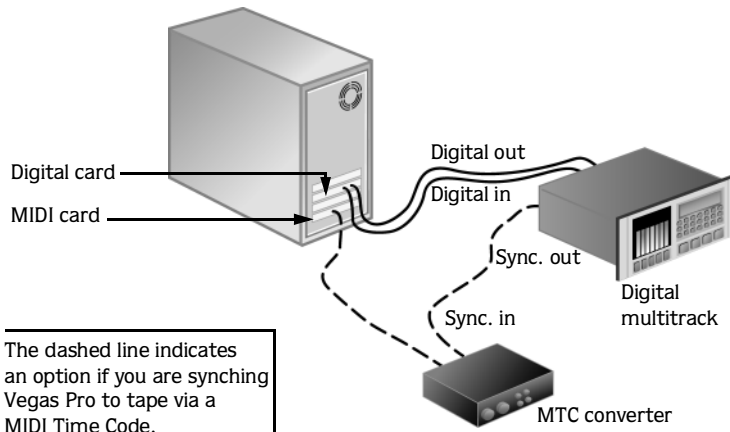
Setup with mixer

This setup includes a mixer where the speaker and microphone connect. The mixer is then connected to the computer's sound card. Mixers usually have pre-amps built into them. This diagram does not show you an instrument or a physical preamplifier, such as a rack-mounted component. The reason for this omission is because these types of setup vary widely based on your mixer, instrument, and pre-amp type. Refer to your components' documentation for specific setup configurations.



Setup with digital multitrack

This setup includes a digital multitrack recorder with an optional MIDI synchronization component. Usually you would have a mixer, microphone, etc. connected to these components. For simplicity, this diagram demonstrates that Vegas Pro can be used in this type of environment. As mentioned earlier, your particular setup may vary depending on your equipment. Refer to your components' documentation for specific setup configurations.



Starting and stopping recording

Whether you are recording into an empty track, a selected event, or a time selection, you need to prepare the track(s) for record by clicking the Arm for Record (●) button before any new data is created. Once a track is armed, you will see a record meter appear on the track(s) to be recorded into.

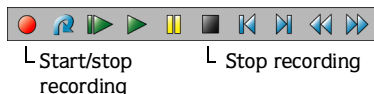


Arm the track first



Track is ready for recording

To start recording, click the Record button (●) on the Transport bar, which is located just below the Track View.



Start/stop recording

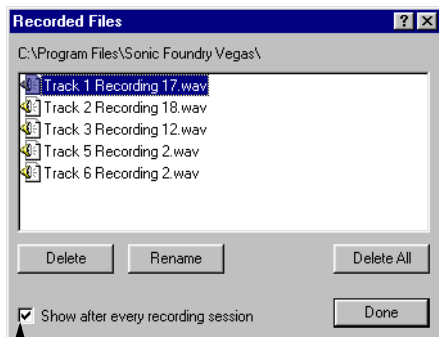
Stop recording



Recorded waveform

Depending on the recording selection, you will see Vegas Pro create a waveform along the timeline as you record into the armed track(s).

To stop recording, click the Record button (●) again or the Stop button (■) on the Transport bar. A dialog will appear giving you the opportunity to rename, delete, or keep the *.wav file.



Delete—removes selected file

Rename—changes the name of a selected file

Delete All—removes all files in dialog

Done—returns to Track View

When a check mark appears in this box, Vegas Pro will display this dialog after each recording session.

Recording into an empty track

Whether your project is new or already contains tracks, you may record into an empty track. As you record, Vegas Pro will create the event's waveform that will display on the track. The event, like all events in your project, will have a source media file. By default, Vegas Pro stores recorded media files in the Vegas Pro program folders. However, you may specify where recorded media files are stored. *For more information, see [Specifying where recordings are stored](#) on page 153.*

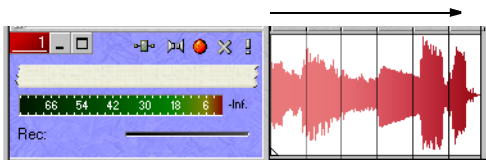
On the Track View, the cursor position is where recording will begin. You may want to place the cursor along the timeline before you record. Positioning the cursor is not always necessary since you may move the event after recording.

To record into an empty track, do the following:

1. Press the **Ctrl+Q** keys to insert an empty track.
Or, from the **Insert** menu, choose **Audio Track**.
2. Place the cursor on the timeline where you want to begin recording.
3. Select the track that you want to record into.

Note: To select multiple tracks, click them while holding down either the **Shift** key to select adjacent tracks, or the **Ctrl** key to select random tracks.

4. Arm the selected track(s) by clicking the Arm for Record button (●) on the track(s).
5. Start recording by clicking the Record button (●) on the Transport bar.



Recording will begin at the cursor's position and continue along the timeline until you stop recording.

Recording into a time selection

By making a time selection, you specify where along the timeline to record. Also, the time selection determines how long Vegas Pro will record. Any selected events that occur within the time selection will be split, and the recorded data will be placed into the time selection. *For more information, see [Recording into an event with a time selection](#) on page 147.*

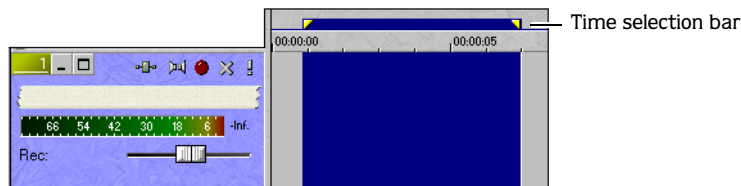
The recorded event, like all events in your project, will have a source media file. By default, Vegas Pro stores recorded media files in the Vegas Pro program folder. However, you may specify where recorded media files are stored. *For more information, see [Specifying where recordings are stored](#) on page 153.*

To record into a time selection, do the following:

1. Click the Arm for Record button (●) on the desired track.

Note: To select multiple tracks, click them while holding down either the **[Shift]** key to select adjacent tracks, or the **[Ctrl]** key to select random tracks.

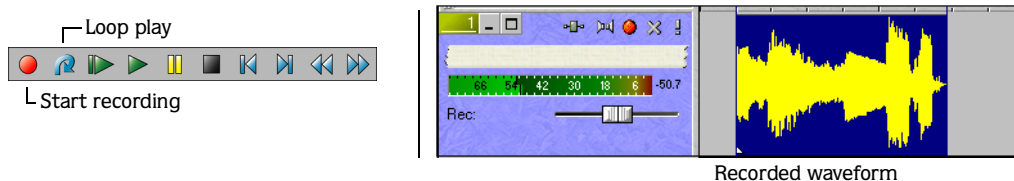
2. On the Marker bar, click and drag to make the time selection. You may adjust the time selection by dragging the selection bar's starting and ending points.



3. Click the Record button (●) on the Transport bar to begin recording.

Vegas Pro will display the event's waveform as it is recorded and automatically stop recording when the cursor reaches the end of the time selection.

To record multiple takes, click the Loop play (🔄) button on the Transport bar. *For more information, see [Working with multiple recorded takes](#) on page 148.*



Recorded waveform

Recording into an event

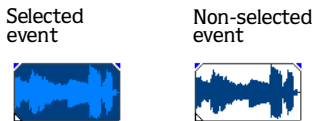
You may record directly into an event. By recording into an event, you specify where along the timeline to record and for how long. The edges of the selected event serve as the punch-in and -out points that Vegas Pro uses for recording. One advantage to recording into an event is that you can establish pre-roll before recording. Pre-roll gives you time to prepare before recording starts.

The existing event that you record into is not affected or deleted. It will be listed as a take “under” the recorded event. For more information, see [Working with multiple recorded takes](#) on page 148. After you record into an event, the recorded waveform appears on the track.

The recorded event, like all events in your project, will have a source media file. By default, Vegas Pro stores recorded media files in the Vegas Pro program folder. However, you may specify where recorded media files are stored. For more information, see [Specifying where recordings are stored](#) on page 153.

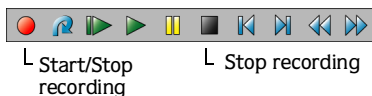
To record into a selected event, do the following:

1. Place the cursor before the event to allow for pre-roll.
2. Press the **Ctrl** key and click the event to select it.



Note: You may select multiple events and record into them. Hold down **Ctrl** key and make your selections.

3. Click the Arm for Record button (●) on the event’s track. If you are recording into multiple selected events, arm their respective tracks.
4. Click the Record button (●) on the Transport bar to begin recording.



Vegas Pro will display the event’s waveform as you record.

5. Click the Record button (●) or the Stop button (■) on the Transport bar to stop recording.

Recording into an event with a time selection

You may record into a selected event within a time selection. This option allows you to add for pre- and post-roll during recording. The time selection is adjustable to increase or decrease the pre- and post-roll. During recording, the selected event's edges serve as the punch-in and -out points.

You may need to split an existing event into three pieces so that you can select a smaller portion of the event to record into. For more information, see [Splitting events](#) on page 94.

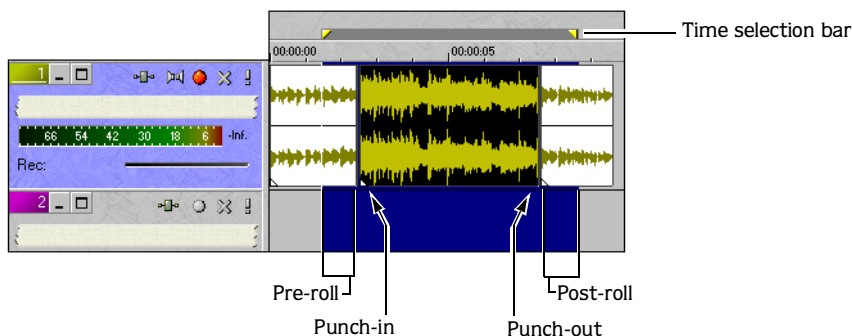
To record into an event with a time selection, do the following:

1. Click the Arm for Record button (●) on the desired track(s).
2. Select the event to record into.

Note: You may select multiple events and record into them. Hold down **Ctrl** key and make your selections.

3. On the Marker bar, click and drag to make the time selection. You may adjust the time selection by dragging the selection bar's starting and ending points.

To record multiple takes, click the Loop play (🔁) button on the Transport bar. For more information, see [Working with multiple recorded takes](#) on page 148.



4. Click the Record button (●) on the Transport bar to begin recording.

Note: You may create multiple punch-in and -out points by selecting more events within the time selection.

Working with multiple recorded takes

If you made a time selection during recording, clicking the Loop Play (🔁) button on the Transport bar will enable you to continually create takes during recording. Takes are different versions of a recorded event that you may play back and edit.

During recording, Vegas Pro continually “loops” back to the beginning of the time selection and starts recording a new take until you stop recording. After you are done recording takes, you can preview, choose a new active, rename, and delete them.

Previewing takes

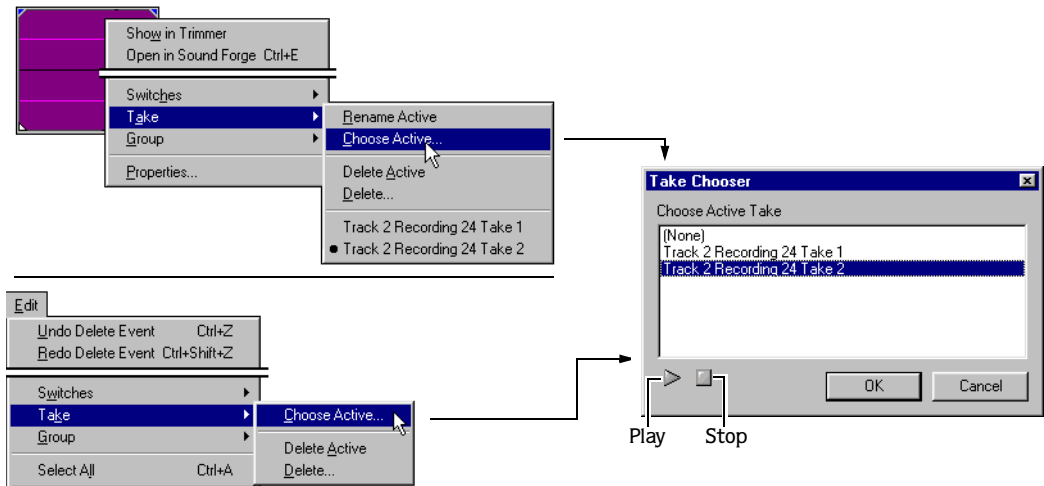
Vegas Pro allows you to view a list of takes and preview them before placing them in your project. The takes are listed from the selected event in which the takes were recorded.

To preview takes, do the following:

1. Select the event in which multiple takes were recorded.
2. Right-click to display a shortcut menu.

Or, from the **Edit** menu, choose **Takes** to display a sub-menu.

3. Select **Choose Active...** from the sub-menu. The Take Chooser dialog appear.



4. Select the take that you want to preview and use the Play (▶) and Stop (■) buttons within the dialog.
5. To use a take, select it and click the **OK** button or double-click the take that you want to use. The selected take is now the active take.

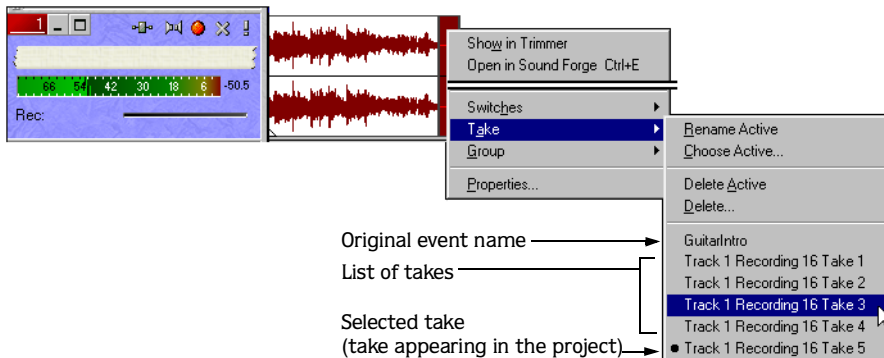
The event take will be displayed as the active take on the track in your project.

Choosing an active take after loop recording

As an alternative to the previous section, you may select an active take using the shortcut menu. After you have recorded multiple takes, the take that appears on the Track View is called the active take. The active take is the last one which you recorded. You may make a previous recorded take the active one so that it will play back.

To select new active take, do the following:

1. Select the event into which multiple takes were recorded.
2. Right-click to display a shortcut menu.



3. From the shortcut menu, choose Take. A sub-menu will appear with the event's original file name (in this example, GuitarIntro) followed by the recorded takes, which are numbered sequentially. The active take will have a bullet next to it.

Note: This listing of the original event and takes “rotate” as you make different takes active.

4. Select the take that you want to make active by clicking it.

Note: You may give takes more meaningful names by changing the event's name. For more information, see [Renaming an event take](#) on page 150.

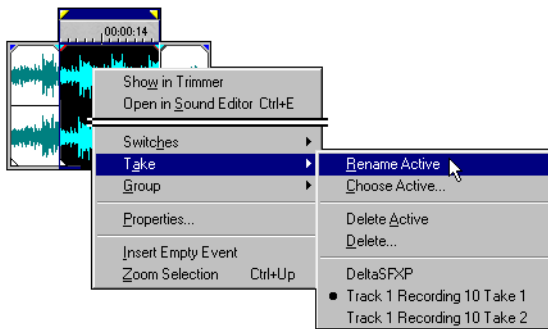
Renaming an event take

Vegas Pro names recorded takes by specifying the track number and the take number, for example, Track 2 Recording 24 Take 2. These take names are specific to your project, but are not descriptive of what sound(s) were recorded. You may rename each take and give them more meaningful descriptions for easier reference while working on your project.

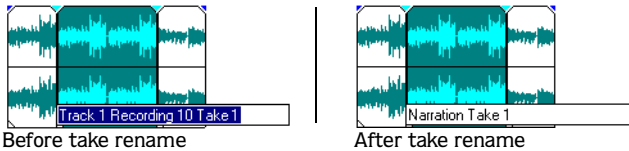
You may only rename the active take name. *For more information, see [Choosing an active take after loop recording on page 149](#).*

To rename an event take, do the following:

1. Click the recorded event to select it. The event being displayed is the active take.
2. Right-click on the selected event to display a shortcut menu.



3. From the shortcut menu, choose **Rename Active**. The take's name will appear in a text box in the lower-left portion of the event. The event's take name will be selected.



4. Type a new name in the text box.
5. Press the **Enter** key to save the new take name or click outside the text box.

Repeat steps 1-5 to rename the other takes in the event. Remember to make a take active before renaming it.

Note: You may also change event names via the event's properties. For more information, see [Changing the active take's name on page 102](#).

Deleting an event take

Vegas Pro allows you delete unwanted recorded takes from your project. Deleting a take does not remove the event takes source file. You need to manually remove unwanted media source files that were recorded. By removing unwanted media source files that were recorded, you will save on disk space. *For more information, see [Using the Explorer window on page 165](#).*

There are two ways to delete event takes: deleting the active take and deleting takes from a list.

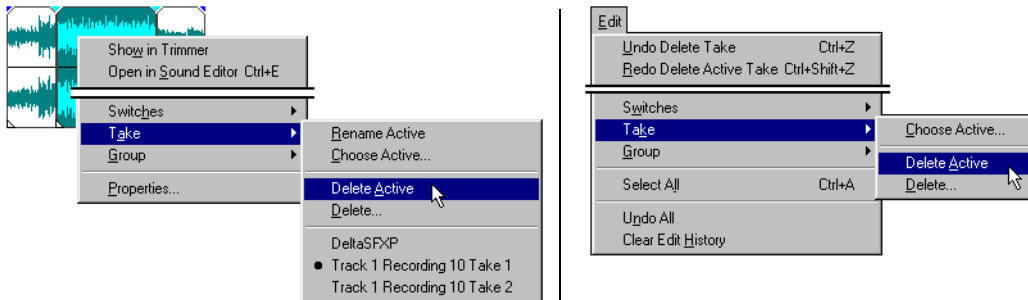
Deleting the active take

The active take is the event that appears on the Track View. If the event take you want to remove is not displayed, make it the active take before deleting it. *For more information, see [Choosing an active take after loop recording on page 149](#).*

To delete the active take, do the following:

1. Click on the event take to select it.
2. Right-click on the event take to display a shortcut menu.
3. From the shortcut menu, choose **Takes** and then **Delete Active** from the sub-menu.

Or, from the **Edit** menu, choose **Takes** and then **Delete Active** from the sub-menu.



The event take will be removed, and if there are multiple takes, the next take will appear on the Track View.

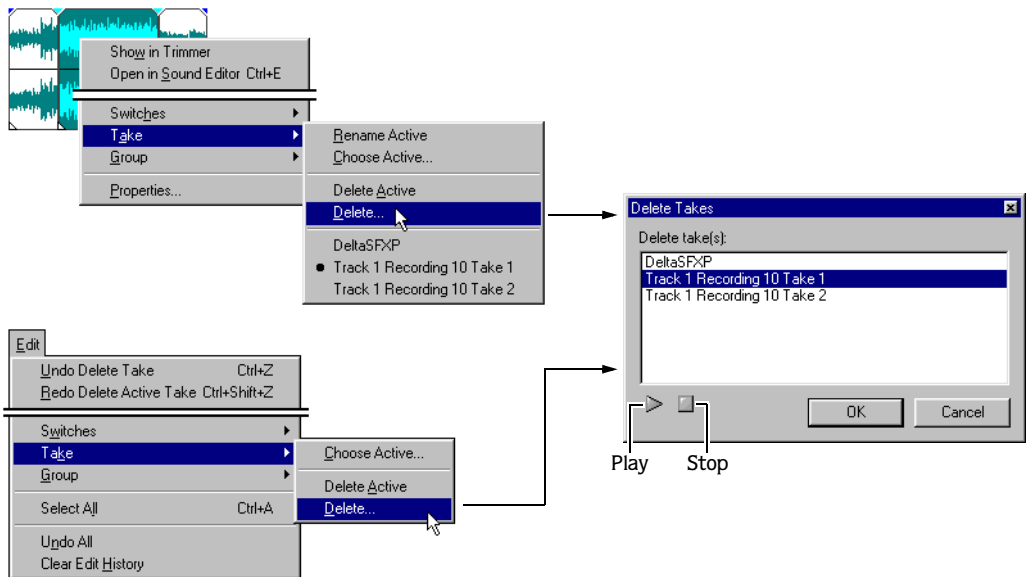
Deleting event takes from a list

You may delete takes from a list when you have chosen the one that you want to use in your project. You may delete multiple event takes at a time.

To delete event takes from a list, do the following:

1. Click on the event take to select it.
2. Right-click on the event to display a shortcut menu.
3. From the shortcut menu, choose **Takes** and then **Delete** from the sub-menu. The Delete Takes dialog will appear.

Or, from the **Edit** menu, choose **Takes** and then **Delete** from the sub-menu. The Delete Takes dialog will appear.



4. Select the event take that you want to remove. Click the play button to confirm that the selected event is the one you want to remove.

Note: To select multiple event takes, hold down either the **[Shift]** or **[Ctrl]** keys.

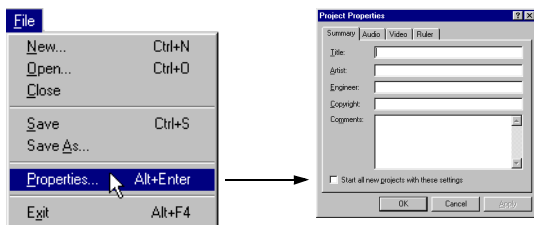
5. Click the **OK** button to remove the selected event take(s) from your project.

Specifying where recordings are stored

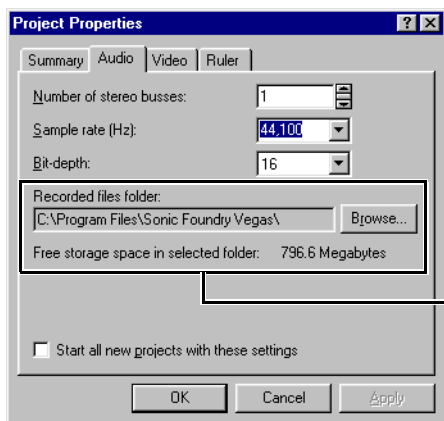
Vegas Pro is a non-destructive audio editing environment. Events within your project are actually references to media source files located on a storage device such as a hard drive or CD-ROM. When you record into Vegas Pro, the event appears on the Track View while its media source file is written to your hard drive. By default, Vegas Pro stores recorded media source files in the Vegas Pro program folder. However, you may specify where Vegas Pro writes and stores recorded media source files.

To change where recorded media source files are stored, do the following:

1. From the **File** menu, choose **Properties** or press the **Alt+Enter** shortcut keys. The Project Properties dialog will display.

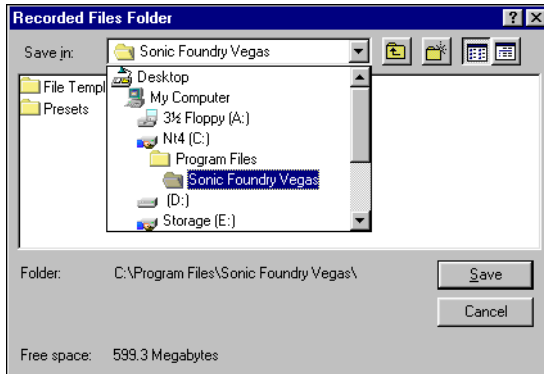


2. Click the Audio tab to display the projects audio properties.



Path where recorded media source files are written and stored. Also, available disk space.

3. Click the **Browse** button. The Recorded Files Folder dialog will appear.



4. Navigate to the hard drive or folder where you want Vegas Pro to write and store recorded media source files.
5. Click the **Save** button to set the destination drive or folder.
Click the **Cancel** button leave the current destination the same.
6. Repeat steps 1-4 to change the destination again.

Note: Check Start all new projects with these settings if you want new projects to store recorded media source files to the same location. Otherwise, Vegas Pro will use its default settings.

Start all new projects with these settings




Track and Assignable FX

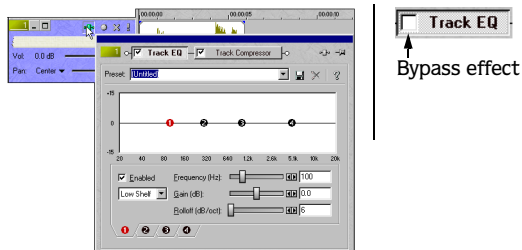
Vegas supports DirectX Audio plug-ins. Therefore, all of the DirectX Audio plug-ins, available from Sonic Foundry, or any other company will be available to use in your Vegas Pro project.

Track FX

Vegas Pro allows you to use the built-in Noise Gate, EQ, and Compression plug-ins on the tracks in any order. Standard DirectX Plug-ins can not be added to the tracks. To use standard DirectX plug-ins, use the Assignable FX or Bus FX. This information is discussed later in this chapter.

To add track FX, do the following:

1. Click on the Track FX button () on the track to which you want to add FX. The FX dialog appears.

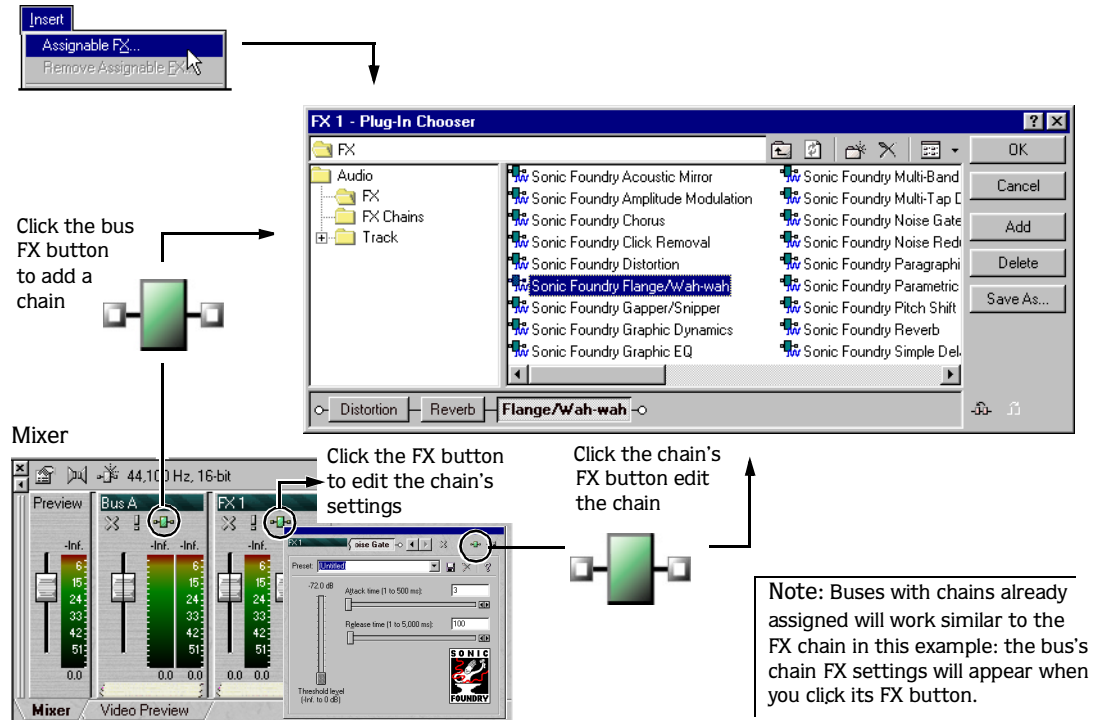


2. Adjust the settings for the FX and click the **OK** button.

Click on the help button (), within the FX dialog, for information on specifying these settings.

Plug-in Chooser

The Plug-in Chooser window allows you to create, organize, and rename the plug-ins compatible with Vegas Pro. You may access the Plug-in Chooser via the **Insert** menu, Assignable FX Control, and the Bus Control. The Assignable FX Control, which appears after you create a chain, and the Bus Control display in the Mixer window.

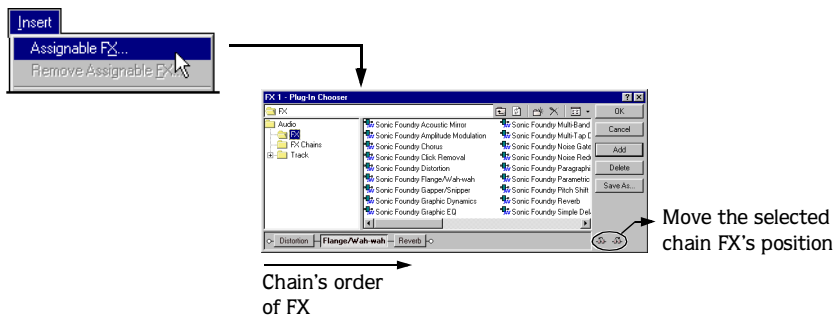


Creating an Assignable FX chain

You create plug-in chains in the FX Plug-in Chooser dialog. After you create the chain, an Assignable FX Control will appear in the Mixer window. You can create up to 32 plug-in chains in your project and each chain can have up to 32 plug-in FX.

To create a plug-in chain, do the following:

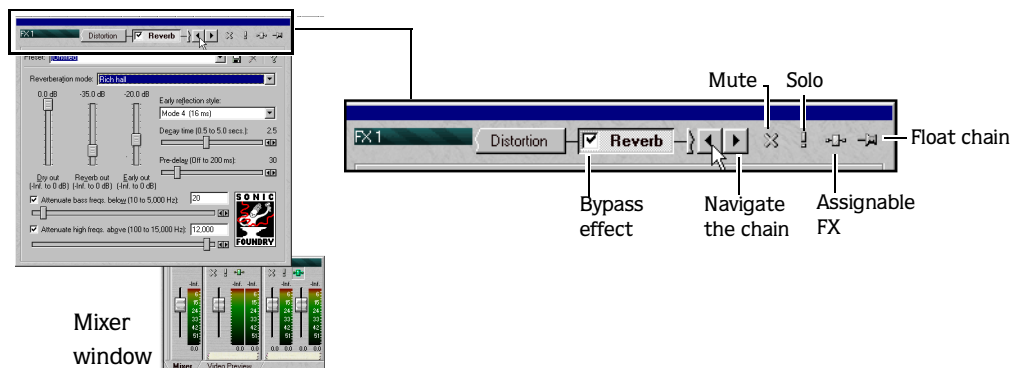
1. From the **Insert** menu, choose **Assignable FX**. The FX Plug-In Chooser dialog will appear.



2. Double-click on a plug-in to add it to the chain. Or, select the plug-in and click on the **Add** button.

The plug-ins appear at the bottom of the dialog in the order they were added. To reorder the plug-ins within the chain, click on the a plug-in and drag it to the new position or click the appropriate reorder button in the lower-right corner of the chooser dialog.

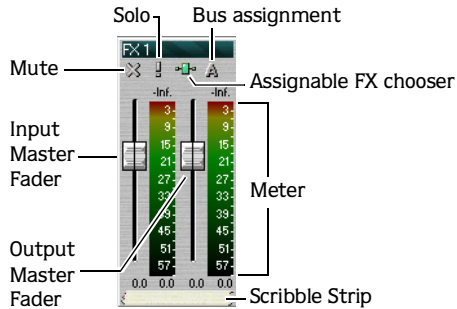
3. When you are finished, click the **OK** button. The new Assignable FX Control is added to the Mixer window and the FX dialog appears.



4. Adjust the settings for the FX. Click on the help button (?) within the FX dialog for information on specifying these settings.

Assignable FX Control

Assignable FX Controls appear, along with the Bus Controls, in the Mixer window. This control is created for each Assignable FX chain that you have added to your project.



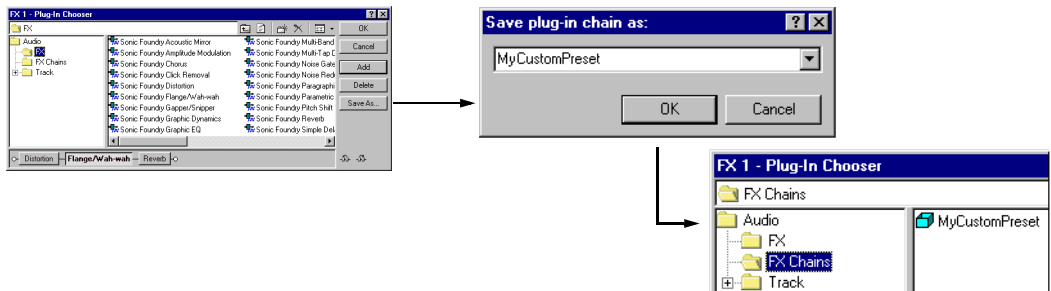
Mute	Mutes the Assignable FX
Master Fader	Adjusts the volume of the Assignable FX
Solo	Plays only the output of that Assignable FX chain
Assignable FX chain	Displays the Plug-in chooser and allows you to adjust the Assignable FX attributes
Meter	Displays the playback level of the Assignable FX
Scribble Strip	Allows you to name the Assignable FX. Double click on the Scribble Strip to enter a name

Saving Assignable FX as presets

You can save an Assignable FX chain settings as a preset for use in another project.

To save an Assignable FX chain as a preset, do the following:

1. Click on the Assignable FX button (⊞) on the Assignable FX Control. The FX dialog appears.
2. In the FX dialog, click on the Assignable FX chain button (⊞). The Plug-in chooser dialog appears.



3. Click on the FX Plug-in Chooser's **Save As** button. The Save Plug-in Chain dialog will appear.
4. Enter a name in the Save Plug-in Chain as dialog.
5. Click the **OK** button and the preset will be saved to the FX Chain folder in the Plug-in Chooser dialog.

Editing an Assignable FX chain

You may add or delete plug-ins, change the order of your plug-in chain, or change any of the Assignable FX attributes after you have created the Assignable FX chain.

Click on the Assignable FX chain button (+) on the Assignable FX Control in the Mixer window.



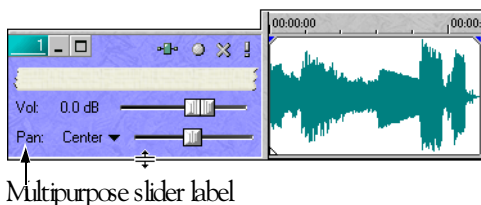
Routing tracks to an Assignable FX chain

You may assign tracks to an Assignable FX chain. Vegas Pro allows you to use a single plug-in on multiple tracks. For example, if you wanted to use the same reverb sound on several tracks, you could create a single Assignable FX chain and route the tracks to it in whatever mix you like.

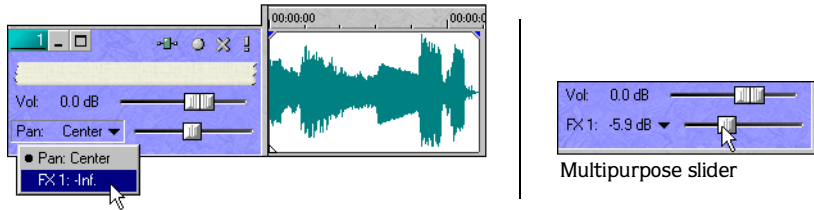
The Assignable FX chains that you have created appear in the Mixer window as individual Assignable FX Controls.

To route a track to an Assignable FX, do the following:

1. Expand the track so that you see the Multipurpose slider. *For more information, see [Expanding an individual track](#) on page 128.*



2. Click on the Multipurpose slider's label. Select the desired Assignable FX from the sub-menu. The label name changes to reflect the name of the Assignable FX.



3. Use the Multipurpose slider to adjust the volume level that the track sends to the Assignable FX chain.

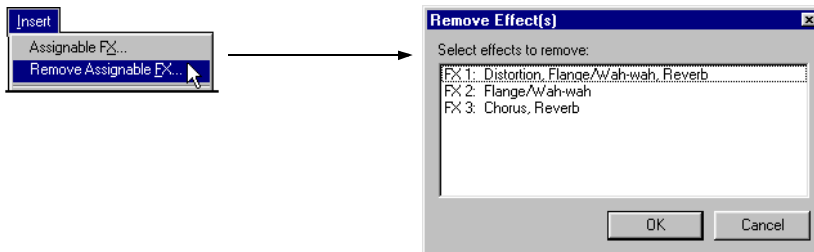
The Master Input Fader on the FX control can be used to adjust the combined level of all tracks being sent into the plug-in chain. It is important to remember that in most cases you will want to set the wet/dry levels inside the plug-ins to 100% wet. You can then control the wet/dry balance between the main track outputs and Assignable FX outputs using the Master Output Fader on the FX control. *For more information, see [Assignable FX Control](#) on page 158.*

Removing an Assignable FX

After you have created Assignable FX chains, you may remove them from your project at any time. When you remove an FX chain, it is deleted from the project. You must recreate the FX chain if you want to use it again. If you want to keep the chain, but do not want to use it in your current project, you may save the chain as a preset. *For more information, see [Saving Assignable FX as presets](#) on page 158.*

To remove an Assignable FX chain from your project, do the following.

1. From the **Insert** menu, choose **Remove Assignable FX**. The Remove Effect(s) dialog will appear.



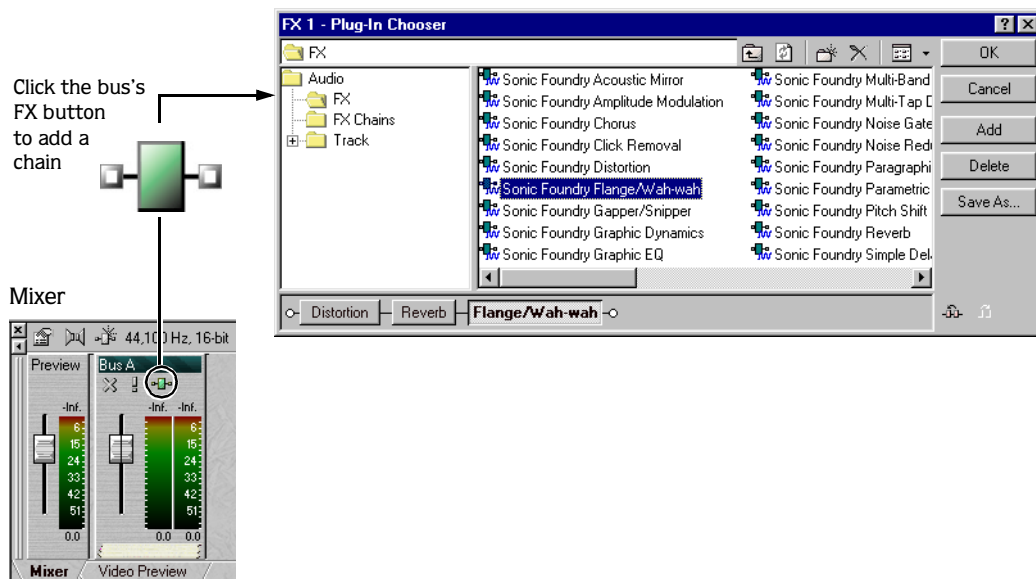
2. Select the FX or plug-in chain that you want to remove. To remove more than one item, hold down the **Ctrl** key while clicking on the FX or plug-in chain.
3. Click on the **OK** button. The FX chain is removed from the project and its Assignable FX Control is removed from the Mixer window.

Assigning FX to Busses

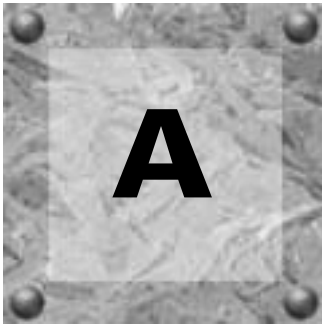
Along with assigning FX to individual tracks, you may also assign FX to busses. Any changes to Bus FX settings will affect all tracks assigned to that bus. If track FX (EQ or compression) exist and the track is assigned to a bus with FX, the track's signal will flow through the track FX before the Bus FX. *For more information, see [Signal Flow](#) on page 25.*

Assigning FX to Busses

1. Click on the Bus FX button (⊕), which is located in the Mixer window. The FX Plug-in Chooser dialog appears.



2. Double-click on a plug-in to add it to the chain. Or, select the plug-in and click on the **Add** button.
3. When you have finished adding the plug-ins, click on the **OK** button.



Troubleshooting

Why are some of my DirectX plug-ins not working correctly?

Vegas Pro is a non-destructive time-based editor. As a result, there are certain types of DirectX Plug-ins that perform poorly in Vegas Pro as Assignable FX or Bus FX. These types of plug-ins are roughly classified as any plug-in that outputs a different amount of time than what goes in. This includes all plug-ins like time compress/expand, gapper/snipper and pitch shift without preserving duration. However, these types of FX plug-ins may perform suitably as Bus FX, but *only* if one bus is used in the project.

In addition, plug-ins that require a lot of pre-buffering will also perform poorly such as Sonic Foundry Acoustic Mirror when using long impulse files.

Why do I hear gaps in my audio playback?

There are many reasons that your audio playback can gap.

- Playing back more simultaneous tracks than your hard drives can handle
- Running out of physical RAM can cause Windows to start using virtual memory
- Running too many DirectX plug-ins can use up all your computer's power
- Having sound card driver problems can cause play back gapping

Below are a things you can check and do to make sure your system is optimized to prevent gapping.

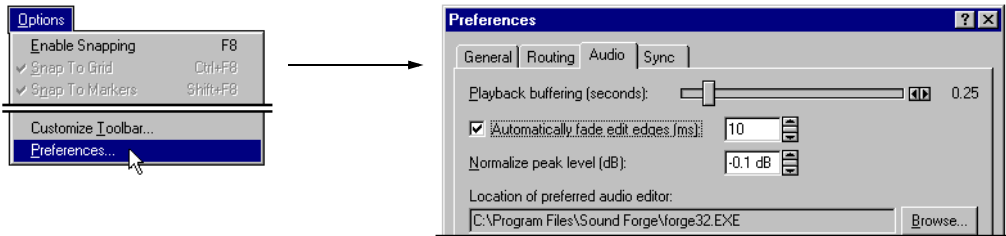
RAM usage meter

If the RAM usage meter at the bottom of the Vegas Pro Track View indicates that most of your physical RAM is in use, you could be gapping because Windows virtual memory is being used. Virtual memory is a method used by Windows to write information to your hard drive to make room in physical RAM. This process uses a lot of your computer's resources.



To minimize the amount of RAM that you are using, try the following:

1. Exit all background applications not in use.
2. Adjust the playback buffering slider on the Preferences' Audio tab.

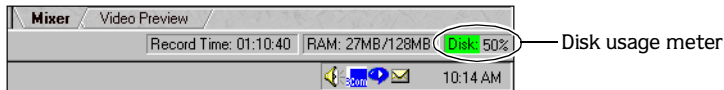


Adjust this slider as low as possible, but setting it too low will cause gaps as well.

3. Run fewer events simultaneously by muting or soloing them.
4. Add more RAM to your computer. However, after 128 MB, the performance increase that you get will start to decline.

Disk meter

If the Disk meter at the bottom of the Track View ever bounces near or above 50%, you will probably experience gapping. This issue is due to the data not being read off the hard drive fast enough.



To optimize the reading of data off the hard drive, try the following:

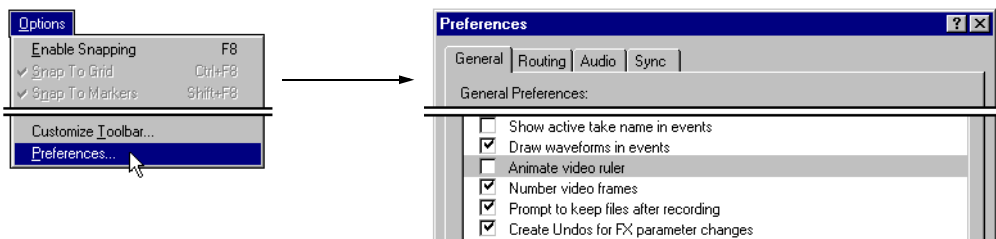
1. Fully defragment your audio hard drives regularly.
2. Split audio usage between different physical hard drives, not just different partitions of the same drive.
3. Run fewer events simultaneously. It is not how many tracks you have in the project, but how many different events are playing simultaneously that matters.
4. Make sure that you trim out any silent sections of events to minimize the wasted disk access.
5. Use hard drives with fast seek times and spindle speeds of 7200 RPM or greater. SCSI drives have better prolonged data transfer performance than IDE drives.

CPU usage

If neither the RAM or Disk meter looks out of the ordinary, you can try to adjust how Vegas Pro utilizes the central processing unit (CPU).

To optimize CPU usage, try the following:

1. If you are using video, turn off the **Animate video strip** option on the Preferences' General tab.



2. Zoom out (**[Ctrl] + [↓]**) fully on the Track View while playing so that the screen does not have to scroll to keep the cursor on it.
3. Run fewer DirectX plug-ins.
4. Make sure that the peak files are built for all of the audio data in the project before playing. Peaks are only built for those files on screen so you can get into the situation where the screen scrolls and it ends up building a peaks on-the-fly. You can play while peaks are being built, but on a CPU bound machine, it will gap for sure.

Why can't I get my other DirectX plug-ins to work as Track effects?

This version of Vegas Pro has a special DirectX interface at the track level. It means that only DirectX plug-ins with a special wrapper will work in that position. The Track EQ, Compressor and Dither plug-ins will work there.

MPEG and Quicktime Video Audio/Video Synchronization Issues

Vegas Pro is able to open MPEG and Quicktime audio/video files that were encoded using Microsoft DirectShow codecs. However, there is an implementation issue that causes the audio and video to fall out of sync with each other. This happens frequently and it is not consistent in its offset. Therefore, this issue makes working with these types of files troublesome.

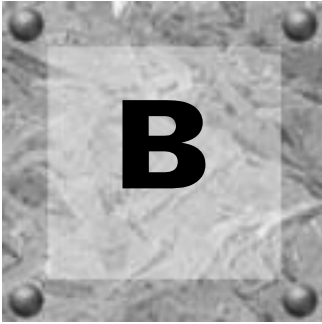
We are working to correct this issue for future versions of Vegas Pro. In the meantime, a work around is to separately save out the video and audio portions of the files into AVI and Wave files, respectively. After that, you can reload them into Vegas Pro, re-synchronize them and the synchronization will stay constant.

Some AVI's that open in Windows Media Player don't open in Vegas Pro

Some newer AVI files use codecs that are unreadable by applications that do not support Microsoft DirectShow codecs. These files are usually either compressed with a DV or MPEG 4 codec. They might also be larger than the standard AVI file limit of 4 Gigabytes. Vegas Pro does not currently support these files.

Why does a mono event increase 6 dB when panning a track hard to either side?

In Vegas Pro, all audio events on tracks is stereo. So, a mono-audio event is interpreted as a stereo event with the same data in both channels. The Vegas Pro track-pan control preserves some amount of stereo separation when panning a stereo signal and gradually mixes the level from channel to channel. Therefore, with a mono-audio event, Vegas Pro is adding a duplicate of the event on top of itself. This duplication doubles the amplitude and results in a 6 dB increase in volume when you pan a track hard left or right. To compensate for this increase, adjust the tracks volume with the fader. Or, lower the event's sustain portion using an event envelope (ASR). *For more information, see [Using event envelopes \(ASR\)](#) on page 110.*



Glossary

A-Law

A companded compression algorithm for voice signals defined by the Geneva Recommendations (G.711). The G.711 recommendation defines A-Law as a method of encoding 16-bit PCM signals into a non-linear 8-bit format. The algorithm is commonly used in United States' telecommunications. A-Law is very similar to μ -Law, however, each uses a slightly different coder and decoder.

Adaptive Delta Pulse Code Modulation (ADPCM)

A method of compressing audio data. Although the theory for compression using ADPCM is standard, there are many different algorithms employed. For example, Microsoft's ADPCM algorithm is not compatible with the International Multimedia Association's (IMA) approved ADPCM.

Aliasing

A type of distortion that occurs when digitally recording high frequencies with a low sample rate. For example, in a motion picture, when a car's wheels appear to slowly spin backward while the car is quickly moving forward, you are seeing the effects of aliasing. Similarly, when you try to record a frequency greater than one-half of the sampling rate (the Nyquist Frequency), instead of hearing a high pitch, you may hear a low-frequency rumble.

To prevent aliasing, an anti-aliasing filter is used to remove high-frequencies before recording. Once the sound has been recorded, aliasing distortion is impossible to remove without also removing other frequencies from the sound. This same anti-aliasing filter must be applied when resampling to a lower sample rate.

Amplitude Modulation (AM)

A process whereby the amplitude (loudness) of a sound is varied over time. When varied slowly, a tremolo effect occurs. If the frequency of modulation is high, many side frequencies are created which can strongly alter the timbre of a sound.

Analog

When discussing audio, this term refers to a method of reproducing a sound wave with voltage fluctuations that are analogous to the pressure fluctuations of the sound wave. This is different from digital recording in that these fluctuations are infinitely varying rather than discrete changes at sample time (see Quantization).

Attack

The attack of a sound is the initial portion of the sound. Percussive sounds (drums, piano, guitar plucks) are said to have a fast attack. This means that the sound reaches its maximum amplitude in a very short time. Sounds that slowly swell up in volume (soft strings and wind sounds) are said to have a slow attack.

Audio Compression Manager (ACM)

The Audio Compression Manager, from Microsoft, is a standard interface for audio compression and signal processing for Windows. The ACM can be used by Windows programs to compress and decompress *.wav files.

Bandwidth

Refers to the EQ plug-in that is built in. Each frequency band has a width associated with it that determines the range of frequencies that are affected by the EQ. An EQ band with a wide bandwidth will affect a wider range of frequencies than one with a narrow bandwidth.

Beats Per Measure (BPM)

In music theory, the time signature of a piece of music contains two pieces of information: the number of beats in each measure of music, and which note value gets one beat. Vegas Pro uses this notion to determine the number of ticks to put on the Time ruler above the Track View, and to determine the spacing when the ruler is displaying Measures & Beats.

Beats Per Minute

In music theory, the tempo of a piece of music can be written as a number of beats in one minute. If the tempo is 60 BPM, a single beat occurs once every second. Lower BPM's equal slower tempo, and vice versa.

Bit

A bit is the most elementary unit in digital systems. Its value can only be 1 or 0, corresponding to a voltage in an electronic circuit. Bits are used to represent values in the binary numbering system. As an example, the 8-bit binary number 10011010 represents the unsigned value of 154 in the decimal system. In digital sampling, a binary number is used to store individual sound levels, called samples.

Bit Depth

The number of bits used to represent a single sample. Vegas Pro uses either 8, 16, or 24-bit samples. Higher values will increase the quality of the playback and any recordings that you make. While 8-bit samples take up less memory (and hard disk space), they are inherently noisier than 16 or 24-bit samples.

Byte

Refers to a set of 8 bits. An 8-bit sample requires one byte of memory to store, while a 16-bit sample takes two bytes of memory to store.

Clipboard

The clipboard is where data that you have cut or copied in Vegas Pro is stored. You can then paste the data back into Vegas Pro at a different location, or paste it into other applications, such as Microsoft Word, or another instance of Vegas Pro. Some data, such as audio, cannot be pasted into applications such as Microsoft Word or Notepad, but the text data from the Edit Details window can be pasted. This allows you to then print or format the data.

Clipping

Clipping is what occurs when the amplitude of a sound is above the maximum allowed recording level. In digital systems, clipping is seen as a clamping of the data to a maximum value, such as 32,767 in 16-bit data. Clipping causes sound to distort.

CODEC

An acronym for Coder/Decoder that is commonly used when working with data compression.

Crossfade

Mixing two pieces of audio by fading one out as the other fades in.

Cutoff frequency

The cutoff-frequency of a filter is the frequency at which the filter changes its response. For example, in a low-pass filter, frequencies greater than the cutoff frequency are attenuated while frequencies less than the cutoff frequency are not affected.

DC Offset

DC Offset occurs when hardware, such as a sound card, adds DC current to a recorded audio signal. This current causes the audio signal to alternate around a point above or below the normal -infinity dB (center) line in the sound file. To visually see if you have a DC offset present, you can zoom all the way into a sound file and see if it appears to be floating over the center line.

Decibel (dB)

A unit used to represent a ratio between two numbers using a logarithmic scale. For example, when comparing the numbers 14 and 7, you could say 14 is two times greater than the number 7; or you could say 14 is 6 dB greater than the number 7. Where did we pull that 6 dB from? Engineers use the equation $\text{dB} = 20 \times \log (V1/V2)$ when comparing two instantaneous values. Decibels are commonly used when dealing with sound because the ear perceives loudness in a logarithmic scale.

In Vegas Pro, most measurements are given in decibels. For example, if you want to double the amplitude of a sound, you apply a 6 dB gain. A sample value of 32,767 (maximum positive sample value for 16-bit sound) can be referred to as having a value of 0 dB. Likewise, a sample value of 16,384 can be referred to having a value of -6 dB.

Device Driver

A program that enables Windows to connect different hardware and software. For example, a sound card device driver is used by Windows software to control sound card recording and playback.

Digital Signal Processing (DSP)

A general term describing anything that alters digital data. Signal processors have existed for a very long time (tone controls, distortion boxes, wah-wah pedals) in the analog (electrical) domain. Digital Signal Processors alter the data after it has been digitized by using a combination of programming and mathematical techniques. DSP techniques are used to perform many effects such as equalization and reverb simulation.

Since most DSP is performed with simple arithmetic operations (additions and multiplications), both your computer's processor and specialized DSP chips can be used to perform any DSP operation. The difference is that DSP chips are optimized specifically for mathematical functions while your computer's microprocessor is not. This results in a difference in processing speed.

Dithering

The practice of adding noise to a signal to mask quantization noise.

Drag and Drop

A quick way to perform certain operations using the mouse in Vegas Pro. To drag and drop, you click and hold a highlighted selection, drag it (hold the left-mouse button down and move the mouse) and drop it (let go of the mouse button) at another position on the screen.

Dynamic Range

The difference between the maximum and minimum signal levels. It can refer to a musical performance (high volume vs. low volume signals) or to electrical equipment (peak level before distortion vs. noise floor). For example, orchestral music has a wide dynamic range, while thrash metal has a very small (always loud) range.

Endian (Little and Big)

Little and Big Endian describe the ordering of multi-byte data that is used by a computer's microprocessor. Little Endian specifies that data is stored in a low to high-byte format; this ordering is used by the Intel microprocessors. Big Endian specifies that data is stored in a high to low-byte format; this ordering is used by the Motorola microprocessors.

Envelopes (Audio and Video)

Envelopes, as used by Vegas Pro, are a way of automating the change of a certain parameter over time. In the case of Volume, you can create a fade out (which requires a change over time) by adding an envelope and creating an extra point to the line that indicates where the fade starts. Next, you pull the end point of the envelope down to infinity.

Equalization (EQ)

The process by which certain frequency bands are raised or lowered in level. EQ has various uses. The most common use for Vegas Pro users is to simply adjust the subjective timbral qualities of a sound.

Event

A media file that has been placed into a Vegas Pro project. The media file is placed on a track or the video ruler and plays back as an audio or video "event" along the project's timeline.

File Format

A file format specifies the way in which data is stored on your floppy disks or hard drive. In Windows, the most common file format is the Microsoft *.wav format. However, Vegas Pro can read and write to many other file formats so you can maintain compatibility with other software and hardware configurations.

Frame Rate (Audio)

Audio uses frame rates only for the purposes of syncing to video or other audio. In the latter case, the rate of 30 non-drop is typically used. In the former case, 30 drop is usually used.

Frame Rate (Video)

The speed at which individual images in the video are displayed on the screen. A faster frame rate results in smoother motion in the video. However, more times than not, frame rate is associated with SMPTE standard frame rates for video: 29.97, 25 or 24 for film.

Frequency Spectrum

The Frequency Spectrum of a signal refers to its range of frequencies. In audio, the frequency range is basically 20 Hz to 20,000 Hz. The frequency spectrum sometimes refers to the distribution of these frequencies. For example, bass-heavy sounds have a large frequency content in the low end (20 Hz - 200 Hz) of the spectrum.

Hertz (Hz)

The unit of measurement for frequency or cycles per second (CPS).

Insertion Point

The Insertion Point (also referred to as the Cursor Position) is analogous to the cursor in a word processor. It is where pasted data is placed or other data is inserted, depending on the operation. The Insertion Point appears as a vertical flashing black line and can be moved by clicking the left mouse button any where in the waveform display of a data window.

Markers

Saved locations in the sound file. Markers are stored in the Regions List and can be used for quick navigation.

Markers can be displayed in the Trimmer window for sound files that contain them, but more often, markers and regions are used at the project level to mark interesting places in the project.

Media Control Interface (MCI)

A standard way for Windows programs to communicate with multimedia devices like sound cards and CD players. If a device has a MCI device driver, it can easily be controlled by most multimedia Windows software.

Media Player

A Microsoft Windows program that can play digital sounds or videos using MCI devices. Media Player is useful for testing your sound card setup. For example, if you can't hear sound when using Vegas Pro, try using Media Player. If you can't play sound using Media Player, check the sound card's manual. Please contact your sound card manufacturer before calling Technical Support at Sonic Foundry.

MIDI Clock

A MIDI device specific timing reference. It is not absolute time like MIDI Time Code (MTC); instead, it is a tempo-dependent number of “ticks” per quarter note. MIDI Clock is convenient for syncing devices that need to do tempo changes mid-song. Vegas Pro supports MIDI Clock out, but does not support MIDI Clock in.

MIDI Port

A MIDI Port is the physical MIDI connection on a piece of MIDI gear. This port can be a MIDI in, out or through. Your computer must have a MIDI to output MIDI Time Code to an external device or to receive MIDI Time code from an external device.

MIDI Time Code (MTC)

MTC is an addendum to the MIDI 1.0 Specification and provides a way to specify absolute time for synchronizing MIDI capable applications. Basically, it is a MIDI representation of SMPTE time code.

Mix

A function Vegas Pro performs inherently by adding events to multiple audio tracks.

Multiple Stereo

A Mixer configuration that allows you to assign individual tracks to any number of stereo output busses. In single stereo mode, all tracks go out the same stereo bus. Multiple stereo configuration allows you to keep your signals from the Tracks discrete if you want them to be.

Musical Instrument Device Interface (MIDI)

A standard language of control messages that provides for communication between any MIDI compliant devices. Anything from synthesizers to lights to factory equipment can be controlled via MIDI. Vegas Pro utilizes MIDI for synchronization purposes.

Noise-shaping

Noise-shaping is a technique which can minimize the audibility of quantization noise by shifting its frequency spectrum. For example, in 44,100 Hz audio, quantization noise is shifted towards the Nyquist Frequency of 22,050 Hz.

Non-Destructive Editing

This type of editing involves a pointer-based system of keeping track of edits. When you delete a section of audio in a non-destructive system, the audio on disk is not actually deleted. Instead, a set of pointers is established to tell the program to skip the deleted section during playback.

Normalize

Refers to raising the volume so that the highest level sample in the file reaches a user-defined level. Use this function to make sure you are fully utilizing the dynamic range available to you.

Nyquist Frequency

The Nyquist Frequency (or Nyquist Rate) is one-half of the sample rate and represents the highest frequency that can be recorded using the sample rate without aliasing. For example, the Nyquist Frequency of 44,100 Hz is 22,050 Hz. Any frequencies higher than 22,050 Hz will produce aliasing distortion in the sample if no anti-aliasing filter is used while recording.

Pan

To place a mono or stereo sound source perceptually between 2 or more speakers.

Peak Data File

The file created by Vegas Pro when a file is opened for the first time. This file stores the information regarding the graphic display of the waveform, so that opening a file is almost instantaneous. The peak data file is stored in the directory in which the file resides and has a .sfk extension. If the peak data file is not in the same directory as the file, or is deleted, it will be recalculated the next time you open the file.

Plug-In

An effect that can be added to the product to enhance the feature set. Vegas Pro supports all DirectX plug-ins. The built-in EQ, Compression and Dithering effects are also considered plug-ins because they work in other DirectX-compatible applications.

Plug-In Chain

Plug-ins can strung together into a chain so that the output of one effect feeds into the input of another. This allows for complex effects that couldn't otherwise be created.

Pre-roll/Post-roll

Pre-roll is the amount of time elapsed before an event occurs. Post-roll is the amount of time after the event. The time selection defines the pre- and post-roll when recording into a selected event.

Preset

A snapshot of the current settings in a plug-in. Presets are created and named so that you can easily get back to a sound that you have previously created.

A preset calls up a bulk setting of a function in Vegas Pro. If you like the way you tweaked that EQ, but do not want to have to spend the time getting it back for later use, save it as a preset. All presets show up in the combo box on the top of most function dialogs in Vegas Pro.

Pulse Code Modulation (PCM)

PCM is the most common representation of uncompressed audio signals. This method of coding yields the highest fidelity possible when using digital storage.

Punch-In

Punching-in during recording means automatically starting and stopping recording at user-specified times.

Quadraphonic

A mixing implementation that allows for four (4) discrete audio channels. These are usually routed to two (2) front speakers and two back speakers to create immersive audio mixes.

Quantization

The process by which measurements are rounded to discrete values. Specifically with respect to audio, quantization is a function of the analog-to-digital conversion process. The continuous variation of the voltages of an analog audio signal are quantized to discrete amplitude values represented by digital, binary numbers. The number of bits available to describe these values determines the resolution or accuracy of quantization. For example, if you have 8-bit analog-to-digital converters, the varying analog voltage must be quantized to 1 of 256 discrete values; a 16-bit converter has 65,536 values.

Quantization Noise

A result of describing an analog signal in discrete digital terms (see Quantization). This noise is most easily heard in low resolution digital sounds that have low bit depths and is similar to a “shhhhh” type sound while the audio is playing. It becomes more apparent when the signal is at low levels, such as when doing a fade out.

Region

A subsection of a sound file denoted by a start and end point. You can define any number of regions in a sound file.

Resample

The act of recalculating samples in a sound file at a different rate than the file was originally recorded. If an audio file is resampled at a lower rate, Vegas Pro decreases sample points. As a result, the file size and the frequency range are reduced. Resampling to a higher sample rate, Vegas Pro will interpolate extra sample points in the sound file. This increases the size

of the sound file but does not increase the quality. When down-sampling, one must be aware of aliasing (see Aliasing). Vegas Pro automatically resamples all audio that is added to the project's sample rate.

Ruler Tags

Small tab-shaped controls above the Time Ruler that represent the location of markers, regions, and loop points in the waveform display.

Ruler, Time

The Time Ruler is the area on a data window above the tracks display window that shows the horizontal axis units.

Sample

The word “sample” is used in many different (and often confusing) ways when talking about digital sound. Here are some of the different meanings:

- A discrete point in time which a sound signal is divided into when digitizing. For example, an audio CD-ROM contains 44,100 samples per second. Each sample is really only a number which contains the amplitude value of a waveform measured over time.
- A sound which has been recorded in a digital format; used by musicians who make short recordings of musical instruments to be used for composition and performance of music or sound effects. These recordings are called samples. In this manual, we try to use sound file instead of sample whenever referring to a digital recording.

The act of recording sound digitally, i.e. to sample an instrument, means to digitize and store it.

Sample Rate

The sample rate (also referred to as the sampling rate or sampling frequency) is the number of samples per second used to store a sound. High sample rates, such as 44,100 Hz provide higher fidelity than lower sample rates, such as 11,025 Hz. However, more storage space is required when using higher sample rates.

Sample Size

See Bit Depth.

Sample Value

The sample value (also referred to as sample amplitude) is the number stored by a single sample. In 16-bit audio, these values range from -32768 to 32767. In 8-bit audio, they range from -128 to 127. The maximum allowed sample value is often referred to as 100% or 0 dB.

Shortcut Menu

A context-sensitive menu which appears when you click on certain areas of the screen. The functions available in the shortcut menu depend on the object being clicked on as well as the state of the program. As with any menu, you can select an item from the shortcut menu to perform an operation. Shortcut menus are used frequently in Vegas Pro for quick access to many commands. An example of a shortcut menu can be found by right-clicking on any waveform display in a data window.

Sign-Bit

Data that has positive and negative values and uses zero to represent silence. Unlike the Signed format, two's complement is not used. Instead, negative values are represented by setting the highest bit of the binary number to one without complementing all other bits. This is a format option when opening and saving RAW sound files.

Signal-to-Noise Ratio

The signal-to-noise ratio (SNR) is a measurement of the difference between a recorded signal and noise levels. A high SNR is always the goal.

The maximum signal-to-noise ratio of digital audio is determined by the number of bits per sample. In 16-bit audio, the signal to noise ratio is 96 dB while in 8-bit audio it's 48 dB. However, in practice this SNR is never achieved, especially when using low-end electronics.

Signed

Data that has positive and negative two's complement values and uses zero to represent silence. This is a format option when opening and saving RAW sound files.

Small Computer Systems Interface (SCSI)

A standard interface protocol for connecting devices to your computer. The SCSI bus can accept up to seven devices at a time including CD ROM drives, hard drives and samplers.

Society of Motion Picture and Television Engineers (SMPTE)

SMPTE time code is used to synchronize time between devices. The time code is calculated in Hours:Minutes:Second:Frames, where Frames are fractions of a second based on the frame rate. Frame rates for SMPTE time code are 24, 25, 29.97 and 30 frames per second.

Sound Card

The sound card is the audio interface between your computer and the outside world. It is responsible for converting analog signals to digital and vice versa. There are many sound cards available on the market today covering the spectrum of quality and price. Vegas Pro will work with any Windows-compatible sound card.

Stereo

Mixer implementation that includes 2 discrete channels.

Surround

Mixer implementation that includes 6 discrete channels.

Tempo

Tempo is the rhythmic rate of a musical composition, usually specified in Beats Per Minute (BPM).

Time Format

The format by which Vegas Pro displays the Time Ruler and selection times. These include: Time, Seconds, Frames and all Standard SMPTE frame rates. The status format is set for each sound file individually.

Time Signature

See Beats per Measure.

Track

A discrete timeline for audio data. Audio events sit on audio tracks and determine when a sound starts and stops. Multiple audio tracks are mixed together to give you a composite sound that you hear through your speakers.

Trim/Crop

A function that will delete all data in a sound file outside of the current selection.

 μ -Law

μ -Law (mu-Law) is a companded compression algorithm for voice signals defined by the Geneva Recommendations (G.711). The G.711 recommendation defines μ -Law as a method of encoding 16-bit PCM signals into a non-linear 8-bit format. The algorithm is commonly used in European and Asian telecommunications. μ -Law is very similar to A-Law, however, each uses a slightly different coder and decoder.

Undo Buffer

This is the temporary file created before you do any processing to a project. This undo buffer allows the ability to rewrite previous versions of the project if you decide you don't like changes you've made to the project. This undo buffer is erased when the file is closed or the Clear Undo History command is invoked.

Undo/Redo

These commands allow you to change a project back to a previous state, when you don't like the changes you have made, or reapply the changes after you have undone them. The ability to Undo/Redo is only limited by the size of your hard drive. See Undo Buffer.

Undo/Redo History

A list of all of the functions that have been performed to a file that are available to be undone or redone. Undo/Redo History gives you the ability to undo or redo multiple functions as well as preview the functions for quick A/B-ing of the processed and unprocessed material. To display the history list, click the down-arrow button next to the Undo and Redo buttons.

Unsigned

Data that has only positive values and uses half the maximum value to represent silence. This is a format option when opening and saving RAW sound files.

Video for Windows (AVI)

A file format of digital video for Windows. Vegas Pro allows you to open .AVI files and edit the audio embedded within them.

Virtual MIDI Router (VMR)

A software-only router for MIDI data between programs. Vegas Pro uses the VMR to receive MIDI Time Code and send MIDI Clock. No MIDI hardware or cables are required for a VMR, so routing can only be performed between programs running on the same PC. Sonic Foundry supplies a VMR with Vegas Pro called the Sonic Foundry Virtual MIDI Router.

Waveform

A waveform is the visual representation of wave-like phenomena, such as sound or light. For example, when the amplitude of sound pressure is graphed over time, pressure variations usually form a smooth waveform.

Waveform Display

A section inside of the Trimmer window that shows a graph of the sound data waveform. The vertical axis corresponds to the amplitude of the wave. For 16-bit sounds, the amplitude range is -32,768 to +32,767. For 8-bit sounds, the range is -128 to +127. The horizontal axis corresponds to time, with the left-most point being the start of the waveform. In memory, the horizontal axis corresponds to the number of samples from the start of the sound file.

Zero-crossing

A zero-crossing is the point where a fluctuating signal crosses the zero amplitude axis. By making edits at zero-crossings with the same slope, the chance of creating glitches is minimized.

Zipper noise

Zipper noise occurs when you apply a changing gain to a signal, such as when fading out. If the gain does not change in small enough increments, zipper noise can become very noticeable. Vegas Pro fades are accomplished using 64-bit arithmetic, thereby creating no audible zipper noise.

Index

A

- Activation code, 13
- Active take, selecting, 149
- Adding empty tracks, 123
- Arm for Record, 36
- ASR *See Envelopes*
- Assignable FX, 155–161
 - control, 158
 - creating a chain, 157
 - editing a chain, 159
 - plug-in chooser, 156
 - removing, 160
 - routing tracks to, 159
 - saving as presets, 158
 - tracks, 155
- Audio files *See Events*
- Auxiliary bus, 39
 - adding, 130
 - track assignment, 131
 - volume adjustment, 131

B

- Bus assignment, 36
- Busses
 - assigning to Assignable FX, 161

C

- Color, tracks, 127

- Command markers, 83
 - defined, 84
 - deleting, 87
 - editing, 86
 - moving, 85
 - naming, 86
 - navigating, 87
 - placing, 84
- Computer ID number, 13
- Converting format *See Rendering a project*
- Copying events, 67
 - time and events, 67
 - time selection, 67
- Cross fades, 113–115
 - automatic, 113
 - curve types, 114
 - curve types, changing, 114
 - manually setting, 114
 - volume, changing, 115
- Ctrl. key selecting, 64
- Cursor, using, 63
- Cutting events, 70–71
 - ripple mode, 96
 - time and event selection, 71
- Cutting time and events
 - ripple mode, 97
- Cutting time selection
 - ripple mode, 97

D

- Deleting a track, 125
- Deleting events, 73, 74
 - ripple mode, 98
 - time and event selection, 74
 - time selection, 73
- Deleting time and events
 - ripple mode, 99
- Deleting time selection
 - ripple mode, 98
- Desktop shortcut, 12
- Digital multitrack setup, 142
- Duplicating a track, 124

E

- Edit history, clearing, 77
- Edit tool, selection, 65
- Editing
 - time vs. event, 64
- Effects, *See Assignable FX*
- Email technical support, 10
- Envelopes, 110–112
 - adding points, 133
 - event volume, 111
 - fade curve types, 112
 - fade in and out, 111
 - hiding panning on track, 138
 - panning fade curves, 137
 - setting points, 134
 - track, 132–138
 - volume fade curves, 134
- EQ
 - adding, 59, 155
- Equipment setup, 141–142
 - basic, 141
 - mixer, 142
 - with digital multitrack, 142
 - with MIDI option, 142
- European contact information *Title page*

- Event editing, basics, 66–96
- Event switches, 77–110
 - locking, 107
 - looping, 108
 - muting, 106
 - normalizing, 109
- Event take
 - deleting, 151
 - renaming, 150
- Event takes
 - deleting active, 151
 - deleting from list, 152
- Event, recording into, 146
- Events
 - copying, 67
 - cross fading, 113–115
 - cutting, 70
 - defined, 27
 - deleting, 73
 - editing, 54, 56
 - envelopes (ASR), 110
 - grouping, 57, 116–117
 - locking, 54
 - moving in time, 33
 - moving multiple, 34
 - moving single, 33
 - pasting, 68–70
 - placing, 31, 32, 52
 - properties, setting, 101
 - removing from video, 41
 - ripple edits, 96–100
 - selected vs. non-selected, 63
 - selecting, 63
 - selecting with time, 66
 - snapping, 91
 - splitting, 94
 - splitting with time selection, 55
 - trimming/cropping, 72
- Expanding a track, 128
- Explorer window, 20
 - transport bar, 30
 - using, 28, 50
 - view options, 29

- F**
- Fader
 - auxiliary bus, 131
 - track, 128
 - Fax technical support, 11
 - FX send, 39
- G**
- Glossary, 167–180
 - Grid lines
 - changing type, 92
 - enable/disable snapping, 92
 - snapping events to, 92
 - Grouping events, 57, 116–117
 - clearing, 117
 - creating new, 116
 - removing event from, 117
- I**
- Installation, 11
 - system requirements, 10
- K**
- Keyboard commands, 22–24
 - cursor placement, 23, 63
 - edit, 22
 - event, 23
 - miscellaneous, 24
 - playback, 23
 - project file, 22
 - track view, 23
 - view, 24
 - window view, 22
- L**
- Labeling tracks, *See Naming tracks*
 - Locking audio events, 54, 107
- M**
- Main window, 16
 - Marker
 - deleting, 80
 - naming, 78
 - navigating, 79
 - placing and moving, 77
 - Marker bar, 17
 - Markers and regions, 77–87
 - enabling/disabling snapping, 93
 - snapping events to, 93
 - Media file
 - auto preview setting, 30
 - defined, 27
 - opening, 30
 - placing video, 32
 - previewing, 30
 - video placement options, 32
 - Media formats for import, 27
 - Mix to new, template, 140
 - Mix to preview, 43
 - status bar, 43
 - Mixer setup, 142
 - Mixer window, 21
 - Mixing multiple tracks to one track, 139
 - creating template, 140
 - Multiple takes
 - previewing, 148
 - recording, 148
 - Mute, 37
 - Muting a track, 129
- N**
- Naming tracks, 126
 - Numbers
 - activation code, 13
 - serial, 13
- O**
- Online help, 14
 - accessing, 15
 - icon, 14

PDF manual, 16
 Tip of the day, 15
 via the web, 16
 What's This? help, 15
 Online registration, 13
 Organizing tracks, 126

P

Panning, 39, 136–138
 Panning envelopes
 adding, 136
 deleting from track(s), 138
 hiding from track(s), 138
 setting points, 137
 Paste insert, 70
 Paste repeat, 69
 Pasting events, 68–70
 ripple mode, 99
 Pasting multitrack information
 ripple mode, 100
 Pasting track information
 ripple mode, 100
 PDF online manual, 16
 Placing media
 as takes, 31
 double-clicking, 32
 dragging/dropping, 31
 multiple files, 31
 same track, 31
 separate tracks, 31
 Playback
 video, 52
 Playback buttons *See Transport bar*
 Plug-in Chooser, 156
 Presets, 158
 Preview project, 41
 entire, 42
 media player, 43
 mix to preview, 43
 time selection, 42

Project properties, 43
 Project, starting a, 28
 Properties
 events, setting, 101

Q

Quick start, 27–47
 starting a project, 28

R

Recording, 141–154
 choosing an active take, 149
 deleting a take, 151
 deleting active take, 151
 deleting takes from list, 152
 into a time selection, 145
 into an event, 146
 into an event with time selection, 147
 into empty track, 144
 multiple takes, 148
 previewing takes, 148
 renaming a take, 150
 specifying storage folder, 153
 starting and stopping, 143
 track setup, 132
 Redo command, 76
 series of edits, 76
 Redo/Undo commands, 74–77
 clearing history, 77
 Region, 80
 deleting, 83
 naming, 81
 navigating, 82
 placing and adjusting, 80
 selecting, 81
 Registering Vegas Pro
 online, 13
 telephone, 14
 Renaming a project *Save As...*, 45
 Rendering a project, 46, 61
 format options, 46, 61
 Reordering tracks, 126

Ripple editing, 96–100
 cutting events, 96
 cutting time and event selection, 97
 cutting time selection, 97
 deleting events, 98
 deleting time and event selection, 99
 deleting time selection, 98
 pasting events, 99
 pasting multitrack information, 100
 pasting track information, 100

Ruler, 18

S

Saving a project, 44, 60
 options, 44

Scribble Strip, 37

Scrub control, 19

Selection Edit tool, 65

Serial Number, 13
Title page

Shift key selecting, 64

Shortcut keys, *See Keyboard commands*

Snap offset, 91

Snapping events, 91–93
 disabling, 93
 snap offset, 91
 to grid lines, 92
 to marker lines, 93

Solo, 37

Soloing a track, 129

Sound editor program, 88–89
 opening from Trimmer, 122
 opening from Vegas Pro, 89
 setting up, 88

Splitting, 94

Splitting events, 55

Starting Vegas Pro, 12

Switches, 105–110
 locking an event, 107

looping an event, 108
 muting an event, 106
 normalizing an event, 109

Synching audio with video, 53, 56

System requirements, 10
 common, 10
 minimum, 10
 recommended, 10

T

Target media player, previewing on, 43

Technical support, 10
 email, 10
 fax, 11
 telephone number, 11
 web site, 10

Technical support *Title page*

Telephone registration, 14

Time selection, 65
 copying, 67
 cutting, 71
 deleting, 73
 editing, 55
 trim/crop, 72
 with events, 66

Time selection, recording into, 145

Timeline
 moving events along, 33, 40

Tip of the day help, using, 15

Toolbar, 17

Track effects, 36, 155

Track envelopes, 132–138
 changing panning curves, 137
 changing volume curves, 134
 deleting from track(s), 135
 hiding on track(s), 135

Track features, 123–140

Track FX
 adding, 130

Track List, 18

- Track Number, 35
- Track panning envelopes
 - adding, 136
 - adding points, 136
 - deleting from track(s), 138
 - deleting points, 137
 - hiding on track, 138
 - resetting points, 137
 - setting points, 137
- Track View, 19
- Track volume envelopes
 - adding, 132
 - adding points, 133
 - colors defined, 132
 - deleting points, 133
 - resetting points, 133
 - setting points, 134
- Tracks
 - adding empty, 123
 - arm for record button, 36
 - auxiliary bus, 39
 - auxiliary bus, adding, 130
 - auxiliary bus, assigning, 131
 - basics, 123
 - bus assignment, 36
 - color, changing, 127
 - defined, 27
 - deleting, 125
 - duplicating, 124
 - effects button, 36
 - expanding the view, 128
 - fader, using, 128
 - FX send, 39
 - FX, adding, 130
 - mixing to a single track, 139
 - multi-purpose slider, 38
 - mute button, 37
 - muting, 129
 - naming/renaming, 126
 - Number, 35
 - organizing, 126
 - panning, 39, 136–138
 - recording into, 132, 144
 - reordering, 126
 - routing to Assignable FX, 159
 - scribble strip, 37
 - selecting options, 64
 - solo button, 37
 - soloing, 129
 - view buttons, 35
 - view options, 127–128
 - volume slider, 38
- Transport bar, 19, 41, 52
 - reference, 42
- Trimmer window, 21, 118–122
 - event, placing, 119
 - event, placing from track, 119
 - events, placing from Explorer, 120
 - events, placing on track, 120
 - overview, 118
 - regions and markers, adding, 121
 - sound editor, opening from, 122
 - working with, 120
- Trimming events, 72
 - time and event selection, 73
 - time selection, 72
- Troubleshooting, 163–166
- Tutorial, 49–62
 - aligning audio with video, 53, 56
 - editing time selection, 55
 - editing voice-over, 54
 - EQ settings, 59
 - event editing, 56
 - grouping audio and video, 57
 - placing music bed, 57
 - rendering the project, 61
 - saving the project (*.veg), 60
 - splitting an event, 55
 - video compression settings, 62
 - video placement, 50
 - video playback, 52
 - Video Preview window, 51
 - voice-over placement, 52
 - volume envelope, 58
- Tutorial folder, copying, 49

U

- Undo command, 74
 - series of edits, 75
- Undo/Redo commands, 74–77
 - clearing history, 77
- US contact information *Title page*

V

- Vegas Pro
 - project properties, 43
 - renaming a project, 45
 - rendering a project, 46
 - saving a project, 44
 - shortcut, 12
 - starting, 12
- Vegas Pro overview, 16–25
 - Explorer window, 20
 - Keyboard commands, 22
 - Main window, 16
 - Marker bar, 17
 - Mixer window, 21
 - Ruler, 18
 - Scrub control, 19
 - Toolbar, 17
 - Track list, 18
 - Track view, 19
 - Transport bar, 19
 - Trimmer window, 21
 - Video preview window, 21
 - Windows Docking Area, 20
- Video compression, 62
- Video event
 - moving along timeline, 40
 - placement options, 32
 - placing, 32, 50
 - removing audio, 41
- Video preview window, 21, 51
- View buttons, 35
- View options, tracks, 127–128
- Volume
 - auxiliary bus fader, 131
 - track fader, 128

- Volume envelope
 - setting points, 58, 134

- Volume envelopes
 - adding, 58, 132–134
 - deleting from track(s), 135
 - hiding on track(s), 135

W

- Web site
 - help, using, 16
 - technical support, 10
- What's This? help, using, 15
- Window Docking Area, 20

