SONIC FOUNDRY®

Vegas pro

MULTITRACK MEDIA EDITING SYSTEM

Serial Number for product registration:

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 exclusive to registered users.

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

- In the US, phone: 1-800-57-SONIC. From outside the US phone: 001-608-256-3133.
- Fax in the US: 1-608-256-7300. Outside the US: Fax 001-608-256-7300.

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

Sales/Customer Service Only (in North America): 1-800-57-SONIC
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In Europe

PO Box 2903
2601 CX Delft
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CHAPTER

1

Introducing Vegas Pro

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 UI 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 channel
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	DirectX Plug-In support
Video preview window	Dual processor support
Edit detail list management	Multiple I/O support
24-bit/96 kHz	MIDITime Code sync
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 9.*

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 will appear (If CD-ROM AutoPlay is enabled).

2. Click Install Software. The installation process will begin.

   If the CD-ROM AutoPlay is disabled, click on the Start button and choose Run.
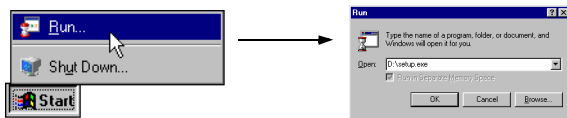
   In the Run window that appears, type the CD-ROM drive's letter and add **:\setup.exe**. Click the **OK** button to start the installation.

3. Follow the screen prompts and enter the necessary information when required.

   - Use the Next > button to continue the installation.
   - Use the < Back button to suspend the installation and review previous screen prompts.
   - Use the Cancel button to terminate the installation process.

4. At the last screen prompt, click the Finish 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 **Start** button on the task bar. The **Start** menu appears.

2. From the **Start** menu, select the Programs option. The Programs list menu appears.
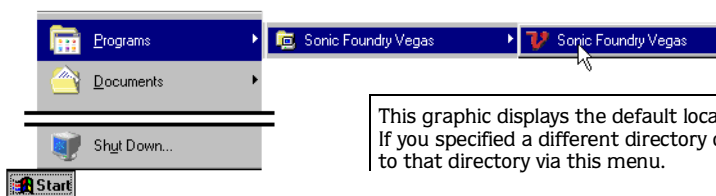
This graphic displays the default location where Vegas Pro was installed. If you specified a different directory during installation, then navigate to that directory via this menu.

3. From the **Programs** menu, select Sonic Foundry Vegas. A sub-menu will appear.

4. From the sub-menu, click on Vegas Pro to start the program. The registration dialog window will appear.

Enter either the serial or activation number here

5. Enter either the serial number or the activation number and click Finish to start using Vegas Pro. (The serial number is located on the first page of the manual.)

Serial and activation numbers

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

The serial number is located on the first page of the manual. This 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 number 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 number.*

An activation number 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 number is created based on that unique number. When you register Vegas Pro, Sonic Foundry will generate an activation number for you. Once the activation number is entered Vegas Pro will not time out; it is yours. Because the activation number 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 window that appears when you start Vegas Pro allows you to quickly and easily register to get your activation number. You may register via the Sonic Foundry Web site or via the telephone.

Registering online

When you register online, your activation number 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 Next button. Your internet browser will automatically start (if it is not already running) and the Sonic Foundry online registration form will appear.

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 number will be sent.

5. Submit the form to register. In a few minutes, your activation number is sent to your email address.

6. Copy the activation number from the email message and paste it into the registration field on the Vegas Pro Registration window.

7. Click the Finish 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 number.

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 Next button. A new window will appear with a field where you will enter the activation number. Your Computer ID number appears below this field.

Enter activation number

Computer ID number
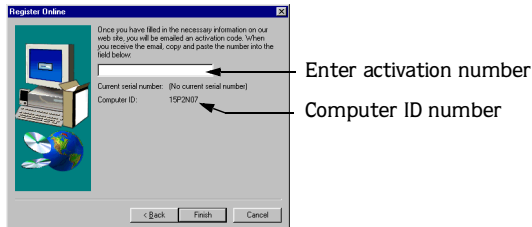
3. When the Customer Service Representative gives you the activation number, type it in the field.

4. Click the Finish 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).

As you use this manual, you will see the help icon (🎯) in the outside margin next to selected topics. This icon is to notify you that additional information is available in the online help.

Accessing help

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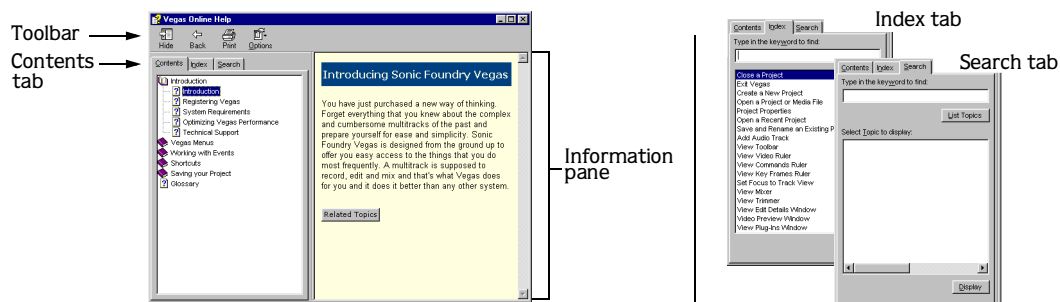
Main help window

The Main help window is access either by choosing Contents and Index from the **Help** menu or pressing the F1 key. This window has three tabs with which 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 (◆), 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 box 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 box 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, 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. 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 written during this manual's press time.

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.
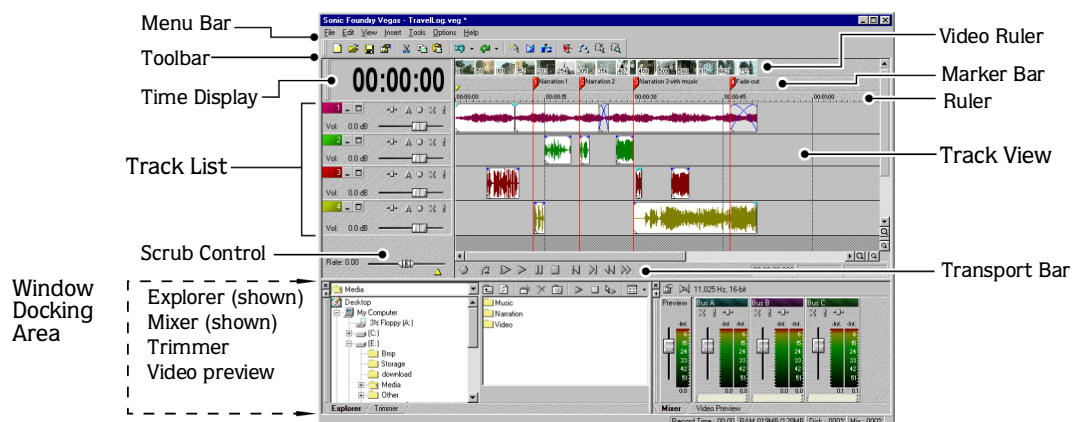
Toolbar

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

	Create new project			Redo command
	Open existing project			Enable snapping to grid lines
	Save project			Automatic crossfades
	Open project properties			Ripple edits
	Cut selected events or time range			Edit tool
	Copy selected events or time range			Envelope tool
	Paste items from clipboard into project			Selection tool
	Undo command			Zoom tool

Marker bar

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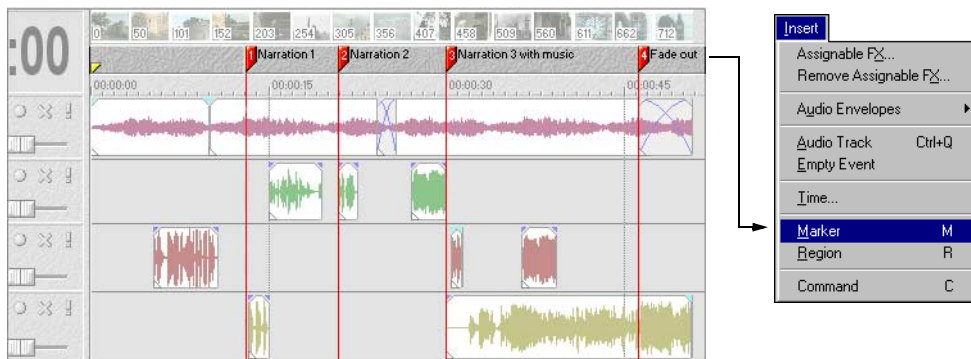
Ruler

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


Right-click on Ruler

Samples
✓ Time
Seconds
Time & Frames
Absolute Frames
Measures & Beats
SMPTE Non-Drop (29.97 fps)
SMPTE Non-Drop 30 (30 fps)
SMPTE Drop (29.97 fps)
SMPTE EBU (25 fps)
SMPTE Film Sync (24 fps)
Feet and Frames 16mm (40 fpf)
Feet and Frames 35mm (16 fpf)

Edit Ruler Offset

Track List

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

Track Number
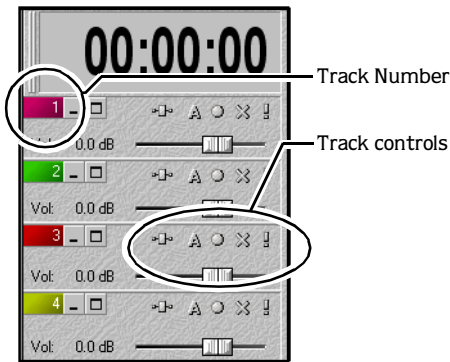
Track controls

Track View

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

Track View
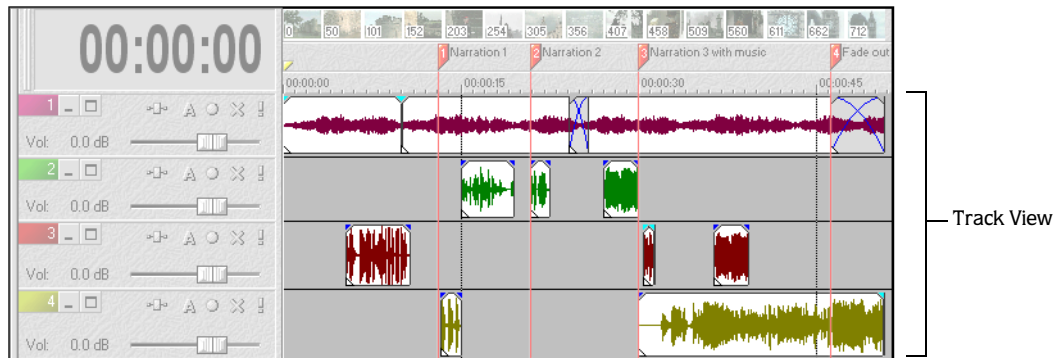
Transport bar controls

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

●	Record into track	■	Stop playback
↻	Loop play back	◄	Move cursor to start of project
▷	Play back from beginning of project	▷	Move cursor to end of project
▶	Play back project from cursor position	◄◄	Move cursor left at grid increments
▐▐	Pause project playback	▷▷	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.

Click and drag either forward or backward for playback

Set play-back speed
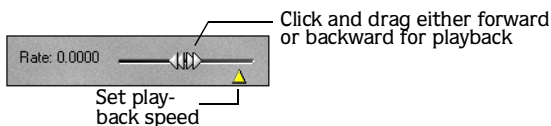
Window Docking Area

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.

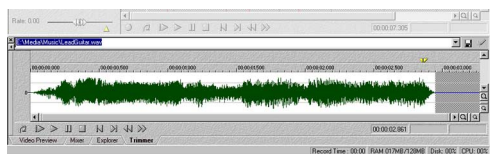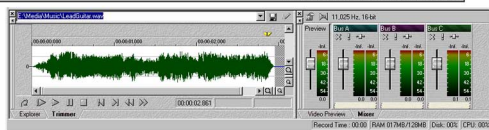When windows are docked, they will either be displayed on top of the other windows, or each window's tab will appear above the task bar. Simply click the window's tab to bring it the top.

One window display

Two window display
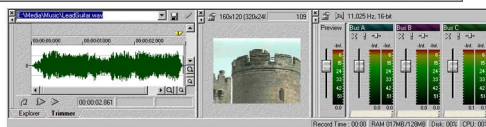
Three window display

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
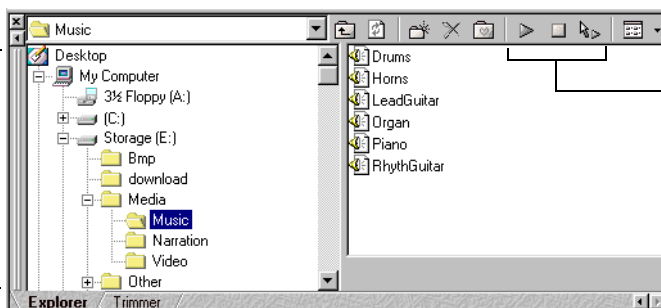
Preview selected media file before you place it in the project

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 a placed in the project, you will see "--No Video--" in the center of this window.

Right-click to change Video Preview settings

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.
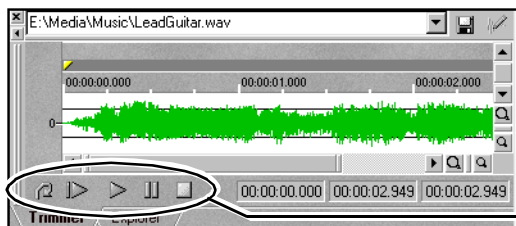
Trimmer window Transport bar

Mixer window

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

Right-click on the meter to change its settings

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

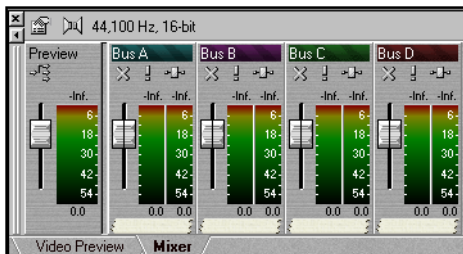|			
Track view	Alt+0	Edit Details	Alt+4
Explorer	Alt+1	Plug-ins	Alt+5
Trimmer	Alt+2	Video Preview	Alt+6
Mixer	Alt+3		

Edit commands

Undo	Ctrl+Z or Alt+Backspace	Restore selection	Backspace
Redo	Ctrl+Shift+Z	Paste repeat from clipboard	Ctrl+B
Cut selection	Ctrl+X or Shift+Delete	Split event(s)	S
Copy selection	Ctrl+C or Ctrl+Insert	Trim/Crop selected events	Ctrl+T
Paste from clipboard	Ctrl+V or Shift+Insert	Open in Sound Editor	Ctrl+E
Select all	Ctrl+A	Mix to new	Ctrl+M
Unselect all	Ctrl+Shift+A	Mix to preview	Ctrl+Shift+M
Delete selection	Delete		

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
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 tracktrack	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

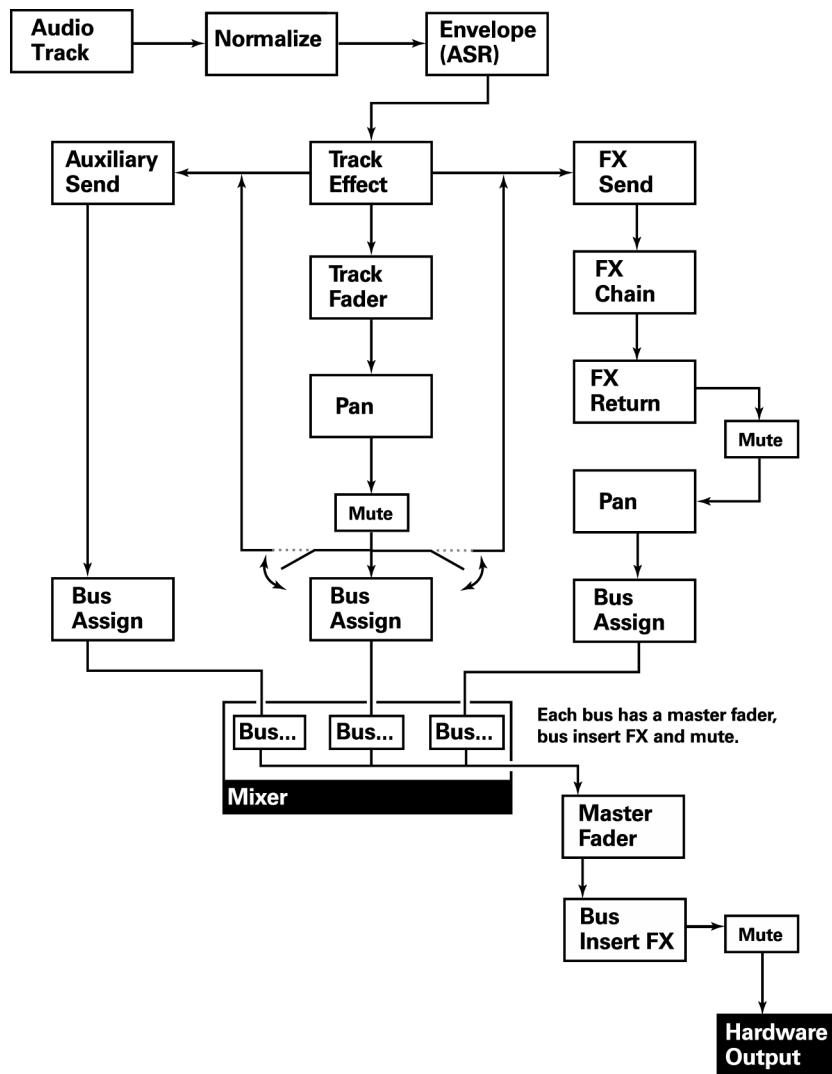|			
New audio track	Ctrl+Q	Group selected events	G
Enable/disable snapping	F8	Mark in point	I or [
Snap to markers	Shift+F8	Mark out point	O or]
Snap to grid	Ctrl+F8	Insert/Remove track-volume envelope	V
Ripple edit mode	Ctrl+L	Insert/Remove track-panning envelope	P
Auto crossfade mode	X	Insert Region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

```
Audio
Track  →  Normalize  →  Envelope
                        (ASR)
                           |
                           ↓
Auxiliary  ←  Track  →  FX
Send          Effect      Send
   |            |          |
   |            ↓          ↓
   |          Track       FX
   |          Fader       Chain
   |            |          |
   |            ↓          ↓
   |           Pan        FX
   |            |         Return  →  Mute
   |            ↓          |           |
   |          Mute        ↓           |
   |            |         Pan  ←───────
   ↓            ↓          ↓
Bus          Bus        Bus
Assign       Assign     Assign
   |            |          |
   ↓            ↓          ↓
     Bus... Bus... Bus...     Each bus has a master fader,
     ─────────────────────    bus insert FX and mute.
     Mixer
                            Master
                            Fader
                              |
                              ↓
                            Bus
                            Insert FX  →  Mute
                                            |
                                            ↓
                                         Hardware
                                         Output
```

Vegas Pro Quick Start

2

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 Vegas Pro Tutorial on page 59*.

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 Mircosoft 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 that one event.

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

Multitrack with single events

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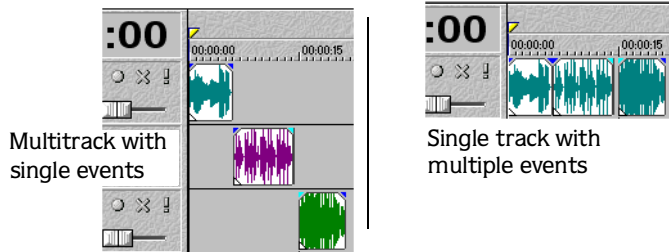
In addition, you may place a video file on the Video Ruler. If the video has audio included, Vegas Pro automatically creates a new track and places the video's audio on it.

Video ruler with included audio on track below.
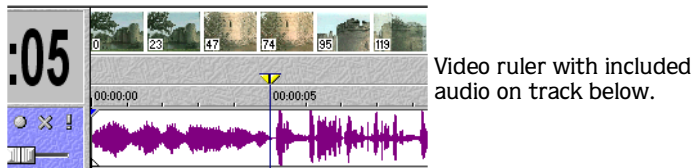
Starting a project

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>Open option.

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.

Refresh view
Move up tree

Change view button
Auto-preview button
Stop preview button
Play preview button
Add to favorites folder
Delete selected items
Create new folder
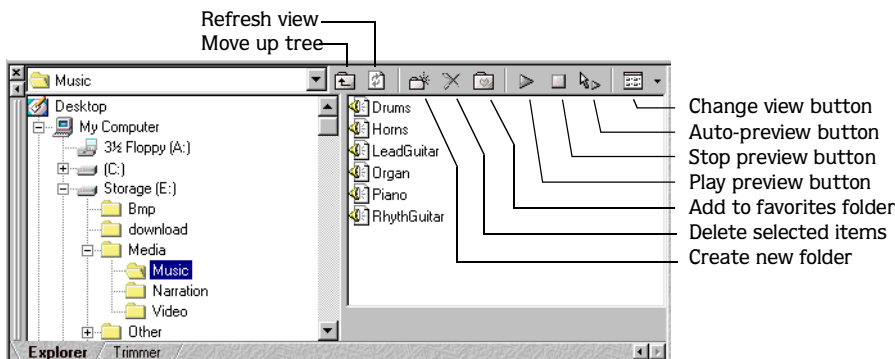
Note: *If you cannot see the Explorer window, it may be "under" another window. Click the Explorer tab to display the window. If you do not see the Explorer tab, choose Explorer from the View menu to display it.*

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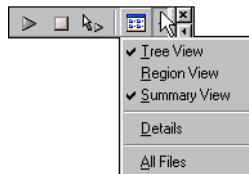
2. From the list view, you may place the file into your project by dragging and dropping or double-clicking it.

The File>Open option

An alternative to the Explorer window, you may find media in the more traditional method using the File>Open option. 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 window appears.

   Or, click the 📂 button on the Toolbar.

2. Select the media's location 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 Slider.

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 window. 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 window's timeline. You can create a new track by dragging an event to a blank area in the track window 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 concurrent media files by holding down the Shift key and clicking files in the list view.

   Or, select files that are not concurrent 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
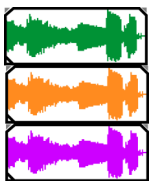
   • Place events next to each other on the same track

   • Place events as takes on a track

   You will see one event on the track.
   The other events are listed at 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)

Event selection basics

Vegas Pro projects are multitrack compilations of events that occur over time. As a result, you can work with placed events individually or as they occur over time. Vegas Pro gives you the flexibility to select one or more events, a time range, or events *and* time range. All selection options may be across multiple tracks. You are not limited to working on one track at a time.

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

Selected
event
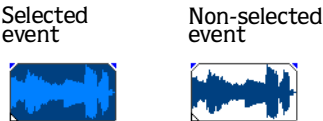
Non-selected
event

Selecting multiple track 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 "toggling" 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 ⊞ , 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.

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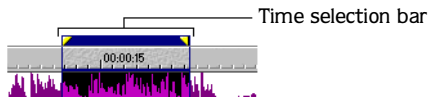
Unless an event is locked, a selected time range affects all events, or portions of events, that occur within the range. If you are editing the time range, only events that occur within the time range will be affected.

Only the events within the time selection will be affected by edits or be played back.
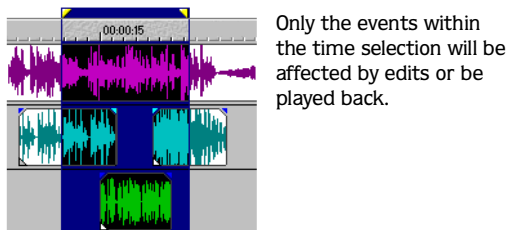
To select a time range, do the following:

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.

3. 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 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.

1. Use the Ctrl key, the Shift key, or the Selection Edit tool to select the events. *For more information, see Selecting multiple track events on page 29.*

2. Place the mouse pointer above the ruler (on the Marker bar). The mouse pointer includes a left/right arrow.

3. Click and drag to select the region. Notice that events that were not selected remain unselected (not highlighted).

Selected event — ———— Non-selected event
Selected event — ————
Non-selected event — ———— Selected event
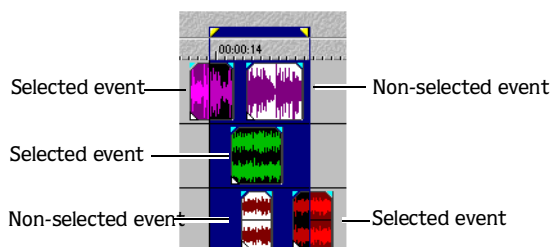
4. Place the mouse pointer over the time selection's start or end point to increase or decrease your time range selection.

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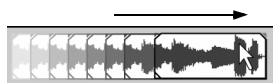
   However, you may move the event to a different track's timeline. If you do, the event appears as a simple outline and you will see its original track and position on the timeline. Once you release the mouse, the event will assume the new timeline position and track color.

   Original track position

   New track and position
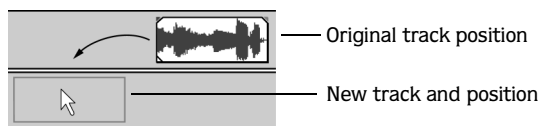
3. Release the mouse to set the event's timeline occurrence.

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 .*

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.

Moving events along
original tracks

    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.

Moving events to
different tracks

4. Release the mouse to set the events' timeline occurrences.

5. Repeat Steps 1-4 to move more events collectively along the timeline.

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:
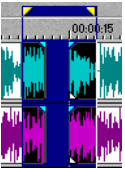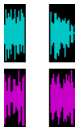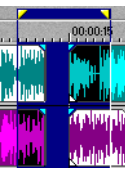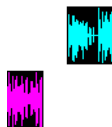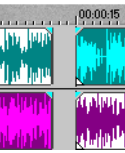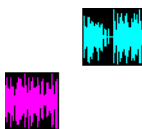
1. Click on the event.

   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 track events on page 29.*

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.

   The following table briefly describes copying scenarios and how the clipboard is used.

Selection	Definition	Events before copy	Clipboard contents	Events after copy
Time only	Events within the time selection are reproduced and placed on the clipboard. Also, the time information is placed on the clipboard.			Original events are not affected and do not change.
Time & events	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.			Original events are not affected and do not change.
Events only	Selected events are reproduced and placed on the clipboard. Also, the time information is placed on the clipboard.			Original events are not affected and do not change.

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.

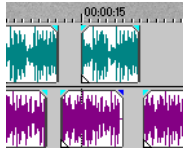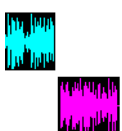2. Click either the track number or within the track where you want to paste the event.

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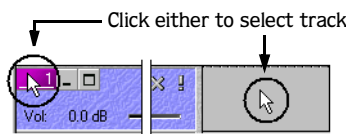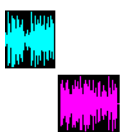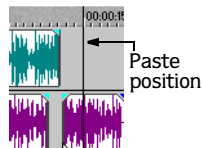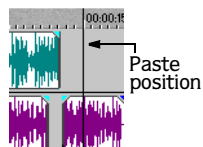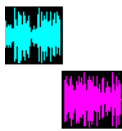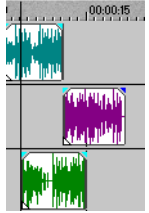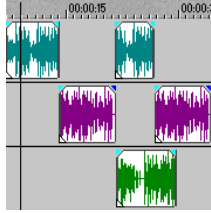
If you are pasting multiple events from different tracks, Vegas Pro automatically creates new tracks as needed for events, or simply places events in existing tracks.

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.

The table below briefly describes pasting scenarios.

Paste method	Definition	Clipboard contents	Events before paste	Events after paste
Paste (above procedure)	Clipboard events are placed at the cursor position on the selected track. Existing events on a track are overlapped with newly-pasted information.			
Paste repeat Ctrl+B	You specify how many times the clipboard events are placed at the cursor position on the selected track. Also, you specify the space between pasted events.			Vegas Pro displays the Paste Repeat window. Specify the number of times to paste the clipboard events and their space from each other.
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.			

Cutting events

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

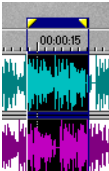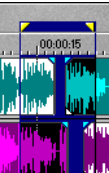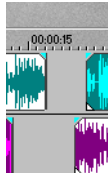To cut events, do the following:

1. Click on the event to be cut.
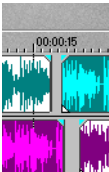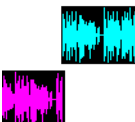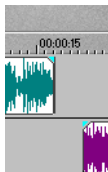
   To cut multiple events, use the Ctrl key, the Shift key, or the Selection Edit tool 🔳 to select the events. *For more information, see Selecting multiple track events on page 29.*

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.

The following table briefly describes cutting scenarios and how the clipboard is used.

Selection	Definition	Events before cutting	Clipboard contents	Events after cutting
Time only	Events within the time selection are reproduced and placed on the clipboard. Also, the time information is placed on the clipboard.			
Time & events	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.			
Events only	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 crop events, or portions of events, from your project. Cropping events removes all events *outside* the time selection from their respective tracks. However, the removed information is **not** placed on the clipboard. Cropping is different from cutting in that the events within the time selection are preserved.

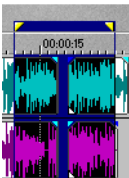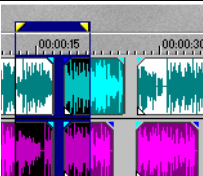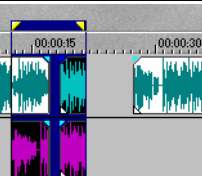To crop events, do the following:

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

To crop multiple events, use the `Ctrl` key, the `Shift` key, or the Selection Edit tool to select the events. *For more information, see Selecting multiple track events on page 29.*

2. Select your time range.

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

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

The following table briefly describes cropping scenarios.

Selection	Definition	Events before crop	Clipboard contents	Events after crop
Time only	Events outside the time selection are removed from the project. The time information is not removed.		Cropped information is not placed on the clipboard.	
Time & events	Only selected events outside the time selection are removed from the project. Non-selected events remain. The time information is not removed.		Cropped information is not placed on the clipboard.	

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.
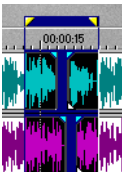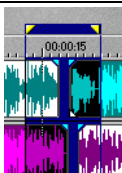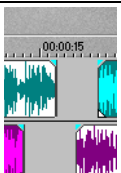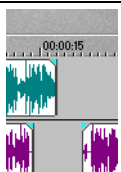
To delete events, do the following:

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 track events on page 29.*

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.

The following table briefly describes deleting scenarios.

| Selection	Definition	Events before deleting	Clipboard contents	Events after deleting
Time only	Events within the time selection are removed from the project. The time information is not removed.		Deleted information is not placed on the clipboard.	
Time & events	Only selected events within the time selection are removed from the project. Non-selected events remain. The time information is not removed.		Deleted information is not placed on the clipboard.	
Events only	Selected events are removed from the project. The time information is not removed.		Deleted information is not placed on the clipboard.	

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.

One event

Split position

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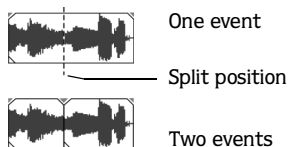
Splitting an event does not delete or cut any information from the original event. The original event's information is there, but omitted for playback based on where either the event's starting or ending point occurs on the timeline.

Original event

Split position

Information is available, but will not play back.
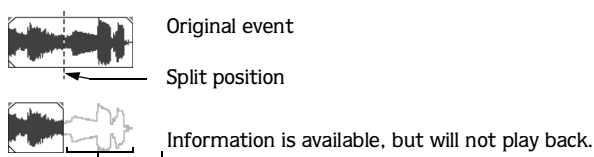
Also, when you split an event, the events abut each other so playback is unaffected on the timeline unless you move either of the abutting events or adjust their staring/ending points.

Original event

Split position

Two events

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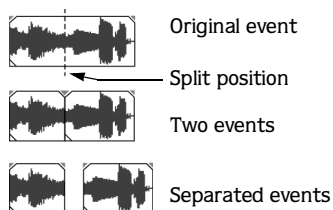
You may split single selected events, multiple selected events, or a time range of events.

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 track events on page 29.*

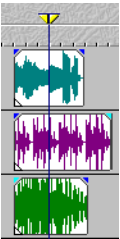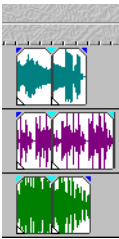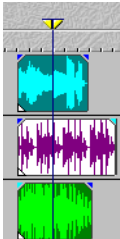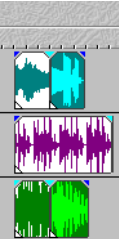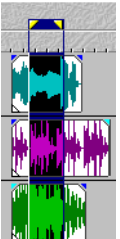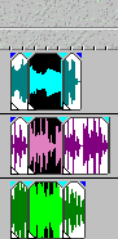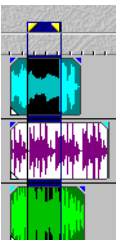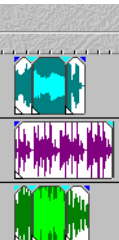2. Place the cursor at the timeline position where the split will occur.

   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.

The table below briefly describes splitting scenarios.

Selection	Definition	Events before splitting	Events after splitting
No events	All events will be split at the cursor's position (unless the event is locked). The split will occur across all tracks.		
Events only	Only the selected events will be split at the cursor's position.		
Time only	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.		
Time and events	Only selected events within the time selection will be split at the starting and ending points of the time range.		

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.
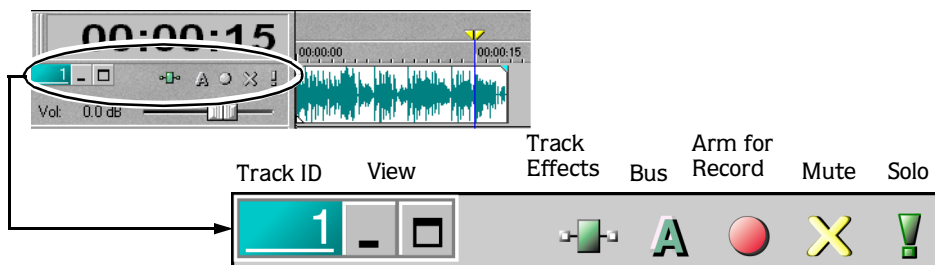
Track Number

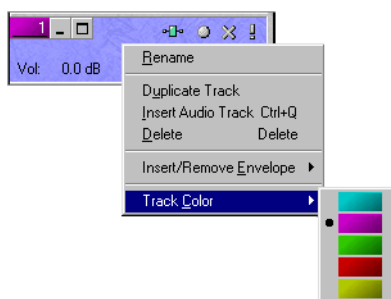This area identifies the track's order number in a multitrack project. You may rearrange the track order by dragging and dropping selected tracks "up" or "down" within the Track List.

Track color

Change the color by right-clicking and choosing Track Color and then select the color you prefer

View buttons

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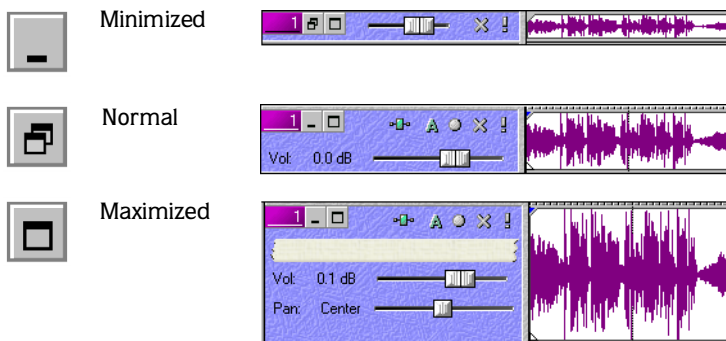
Expanding the track

You may resize the 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 desired track size.
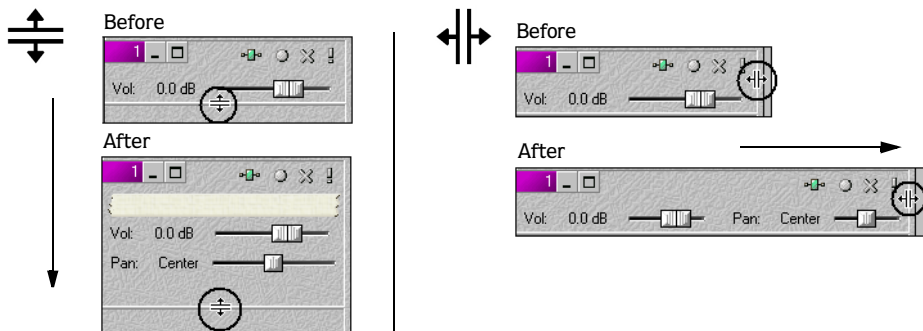
Track Effects button

This button accesses compression and equalization (EQ) controls that can be applied to the track's event(s).
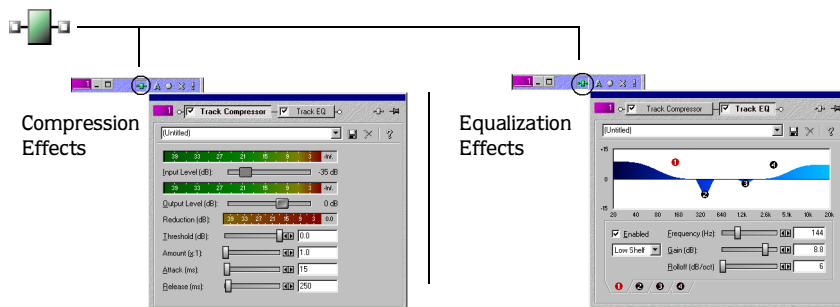
Bus assignment

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.)
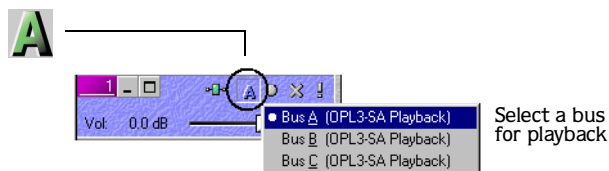
Arm for Record button

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.
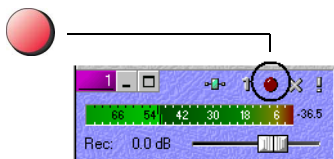
Mute button

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 window.

Before muting the track   After muting the track
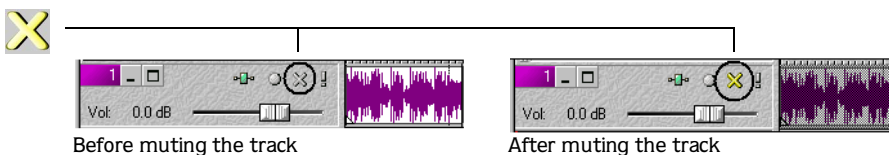
Solo button

This button, as its name implies, isolates a track's events for playback, while muting the other tracks' events.

Before applying Solo to the track   After applying Solo to the track
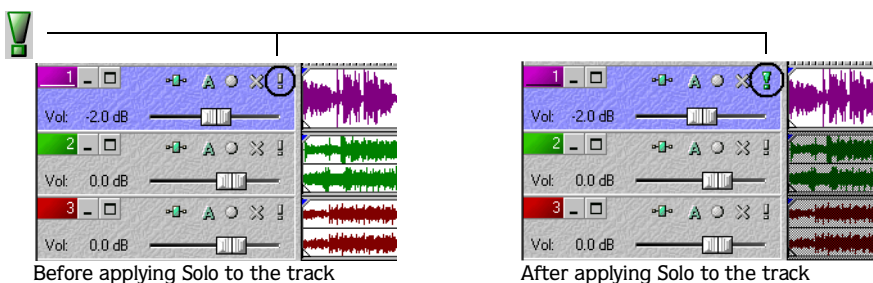
Scribble Strip

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's list window and select Rename from the pop-up menu and then type the track's name. If you do not see the Scribble Strip, expand the track. *For more information, see .*

Scribble Strip
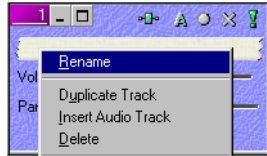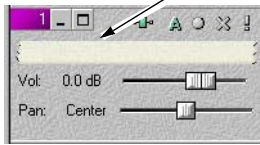
Right-click track to display pop-up

Volume slider

This slider 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 slider to emphasize or de-emphasize a particular track. A track's volume range is -inf. to 12 dB.

To move the slider, do the following:

1. Place the mouse cursor on the slider.

2. Press and hold the left mouse button.

3. Move the slider left or right and release the mouse.
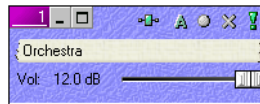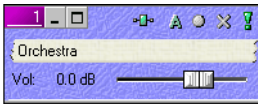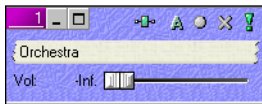
Double-click the slider to reset to 0.0dB.

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

Multi-purpose 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
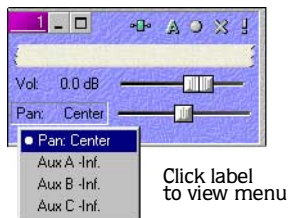
Panning

Vegas Pro track's are preset to center the signal. You may move the slider and adjust the signal's output left or right. As you move the slider, Vegas Pro displays the percentage of signal 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 channel.
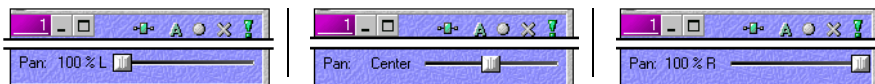
Double-click the slider to reset to Center.

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 42.* The auxiliary bus enables you to send a signal to a separate bus independent of the primary bus. Auxiliary busses are often used to isolate a track or tracks from other project tracks during playback. However, 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.

FX send

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

Track basics

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 are a number of ways to work with and manage tracks.

Adding an empty track

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 events that you will add later. For example, your project may contain a special audio event, but that event 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 window or the track list.

2. Right-click and select Insert Audio Track from the pop-up menu.

Or, select **Insert** from the menu bar and choose Audio Track.
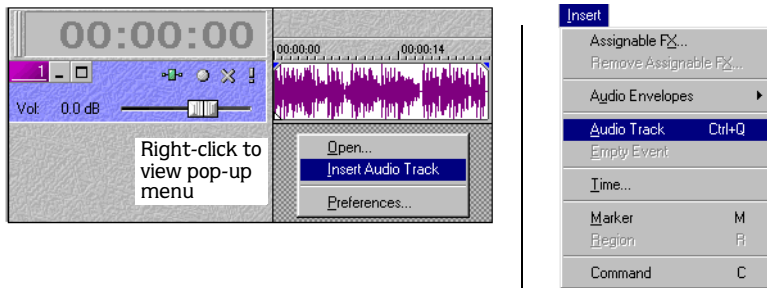
3. Vegas Pro inserts an empty track at the end of the track list.
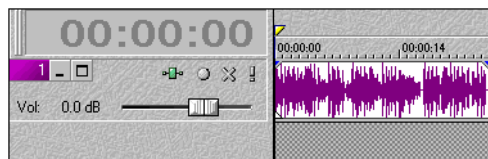
Before track is added
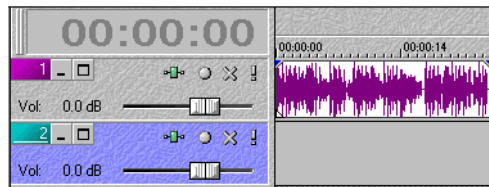
After track is added

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

1. If you do not see the Scribble Strip, expand the track to reveal it. The strip appears above the Volume slider.

Note: *If the track already has been named, you will see the name that was previously saved.*

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

Or, right-click the on the track to display a popup menu. Choose Rename from the popup menu. Any existing name will be highlighted on the strip. Type the new track name.
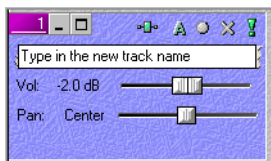
Double-click and type the name   Right-click

3. Press the Enter key to save the name.

Reordering tracks

When you create tracks, Vegas Pro numerically arranges them in the order that they were added. You may reorder the tracks in the order that you prefer. Only the order of appearance changes in the track window; playback is unaffected. You may reorder tracks one or more at a time.

To move a track, do the following:

1. 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 order.

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 concurrent tracks, or the* Ctrl *key to select random 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 place 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.
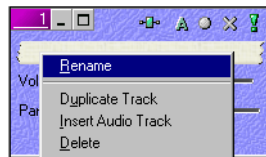
To duplicate a track, do the following:

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 concurrent tracks, or the* Ctrl *key to select random tracks.*

2. Right-click and choose Duplicate Track from the popup 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 concurrent tracks, or the* Ctrl *key to select random tracks.*
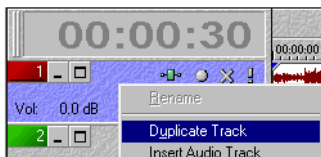
2. Right-click and choose Delete from the popup menu.

Or, from the **Edit** menu, choose Delete.
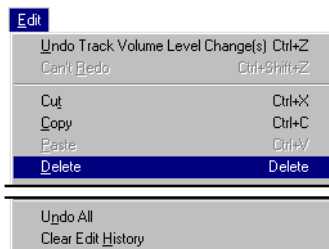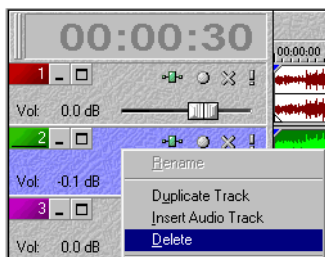
3. Repeat Steps 1-2, if necessary, to delete more tracks.

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 28.*

Video event with frame numbers

Video ruler
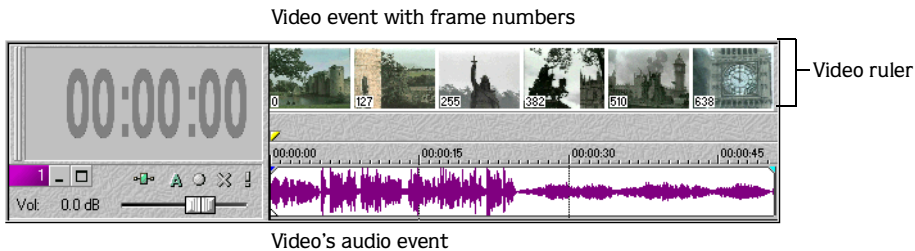
Video's audio event

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 28.*

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 popup 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 popup menu.

2. From the popup menu, choose Group, then Clear to ungroup the video and audio. Otherwise, both events will be remove.

3. Click to select the video's audio event.

The video remains on the video ruler.

Before   After
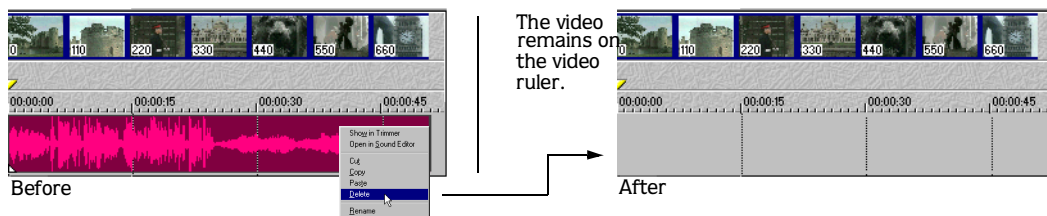
4. Right-click to display the popup menu. From the popup menu, choose Delete.

   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 a either a time selection or current cursor position. Only non-muted tracks and events are played back.

Loop play   Play from cursor pos.   Stop   Cursor to end   Skip cursor forward

Record   Play from start   Pause   Cursor to start   Skip cursor backward
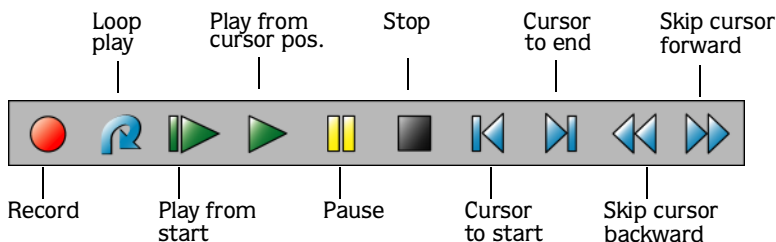
If your project includes video, make sure the Video Preview window is displayed for playback: from the **View** menu, choose Video Preview or press the Alt + 6 keys.

Play back entire project

1. Press the ⏮ 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
bD	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 box appears.
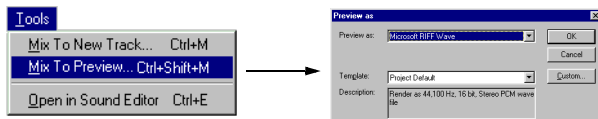
2. Select the preview option from the drop-down list.
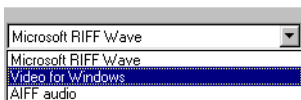
3. Click the **OK** button to begin the mixing process. A status bar appears in the lower left portion of Vegas Pro.

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

Status bar

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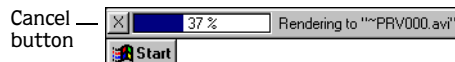
When mixing is completed, the associated media player appears and begins playback.

Working with project properties

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

General project information

Audio output settings

Video output settings

Ruler display settings
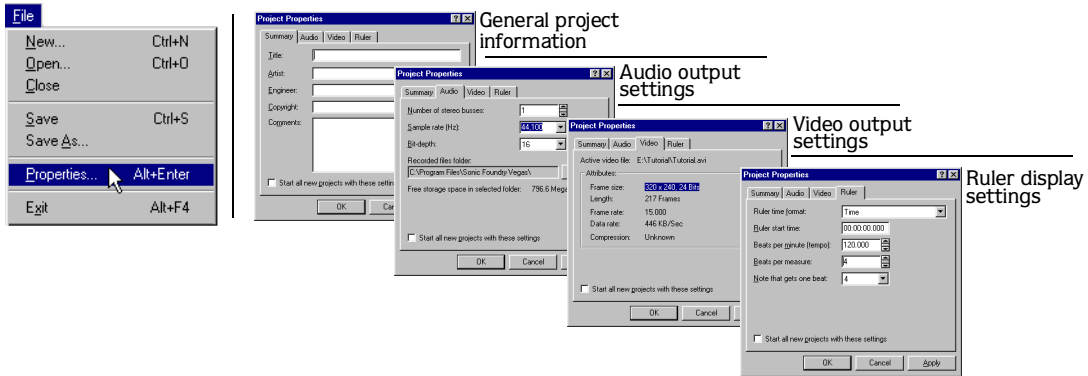
Saving the project

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 effects, 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 box appears. Skip to step 2.
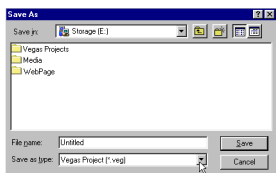
The subsequent times you save, the above window is bypassed, your existing file name is retained, and your project is updated to include any implemented changes.

2. Select the drive and directory where you want to store the project.

3. Type the project name in the File Name box.

4. In the Save as type box, select the format for which you want to save the project (as described in the previous table).
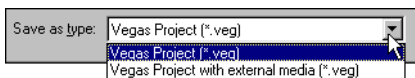
5. Click the **Save** button.

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 window includes other file formats.

To rename a Vegas Pro project, do the following:

1. From the **File** menu, choose Save As. The Save As window appears.
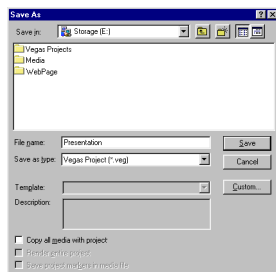
2. Select the drive and directory where you want to store the project.

3. Type a new name in the File Name box.

4. In the Save as Type drop-down list, select Vegas Pro Project (*.veg).

If you want to copy
all the project's media
into the same folder
as the Vegas Pro file, select
this check box.

☑ Copy all media with project
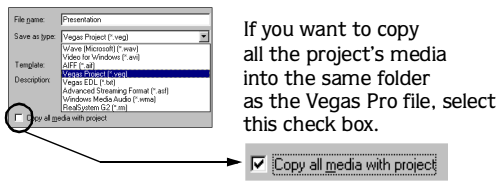
5. Click the **Save** button.

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, Web 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
Advanced Streaming 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 effects, 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 window appears.
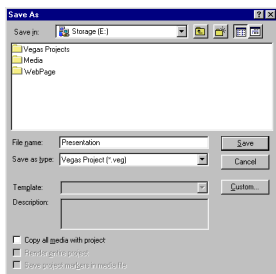
2. Select the drive and directory where you want to save the rendered project.

3. Type a new name in the File name box, if necessary.

4. In the Save as type drop-down list, select the desired file format for rendering.
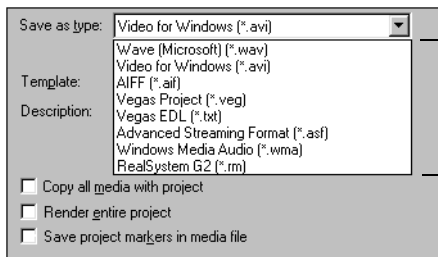
Select a rendering format

The check box options in the lower left of the Save As window 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

Cancel button

CHAPTER

Vegas Pro Tutorial

3
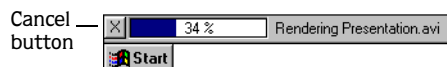
Welcome

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 11*.

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 equaliztion. 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.
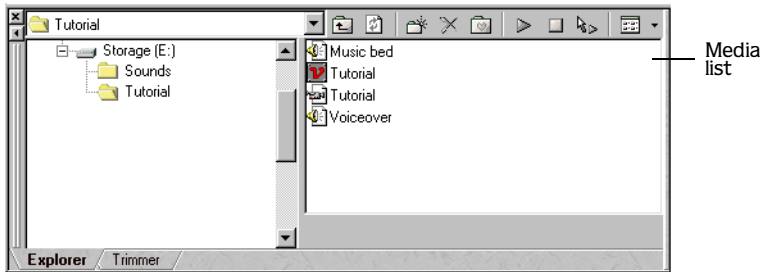
Media list

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 (📲).

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. This will place the video on the Video Ruler and the audio on the first track at the cursor's position.

Video Ruler

Audio track

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 will appear.
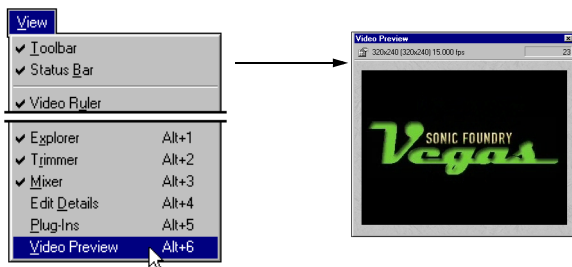
2. Place the mouse pointer on the Video Preview's title bar and drag it to the lower right portion of the work area (over the Mixer window).
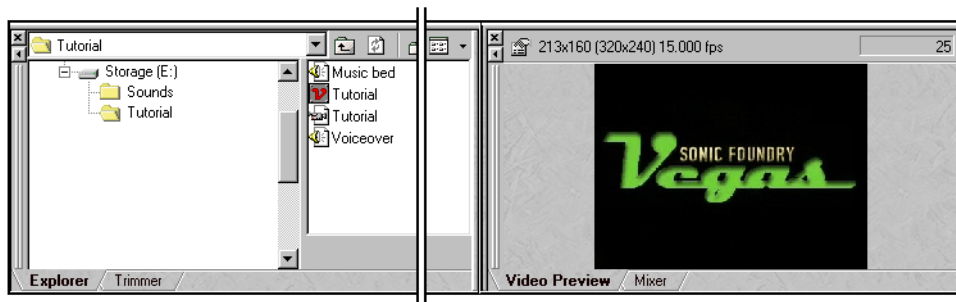
3. When the Video Preview's title bar disappears, release the mouse. The Video Preview window will dock into position below the Track View.

Play back the video

During play back, you will see and hear a number of elements: an opening and closing graphic with a music soundtrack, 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 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.

Track mute ⌐
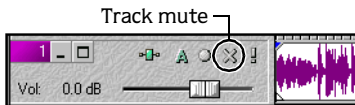
Placing the new voice-over

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 will create a new track for it.

3. Press either the ▶ or ▮▶ button to play back 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.

A-Welcome to Sonic Foundry...
B-Um...
C-This tutorial will...
D-[Cough]
E- Found in the new...

These errors (B and D) will be removed later. Also, during playback you probably saw 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 wave pattern, sychronizing 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 number of ways to manage the project's view. *For more information, see View commands on page 20.*

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 wave pattern, although distorted, reveals the narrator's voice.

Original audio

Voice-over
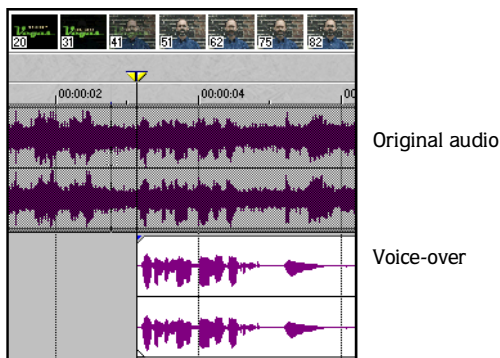
5. On the timeline, click and drag the mouse to select a time region.
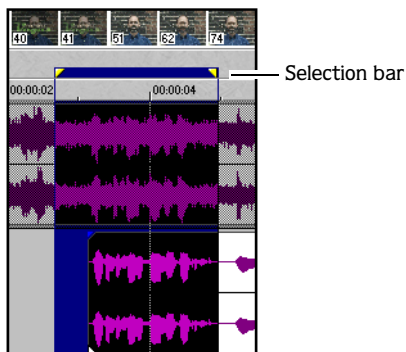
Selection bar

6. Press the ▶ or ▶ button to play back just the time selection. Press the 🔁 button 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 dialog 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 accidently begin edited too.

1. Click the video's original audio to select it.

2. From the **Edit** menu, choose Switches and then Lock.
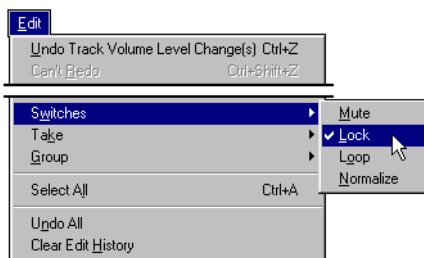
Editing a time selection

By looking at the wave pattern, 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 the mouse to make a time selection where the "um" occurs.
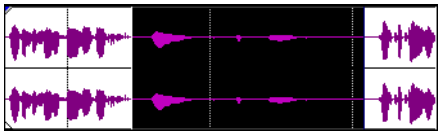
2. Press the ▶ button to play back the error to ensure that your time selection does not include part of the voice-over that we need.

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 and 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 the mouse 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.

One event
before the split
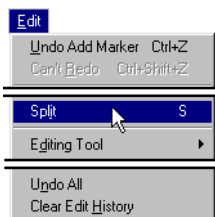
Three events
after the split

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.

"Welcome to Sonic
Foundry Vegas.

This tutorial will introduce
you to the powerful editing
and post production features...

...found in this
new production
production environment."

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 back just the time selection. Press the ↻ button to have play back 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 the 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.
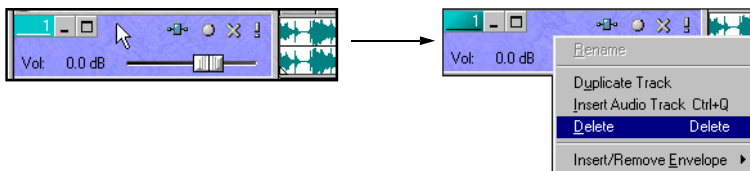
2. Right-click and choose Delete from the pop-up menu. The entire track will be removed from the project and the new voice-over will become the first track.

3. Press the Ctrl key and click the video event and the three voice-over events to select them.
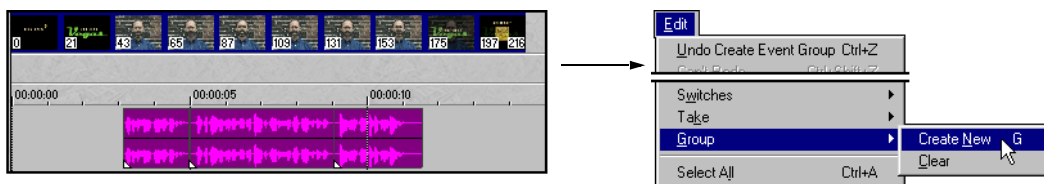
4. From the **Edit** menu, choose Group and then Create New to group the events.

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 back for the entire video. We will add a volume envelope to lower the volume while the narrator speaks 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 back 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 will appear across the track.
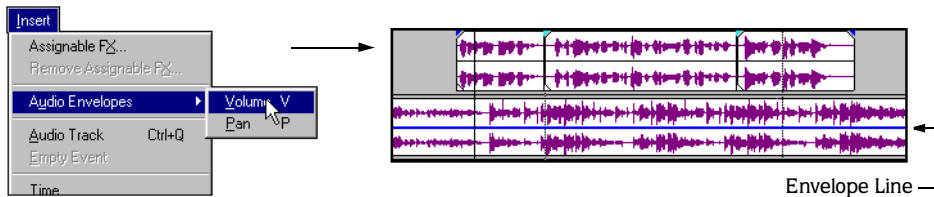
Envelope Line

3. On the music bed, place the mouse pointer slightly ahead of the voice-over's starting point. The mouse pointer will appear as a hand (✋).

4. Right-click and choose Add Point from the pop-up menu. A square point will appear on the envelope line.
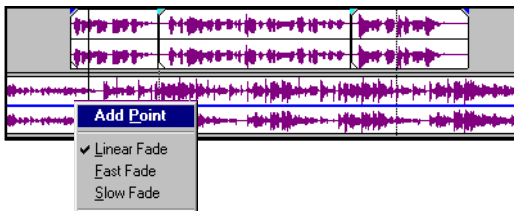
5. Repeat step 4 to add three more points on the line. You want a total of four points.

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.
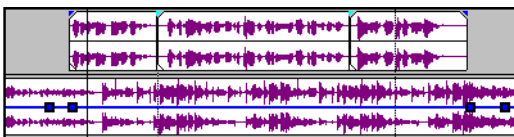
2. Click and drag the two inner points so that their volume level is at approximately -7.0 dB.
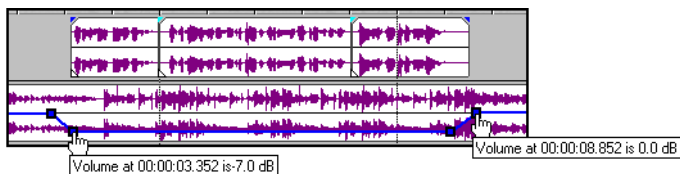
You can only set one point at a time. Two are shown for display purposes.

3. Set the outer points so that their volume level is at 0.0 dB.

4. Press either ▶ or ▐▶ to play back the project to check the timing of the volume envelope.

5. 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.

1. Click the ▐▶ button on the voice-over's track. The Track Effects window will appear.
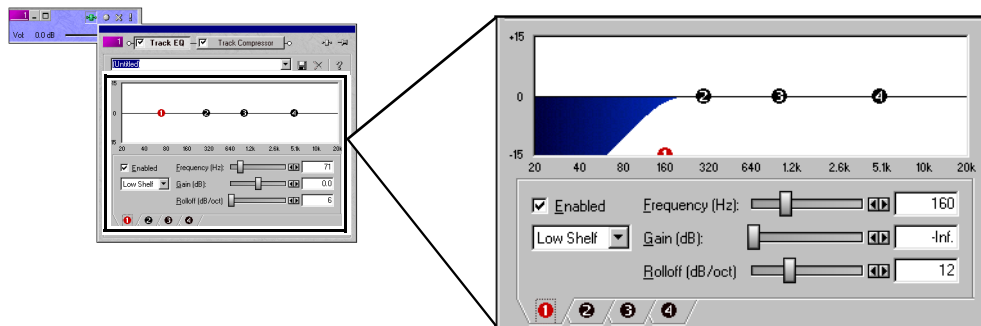
You can set the EQ settings by typing in the appropriate field, dragging the slider, or clicking the arrow buttons between the slider and the setting field.

2. Set the Frequency to 160 Hz.

3. Set the Gain to -inf.

4. Set the Rolloff to 12 (dB/oct).

5. Close the Track Effects window by clicking anywhere outside it.

6. Press either ▶ or ▐▶ to play back 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 box appears.
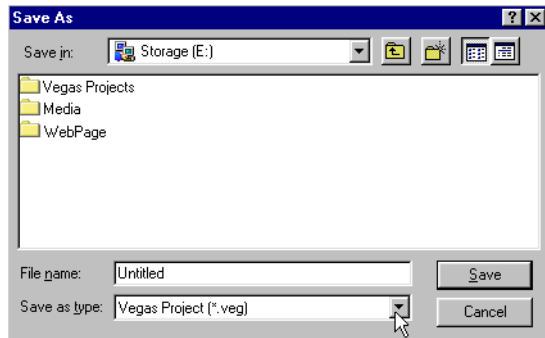
2. Select the drive and directory where you want to store the project.

3. Type the project name "MyTutorial" in the File Name box.

4. Click the **Save** button.

The subsequent times you save the project, the above Save As window 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 if for the desired playback method: media player, Web 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.
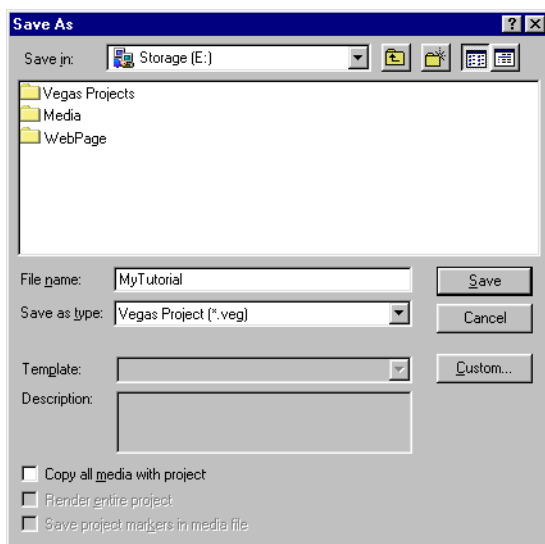
2. Select the drive and directory where you want to save the rendered project.

3. Type a new name in the File name box, if necessary.

4. In the Save as type drop-down list, select Video for Windows (*.avi).
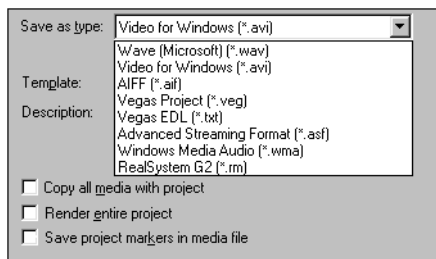
Applying compression

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 will appear.
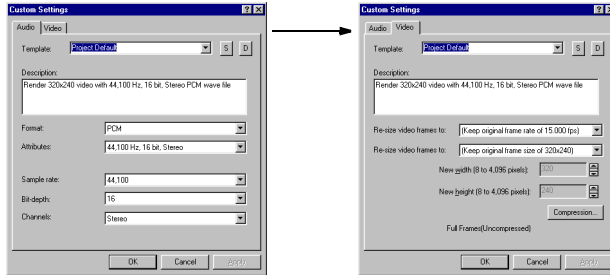
2. Click the **Video** tab, then click the **Compression** button. The Video Compression window will appear.

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.
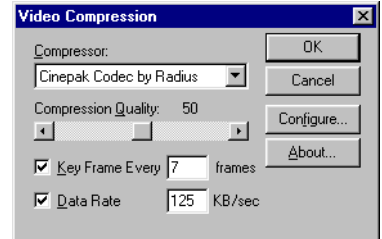
4. Click the **OK** button to set the video compression.

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

Cancel button

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

CHAPTER

4

Vegas Pro 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 or 16-bit samples. While 8-bit samples take up less memory (and hard disk space), they are inherently noisier than 16-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 $dB = 20 \times \log (V1/V2)$ 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 synching 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 in direct edit mode. 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 in direct mode.

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 a 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. You can define any number of regions in a sound file which are stored in the Regions List.

Resample

The act of recalculating samples in a sound file at a different rate than the file was originally recorded. If a sample is resampled at a lower rate, sample points are removed from the sound file, decreasing its size, but also decreasing its available frequency range. Resampling to a higher sample rate, 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, Level

The Level Ruler is the area on a data window to the left of the waveform display. It shows the vertical axis units as either percents or dB's.

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 its 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.

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