VERSION **18**

VEGAS

VEGAS PRO

English language **manual**

Last changes: Tuesday, July 7, 2020

This documentation is protected by copyright law.

All rights, especially the right of duplication, circulation, and translation are reserved.

No part of this publication may be reproduced in form of copies, microfilms or other processes, or transmitted into a language used for machines, especially data processing machines, without the express written consent of the publisher.

All rights of reproduction are reserved. Errors in and changes to the contents as well as program modifications reserved.

Copyright © MAGIX Software GmbH, 1994 - 2020. All rights reserved.

MAGIX, Vegas and all mentioned MAGIX product names are registered trademarks of MAGIX Software GmbH

HDV and HDV logo are trademarks of Sony Corporation and Victor Company of Japan, Limited (JVC).

"ATRAC," "ATRAC3," "ATRAC3plus," "ATRAC Advanced Lossless," and the ATRAC logo are trademarks of Sony Corporation.
http://www.sony.net/Products/ATRAC3/

More license information can be found online at the Vegas web sites.

MAGIX licensing conditions are included in the installation and also at www.magix.com under EULA.

Table of Contents

Table of Contents 3
Introduction 11
Technical Support 12
About VEGAS Pro 12
Interactive Tutorials 12
The VEGAS Pro Window 13
Main toolbar 14
Editing Tool 15
Time Display 18
Track List 18
Scrubbing 20
Marker Bar 21
Timeline 22
The Transport and Editing Toolbar 23
Viewing the status bar 26
Window Docking Area and Floating Window Docks 27
The Explorer Window 27
The Trimmer Window 30
The Master Bus Window 30
The Video Preview Window 30
The Project Media Window 31
The Edit Details Window 31
The Transitions Window 32
The Video FX Window 32
The Media Generators Window 33
The Project Notes window 34
The Compositors Window 34
The Plug-In Manager Window 35
The Video Scopes Window 36
The Surround Panner Window 36
The XDCAM Explorer Window 37
The Mixing Console Window 37
The Dashboard 38
Loudness meters 39
Working with projects 41
Creating a new project 41
Setting project properties 41
8-bit Pixel Format in Projects 50
Opening a project or media file 50
Creating rotated projects 53
Nesting projects 54
Nested Timelines 55
Opening a recent project 56
Saving a project 56

Saving a new version of the project (Incremental Save) 57
Advanced Save - Live Save & Automatic Backups 57
Saving and renaming a project (Save As) 59
Project references in rendered files 60
Sharing a project online 61
Uploading your movie to YouTube 61
Uploading your movie to Vimeo 63
Importing and exporting projects 63
Archiving projects 64
Working with P2 Video 64
Working with HDR video 65
Edit Decision Lists 66
Closing a Project 66
Exiting the VEGAS Pro Application 67
Adding, managing, and arranging media 68
Using the Project Media window 68
Previewing media files 74
Adding media files to your project 76
Using Storyboards 80
Working with high-frame-rate (HFR) clips 83
Adding layered PSD files to the timeline 83
The Slideshow Creator 84
Importing media from a project file 85
Importing Broadcast Wave Format files 86
Importing video from a DVD camcorder 87
Editing video from an XDCAM Station with StreamChase 88
Creating proxy files for high-definition editing 90
Using HitFilm effects 90
Inserting Subtitles 91
Sorting your media with bins 92
Viewing or changing media file properties 94
Inserting audio tracks 98
Inserting video tracks 98
Recording audio 99
Metronome 103
Capturing video 104
Capturing from an SDI card 104
Capture preferences 107
Screen Capturing 110
Converting video to 24p 111
Extracting audio from CDs 112
Editing events on the timeline 114
Adding media files to your project 114
Inserting an empty event 119
Inserting time 119

Creating selections and positioning the cursor 119
Moving events 122
Automatic crossfades 123
Enable snapping 124
Quantize to frames 126
Cutting, copying, and pasting events 127
Deleting events 129
Trimming events 130
Post-edit ripple 131
Splitting events 132
Smart Splitting Events 133
Healing Events 133
Closing gaps 134
Shuffling events 134
Using the Trimmer 135
Adjusting an event's length 142
Event Length Display 145
Expanded edit mode 145
Slipping and sliding events 147
Repairing audio/video synchronization offsets 148
Add missing streams 149
Event envelopes 149
Adding a Freeze Frame at Cursor Position 152
Panning and cropping video events 152
Stabilizing Video Clips 163
Reversing an event 165
Using takes as alternate versions of events 165
Grouping events 167
Using sync links 168
Applying switches to events 169
Audio streams 171
Audio channels 171
Opening events in an audio editor 172
Opening a copy of an event in an audio editor 173
Editing event properties 173
Copying and pasting or selectively pasting event attributes 178
Using the Edit Details Window 178
Removing red eye from still images 179
Undoing and redoing edit operations 180
Rebuild audio peaks 181
Zooming and magnification 181
Multicamera editing 183
Shooting multicamera video 183
Capturing multicamera video 183
Synchronizing video in multicamera projects 183
Creating multicamera events 185

Editing multicamera video ... 185
Stereoscopic 3D editing ... 191
Setting up your stereoscopic 3D project ... 191
Setting up stereoscopic 3D previews ... 195
Synchronizing stereoscopic 3D events ... 195
Aligning left- and right-eye views and adjusting depth ... 198
Rendering a stereoscopic 3D project ... 200
Using markers, regions, and commands ... 203
Inserting markers ... 203
Inserting regions ... 204
Using media markers and regions ... 205
Inserting command markers ... 206
Inserting CD track regions ... 210
Inserting CD index markers ... 210
The Marker Tool ... 211
Track editing ... 212
Inserting audio tracks ... 212
Inserting video tracks ... 212
Selecting tracks ... 212
Arranging tracks ... 213
Grouping tracks ... 214
Duplicating tracks ... 215
Audio track controls ... 215
Video track controls ... 224
Audio bus tracks ... 229
Video bus track ... 230
Setting default track properties ... 233
Render to New Track ... 234
Using automation ... 236
Audio track automation ... 236
Video track automation ... 240
Automating audio effect parameters ... 242
Adjusting envelopes ... 244
Recording track envelope and keyframe automation ... 248
Animating video events and tracks ... 252
Panning and cropping video events ... 252
Editing track motion ... 261
Keyframe animation ... 268
Motion tracking ... 272
Applying effects ... 276
Adding audio track effects ... 276
Adding audio event effects ... 277
Using bus effects ... 278
Applying non-real-time event effects ... 280
Using assignable effects ... 280

Adding an assignable effects chain 280
Routing tracks to an assignable effects chain 282
Using assignable effects envelopes 283
Removing an assignable effects chain 283
Creating and using effects packages 283
Bypassing all audio effects 284
Editing audio effects 284
Adding video effects 287
LUT Export 291
Using the Color Grading panel 292
Adding transitions 293
Adding generated media to your project 297
Creating text and titles 299
Using the Titles & Text Plug-In 300
Mixing audio 303
Using the Master Bus Window 303
Busses - overview 305
Adding audio busses 305
Assigning tracks to busses 306
Using bus envelopes 307
Routing busses 307
Signal flow diagram 309
Using input busses 309
Adding or deleting input busses 310
Recording using an input bus 310
Using input busses with hardware-based effects 313
Real-time rendering 314
The Mixing Console 317
The Mixing Console Toolbar 317
The Channel List Pane 319
The View Controls Pane 319
Channel Strips 321
Using the Mixing Console 323
Adding Track, Assignable FX, and Bus Channels 323
Audio Track Channel Strips 323
Bus Channel Strips 330
Input bus channel strips 335
FX send (assignable effects) channel strips 341
Creating a cue (headphone) mix with the Mixing Console 346
Compositing video 349
Compositing and masks 349
3D compositing 353
Video signal flow diagram 362
Proxy-first workflow 365
Working with HDV 367
Capturing HDV clips 367

Editing HDV video on the timeline ... 367
Working with XDCAM video ... 369
XDCAM EX workflow ... 369
XDCAM and XDCAM HD workflow ... 370
Setting up an XDCAM Device ... 370
Using the XDCAM Explorer Window ... 371
Importing XDCAM Discs ... 373
Editing XDCAM Clips on the Timeline ... 374
Exporting Video to XDCAM Discs ... 375
Working with RED camera clips ... 379
Working with AVCHD video ... 381
S-Log and ACES workflow in VEGAS Pro 18 ... 383
Enabling color management in your VEGAS Pro project ... 388
Specifying the color space for individual shots ... 389
Specifying the color space in a custom rendering template ... 389
VEGAS Pro 18 ACES 1.1 updates ... 391
360° video ... 393
Preparing a project for 360° movies ... 393
The Video Preview window in 360° mode ... 393
Stitching ... 394
Exporting 360° videos ... 396
360° Video Stabilization ... 396
5.1 surround projects ... 397
Setting up your 5.1 surround project ... 397
5.1 surround panning and mixing ... 399
Audio panning modes ... 407
Rendering your 5.1 surround project ... 409
Exporting a VEGAS Pro project to DVD Architect ... 410
Closed Captioning ... 411
Adding closed captioning to video files ... 411
Captioning Windows Media files ... 421
Previewing your project ... 423
Loop Playback ... 423
Mute All Audio ... 423
Mute All Video ... 423
Using the Video Preview window ... 423
Split-screen previews ... 429
Using dynamic RAM previews ... 431
Using an External Video Monitor ... 432
External monitor via DVI (Windows Graphics Card) ... 432
External monitor via IEEE-1394 (FireWire) ... 433
External monitor via SDI ... 434
Selectively prerender video ... 435
Cleaning up prerendered video files ... 436
Loudness metering and logging ... 436

Loudness meters 437
Generating a loudness log 438
Monitoring video with scopes 441
The Vectorscope Monitor 441
The Video Waveform Monitor 442
The Histogram Monitor 443
The RGB Parade Monitor 446
Video Scope Settings 446
Timecode synchronization 449
Generate MIDI Timecode 449
Generate MIDI Clock 449
Trigger from MIDI Timecode 450
Burning discs 453
Track-at-once (TAO) CD burning 453
Disc-at-once (DAO or Red Book) CD Burning 454
Burning a Blu-ray Disc from the timeline 459
Burning a DVD from the timeline 460
Printing video to tape 461
Printing video to tape from the timeline 461
Printing video to HDV tape 467
Rendering projects (Render As) 469
Rendering Multichannel Audio Files 473
Rendering MPEG Files 476
Rendering Projects for Use in DVD Architect 477
Media File Settings for Blu-ray Disc Projects 478
Custom rendering templates 481
Using Vegas Pro Connect 483
Setting up Vegas Pro Connect 483
Using Vegas Pro Connect to control playback 484
Using Vegas Pro Connect to review projects on your mobile device 489
Adjusting Vegas Pro Connect settings 492
Troubleshooting Vegas Pro Connect Connections 493
Using hardware controllers 495
Using a control surface 495
Using a Mackie Control 496
Using a Frontier TranzPort 509
Using a PreSonus FaderPort 511
Using a Generic Control Surface 512
Configuring a Generic Control Surface 513
Using a joystick for panning, adjusting controls, and color correction 515
Using a multimedia controller 517
Using Scripting 519
Customizing the VEGAS Pro interface 523
Customizing the toolbar 523
Customizing keyboard shortcuts 523
Time ruler 524

Grid spacing 526
Saving and recalling window layouts 527
VEGAS Pro preferences 529
Preferences - General Tab 529
Preferences - Video Tab 533
Preferences - Preview Device Tab 536
Preferences - Audio Tab 542
Preferences - Audio Device Tab 545
Advanced Audio Configuration 547
Customizing ASIO port naming 548
Preferences - MIDI Device Tab 550
Preferences - VST Effects 550
Preferences - Editing Tab 550
Preferences - Display Tab 553
Preferences - CD Settings Tab 555
Preferences - Sync Tab 556
Preferences - External Control & Automation Tab 558
Deprecated Features tab 560
File I/O tab 561
Keyboard shortcuts 563
Index 577

Introduction

MAGIX proudly introduces VEGAS Pro 18 , a full-featured nonlinear editor (NLE) for video and multitrack digital audio designed for video post production and multichannel audio recording and mixing.

What's new in this version

- **Motion Tracker Panel:** Track motion in any video event with a dedicated Motion Tracker panel , the detected trace (including perspective size change and distortion) can be used in any other event FX that takes location data. Note that in favor of this more generalized solution, the motion tracker was removed from the Bézier Masking FX.
- **Improved Video FX, Transitions and Media Generator windows:** Effects can be filtered by category and provider, you can search for an effect name and mark favorites to quickly find your favorite effect.
- **8-Bit (full range) pixel format:** This new default project pixel format supports full-range media files without conversion, while limited or undefined range files are converted to full range. The range setting for individual media is user definable in full-range projects, and the traditional 8-Bit (video level) format is still available.
- **Black Bar Fill plug-in:** Fill the black bars that are created when inserting upright video or images into your movie with a blurred copy of the image.
- **Denoiser plug-in** for high quality noise removal from videos.
- **Flicker Control plug-in** for the reduction of flicker artifact caused by a wrongly synchronized CMOS sensor and artificial light sources or by changing lighting conditions in time-lapse sequences. You can also add artificial flicker to simulate a certain look
- **Style Transfer plug-in**: Use the power of Artifical Intelligence to stylize your videos to make them look they were painted in the style of famous artists.
- **Colorization plug-in**: Colorize black and white video with the VEGAS Pro AI to add more realism to that footage.
- Integrated graphics card driver update check.
- The **Lens Correction FX** has got an adittional zooming factor to hide ragged black borders at the corners of the image.
- **Export and Import of VEGAS Pro preferences** for backup and for moving an installation to another computer.
- Reworked screen capture utility **VEGAS Capture**.
- **Incremental Save:** Save a new version of your project with keyboard shortcut Ctrl+Alt+S with an auto-numbered file name.
- A more **detailed render progress dialog** shows information about expected render time, end time, file size and many more.
- **Swap video files**. From the Project Media dialog, you can swap the media files used in a project by choosing a different folder that contains the new video files. All files with the same name (regardless of file extension) are exchanged. You can also exchange video files only during the rendering process.
- **New Video Scopes options**: The RGB parade view can work in two different modes, **Separate** and **Combined**. Also an optional **Skin Tone Line** display was added.
- **VEGAS Prepare:** VEGAS Prepare is a versatile media database that allows you to quickly and efficiently manage all your audiovisual media – videos, audio files and images – in one place and prepare them for use in VEGAS Pro. With this tool, it is possible to import media from external and local storage devices and arrange them into collections.
- **VEGAS Hub explorer** window for accessing VEGAS Prepare media collections and VEGAS Cloud.
- **Alternate High DPI mode**. A new preference is now available in the General tab of the preferences dialog for an alternate High DPI mode, which may improve the High DPI experience for users who have multiple

monitors that have different scaling levels set in Windows.
- **Logarithmic Exposure** adjustment was added to the **Color Grading** panel.
- Some more legacy features were hidden by default, use **Preferences** > **Deprecated Features** to make these visible again: Sony Wireless Media adapter, Print to Tape, Video capture, VEGAS Pro connect.

Technical Support

If you experience problems or have questions while using VEGAS Pro, our technical support department is always ready to help you. Additional support and information can be found at **http://www.vegascreativesoftware.com**.

For a detailed list of Technical Support options, please visit our **web site**.

About VEGAS Pro

From the Help menu, choose **About VEGAS Pro** to display information about the application, such as the software license owner, copyright and system information, program version and serial number, and the VEGAS Pro logo.

Before contacting Technical Support, click the Computer tab to display information about your computer.

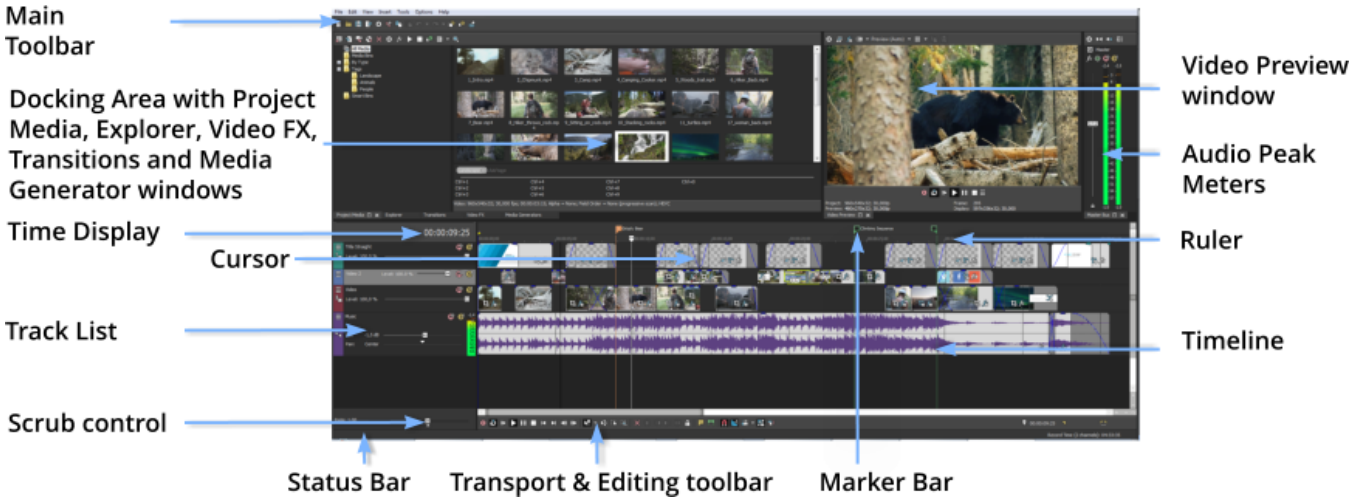
Interactive Tutorials

 Use the **Interactive Tutorials** Button from the Main Toolbar or , choose **Interactive Tutorials** from the Help menu to start an interactive guide that will show you each part of the VEGAS Pro interface and teach you how to create projects.

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

The VEGAS Pro Window

The VEGAS® Pro window is where you edit your project, and the screen is divided into several areas.



Tips:

- If you prefer to work with the timeline at the bottom of the window and the docking area at the top of the window, select the **Display timeline at bottom of main window** check box on the Display tab of the Preferences dialog. For more information, see "Preferences - Display Tab" on page 553
- The track list, timeline, and window docking area sections can be sized to your preferences by dragging the dividers between them or by using F11:
  - F11 minimizes and restores the window docking area.
  - Shift+F11 minimizes and restores the track list.
  - Ctrl+F11 maximizes and restores the timeline vertically and horizontally (window docking area and track list will be hidden).

There are times when you don't need quick access to the all various buttons in the UI. Some buttons you will use all the time while others only occasionally. Several areas of the UI have been designed so that you can customize which buttons are displayed by default. Examples of this are the tool bars found in the **Video Preview window**, the **Trimmer window**, and the audio and video **Track Headers**.

Access to the buttons that are not currently displayed can be achieved via the Hamburger button  . The Hamburger button also gives you access to the **Edit Visible Button Set** command which enables you to control which buttons are displayed by default.


Hint: Throughout the manual and help system, feature descriptions are based on visible buttons. To access a button not currently displayed:

- Click the Hamburger button 
- Click the command in the pop-up menu to perform the action of that button.

To choose which buttons are displayed by default:

- Click on the Hamburger button  and choose **Edit Visible Button Set**
- Click the check box for any button you want to be displayed by default.

Main toolbar

From the View menu, choose **Toolbar** to toggle the display of the main toolbar.

The toolbar contains buttons that enable you to select frequently used commands quickly. You can customize it by adding, removing, or reordering buttons.For more information, see "Customizing the toolbar" on page 523

Button	Name	Description
	**New Empty Project**	Creates a new blank project using the default settings. For more information, see "Creating a new project" on page 41
	**Open**	Opens an existing project or media file. For more information, see "Opening a project or media file" on page 50
	**Save**	Saves the current project. For more information, see "Saving a project" on page 56
	**Render As**	Saves your project in a new format as a single file. For more information, see "Rendering projects (Render As)" on page 469
	**Properties**	Opens the Project Properties dialog box allowing you to make changes to the current project. For more information, see "Setting project properties" on page 41
	**Cut**	Deletes and copies the current event selection to the clipboard. For more information, see "Cutting, copying, and pasting events" on page 127
	**Copy**	Copies the current event selection to the clipboard. For more information, see "Cutting, copying, and pasting events" on page 127
	**Paste**	Pastes the contents of the clipboard at the current cursor position. For more information, see "Cutting, copying, and pasting events" on page 127
	**Undo**	Reverses the last action performed. For more information, see "Undoing and redoing edit operations" on page 180
	**Redo**	Reverses the action of the **Undo** command. For more information, see "Undoing and redoing edit operations" on page 180
	**Interactive Tutorials**	Starts an interactive guide that will show you each part of the VEGAS Pro interface and teach you how to create projects. For more information, see "Interactive Tutorials" on page 12
	**What's This Help**	Displays context-sensitive help.

Editing Tool

Choose **Edit** > **Editing Tool** and select a tool from the submenu to change the active tool.

Normal

To use the Normal tool  , choose **Editing Tool** from the Edit menu, and choose **Normal** from the submenu.

This tool gives you the most flexibility while editing; selection, project navigation, most envelope editing, etc. The only functions you cannot perform while in normal editing mode are box selection, box magnification, and multiple envelope point selection.For more information, see "Adjusting envelopes" on page 244

Selecting events

Click an event to select it. Hold Ctrl while clicking to select multiple events, or hold Shift to select all events between the first and last event you click.

Moving events

Select events and drag them along the timeline.

Changing an event's length

Drag either edge of an event to change its length. The event edge will snap to grid lines if snapping is on. Hold the Shift key while dragging to temporarily suspend snapping.For more information, see "Enable snapping" on page 124

Click the down arrow ▾ next to the Normal tool and choose a tool from the menu to select the mode that will be used for editing events. For more information, see "The Transport and Editing Toolbar" on page 23

Tool	Description
 Normal Edit Tool	Use to select, move, and trim the ends of events. Click an event to select it. Hold Ctrl while clicking to select multiple events, or hold Shift to select all events between the first and last event you click. Select events and drag them along the timeline to move them. Drag either edge of an event to change its length. The event edge will snap to grid lines if snapping is on. Hold the Shift key while dragging to temporarily suspend snapping.For more information, see "Enable snapping" on page 124 For more information, see "Creating selections and positioning the cursor" on page 119"Moving events" on page 122"Moving events" on page 122 or "Adjusting an event's length" on page 142
 Shuffle Tool	Use to rearrange events on the timeline. For more information, see "Shuffling events" on page 134  *Right-click and drag an event to a new location on the timeline and choose* **Shuffle Events** *from the shortcut menu to shuffle events when the Shuffle Tool is not active.*
 Slip Tool	Use to slip an event's media without moving the event on the timeline. For more information, see "Slipping and sliding events"

Tool	Description
	on page 147 *Hold Alt while dragging an event to slip events when the Slip Tool is not active.*
Slide Tool	Use to move an event on the timeline without moving the underlying media. For more information, see "Slipping and sliding events" on page 147 *Hold Ctrl+Alt while dragging an event to slide events when the Slide Tool is not active.*
Time Stretch/Compress Tool	Use to make events longer or shorter while changing the velocity of the media to create fast- or slow-motion effects. For more information, see "Adjusting an event's length" on page 142 *Hold Ctrl while dragging the edge of an event to time stretch/compress events when the Time Stretch/Compress Tool is not active.*
Split Trim Tool	Use to split an event at the point you click and trim the event in the direction you drag (eraser mode). For more information, see "Slipping and sliding events" on page 147 *Hold Ctrl+Alt+ Shift and drag to split trim events when the Split Trim Tool is not active.*

Envelope

To use the Envelope tool, choose **Edit** > **Editing Tool** > **Envelope**.

The Envelope tool is designed to manipulate envelopes in events. With the Envelope tool selected, you can add, delete, select, and move envelope points, but events cannot be moved or edited.For more information, see "Adjusting envelopes" on page 244

Selection

To use the Selection tool, choose **Edit** > **Editing Tool** > **Selection**.

The Selection tool is designed to select multiple events across tracks by drawing selection boxes around the events you want to include. The Selection tool can draw three types of selection boxes:

Type	Description
Free Selection	The default behavior of the tool: • Click to select individual events (hold Shift or Ctrl to select multiple events). • Drag to draw a rectangular region that begins where you start drawing and ends where you release the mouse button. All of the events that are inside the region will be selected. This method is good for selecting a group of events that are close together.
Vertical	Can be used to easily select all events that occur within a time range. The vertical selection box automatically selects all of the

Type	Description
	tracks between your first mouse click and where you draw the selection box; even tracks that are not visible at the current magnification are selected.
Horizontal	Can be used to easily select all events on a single or multiple adjacent tracks. The horizontal selection box automatically selects all events on a track that is touched by the selection box; even events that are not visible at the current magnification are selected.

To change the type of selection box you are using, right-click the mouse while holding down the left mouse button. Clicking the right mouse button will toggle through the three types of selection boxes.

Zoom

To use the Zoom tool , choose **Edit** > **Editing Tool** > **Zoom**. You can use the zoom tool to change the magnification of the VEGAS Pro project.

Click the **Zoom** *button in the corner of the timeline to temporarily change the cursor into the Zoom tool. Select an area of the timeline that you want to magnify, and the cursor will revert to the previously active tool.*



Before zooming, you can maximize the timeline by using the following shortcuts:

- Press F11 to maximize the timeline vertically (Window Docking area will be hidden).
- Press Ctrl+F11 to maximize the timeline vertically and horizontally (Window Docking area and Track List will be hidden).
- Press Shift+F11 to maximize the timeline horizontally (Track List will be hidden).

Drag the mouse over the area you want to magnify. A dotted rectangle is drawn around the area, and the area is magnified when the mouse button is released.

While holding the left mouse button, click the right mouse button to toggle through the three magnification modes:

Item	Description
Free Zoom	The default behavior of the Zoom tool. Use this mode to zoom into a section of your VEGAS Pro project horizontally and vertically at the same time.
Time Zoom	Use this mode to zoom horizontally without changing the vertical magnification.
Track Height Zoom	Use this mode to zoom vertically without changing the horizontal magnification.

Clicking anywhere in the project with the Zoom tool will zoom out so that the entire project fits in the timeline, and as many tracks as possible will be displayed.

Next Tool

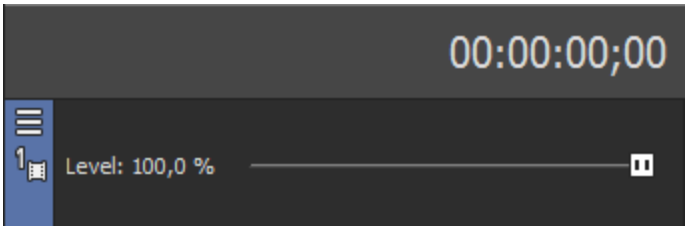
Choose **Next Tool** (or press D) to switch to the next tool in the list. For example, if you're using the Normal tool, **Next Tool** selects the Envelope tool.

Previous Tool

Choose **Previous Tool** (or press Shift+D) to switch to the next tool in the list. For example, if you're using the Envelope tool, **Previous Tool** selects the Normal tool.

Time Display

The Time Display window shows the current cursor position, MTC input, MTC output, or MIDI clock output time.

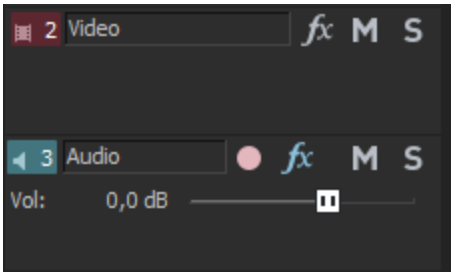


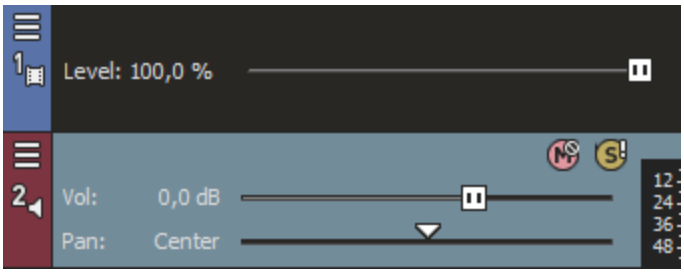
Right-click the window and choose a command from the submenu to change the display format.

Item	Description
Time at Cursor	Displays the current cursor position using the current time format.
MIDI Timecode In	Displays incoming MIDI timecode. For more information, see "Trigger from MIDI Timecode" on page 450
MIDI Timecode Out	Displays outgoing MIDI timecode. For more information, see "Generate MIDI Timecode" on page 449
MIDI Clock Out	Displays outgoing MIDI clock. For more information, see "Generate MIDI Clock" on page 449
Time Format	Choose **Time Format** and choose a setting from the submenu to set the time units used in the Time Display and Time Ruler. For more information, see "Time ruler" on page 524
Text Color	Choose **Custom** to specify the color that will be used to display the text in the window.
Background Color	Choose **Custom** to specify the color that will be used to display the background of the window. *Changing the Time Display window colors affects only the current color scheme. You can change the color scheme on the Display tab of the Preferences dialog.*

Track List

The track list displays all of the audio and video tracks in your project and contains the master controls for each track. A scrub control and playback rate slider is also available below the track list.





For more information, see "Audio track controls" on page 215 "Video track controls" on page 224 and "Scrubbing" on the next page

Track Headers

The Track Headers have been designed to be less cluttered and take up less screen realestate. You can use the Hamburger button , located just above the track number in the track header, to quickly assess buttons that are not displayed or to select which buttons are displayed by default each time you open the program.

To access a button not currently shown in the track header, click the Hamburger button to open the menu. Select the command according to the button from the drop down list.

To add a button to the track header, click the Hamburger button to open the button selection menu. Choose **Edit Visible Button Set** from the drop down list. Click the check box of the button(s) you want to be shown in the track header and click **OK**.

If you want all of the buttons to show on the Track Header, click the Hamburger button to open the button selection menu, choose **Edit Visible Button Set** from the drop down list, click the **Show All** button, and click **OK**.

Tip:

You can quickly reset the buttons displayed on the Track Header to the factory default by choosing **View | Window Layouts | Default Layout** (Alt+D, D).

Note:

This resets the application back to all of the factory default settings, not just the Track Header defaults.

There are times when you need to free up as much screen/track real-estate as possible. The video and audio Track Headers have been designed to accommodate that. You can go from full to minimal to very minimal and back again quickly and easily.

1. Click the Hamburger button and choose **Edit Visible Button Set**
2. Click the **Hide All** button and click **OK**
3. Do the same for both audio and video tracks. You now see only the faders and pan controls
4. Place the cursor on the vertical border between the track headers and the tracks. The mouse will change its shape to a line with a double-headed arrow . Click and drag to the left until all you see are the track numbers and Hamburger button. To return to the default Track Header size drag the border back to the right, or double click the border.

Note:

You don't need to hide all the buttons for this to work. As you drag the Track Header border to the left it will automatically hide the buttons. You can always get to hidden buttons via the Hamburger menu. Double-clicking the border will take you to and from full Track Header width and just the track color bars.

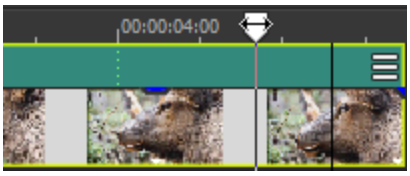
Scrubbing

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

Choose a setting from the **JKL / shuttle speed** drop-down list on the Editing tab of the Preferences dialog to control the scrub speed and range when you scrub with the JKL keys or with a multimedia controller. For more information, see "Using a multimedia controller" on page 517

Scrubbing with the playhead

Drag the playhead above the timeline to shuttle forward or backward from the cursor position to find an edit point.



Tips:

- Hold Alt, click the ruler, and drag to move the cursor to the position you clicked and scrub in the direction you drag.
- Hold Ctrl while dragging (or drag while holding the right mouse button) to find audio when you're zoomed out. The cursor moves in larger steps than with a regular drag.
- Hold Ctrl+Alt while dragging to scrub video only.
- Zoom in or out to adjust the scrub sensitivity.For more information, see "Zooming and magnification" on page 181

Using the scrub control in the track list

Drag the scrub control to shuttle forward or backward from the cursor position to find an edit point.



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

Scrubbing with the cursor

1. Hover over the cursor in an area of the timeline that does not contain an event and press Ctrl. The mouse pointer is displayed as a .

   When the **Allow Ctrl+drag cursor style scrub over events** *check box on the General tab of the Preferences dialog is selected, you can scrub with the mouse even when the cursor is over an event.*

2. Drag left or right to scrub playback.

Scrubbing with the keyboard

Press the J, K, or L keys to use the keyboard as a scrub control.

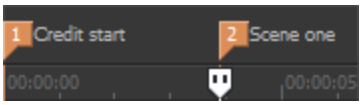
Press and hold K while pressing J or L to emulate a shuttle knob mode. Press K+J to turn the knob to the left or K+L to turn the knob to the right.

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

Marker Bar

The marker bar displays markers that you add to your project. Markers are a handy way to ease navigation in the timeline. They can be used to indicate sections of projects, or you can use markers as snap points for editing.

For information about inserting markers, see "Inserting markers" on page 203



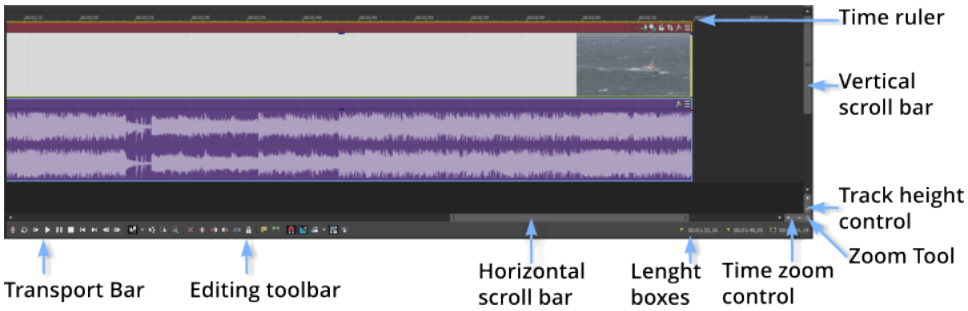
A shortcut menu is displayed when you right-click the marker bar:

Item	Description
Loop Playback	Sets the time selection range to repeat the music when played.
Set Selection to View	Sets the loop region to the visible edges of the timeline. If the entire project is displayed, the loop region is set to the ends of the project.
Set Selection to Project	Sets the loop region to the ends of the project.
Select Loop Region	Creates a time selection based on the current loop region.
Markers/Regions	Choose a command from the submenu to add or delete markers or regions. For more information, see "Inserting markers" on page 203 and "Inserting regions" on page 204
Quantize to Frames	Forces edits to occur on frame boundaries. For more information, see "Quantize to frames" on page 126
Enable Snapping	When snapping is enabled, the **Snap to Grid** and **Snap to Markers** commands become available. For more information, see "Enable snapping" on page 124
Snap to Grid	Select this command to force elements in the timeline to snap to the grid. The grid is defined in units of time. For more information, see "Enable snapping" on page 124
Snap to Markers	Select this command to force elements in the timeline to snap to markers. For more information, see "Enable snapping" on page 124

Item	Description
Snap to All Events	Select this command to force elements in the timeline to snap to the ends of events on other tracks. For more information, see "Enable snapping" on page 124
Grid Spacing	Choose a command from the submenu to set the spacing of vertical grid lines along the timeline.
Selectively Prerender Video	Opens the Prerender Video dialog, where you can create a full-quality preview of your project as it will appear in its final form. For more information, see "Selectively prerender video" on page 435
Clean Up Prerendered Video	Removes the temporary files created as a result of using the **Selectively Prerender Video** command. For more information, see "Cleaning up prerendered video files" on page 436

Timeline

The timeline is the main part of the VEGAS Pro window where you will be doing most of your work. The majority of the window consists of actual track space. This area contains the drawn events on each track.



You can choose **Edit** > **Navigate** *and choose a command from the submenu to navigate the timeline quickly.*

Time ruler

Displays the time in the format you select. For more information, see "Time ruler" on page 524

Vertical scroll bar

Drag the scroll box to pan the view of the project up or down.

Double-clicking the vertical scroll bar will zoom the project out so that as many tracks as possible will be displayed.

Track height control

Click **+** to increase the height of the tracks, or click **-** to decrease track height.

You can also click in the space between the **+** *and* **-** *buttons and drag vertically for adjusting track height.*

Time zoom control

Click **+** to zoom in horizontally, or click **-** to zoom out.

You can also click in the space between the **+** *and* **-** *buttons and drag horizontally for adjusting zoom.*

Horizontal scroll bar

Drag the scroll box to pan the view of the project left or right. The ends of the scroll bar also function as zoom controls. You can zoom the project in and out by dragging the edges of the scroll box.

Double-clicking the horizontal scroll bar will zoom the project out so that the entire length of the project will be displayed.

Zoom tool

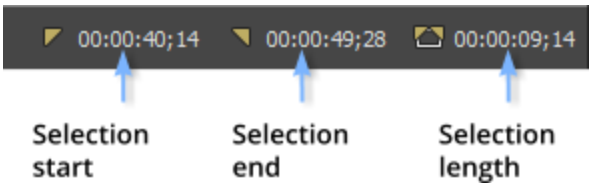
Click the **Zoom Tool** button in the corner of the timeline to temporarily change the cursor into the Zoom tool. Select an area of the timeline that you want to magnify, and the cursor will revert to the previously active tool.

Editing toolbar

The editing toolbar is displayed below the timeline and provides access to tools you'll use while editing events on the timeline. For more information, see "The Transport and Editing Toolbar" below

Length boxes

The length boxes display the start time, end time and length of a selected time range. If there's no time selection, the first box shows the current cursor position.



You can double-click the boxes and type a value to change the start, end or length of the current selection. For more information, see "Creating selections and positioning the cursor" on page 119

The Transport and Editing Toolbar

The Transport and Editing toolbar provides controls for playback, recording, and cursor-positioning buttons and timeline editing.

During project playback, audio tracks will be mixed to the Master bus unless you are using a custom bus assignment. Video tracks will be mixed to the Video Preview window.

For more information, see "Assigning tracks to busses" on page 306 and "Using the Video Preview window" on page 423

You can choose **Edit** > **Navigate** *and choose a command from the submenu to navigate the timeline quickly.*

Button	Name	Description
	**Record**	Starts recording on all armed tracks. If no tracks are armed, a new track will be created automatically. For more information, see "Recording audio" on page 99

Button	Name	Description
	**Loop Playback**	Plays only the events in the loop region in a continuous mode.
	**Play from Start**	Starts playback from the beginning of the project regardless of the current cursor position. When you stop playback, the cursor returns to its original position.
	**Play**	Starts playback from the cursor position.  *Select the* **Make spacebar and F12 Play/Pause instead of Play/Stop** *check box in the General Preferences tab if you want the F12 and spacebar keyboard shortcuts to toggle between Play and Pause mode. In this mode, the cursor will maintain its position.*
	**Pause**	Pauses playback and leaves the cursor at its current position.
	**Stop**	Stops playback or recording and returns the cursor to its starting position.
	**Go to Start**	Moves the cursor to the beginning of the project.
	**Go to End**	Moves the cursor to the end of the project.
	**Previous Frame**	Moves the cursor to the previous frame.  *Click and hold the* **Previous Frame** *and* **Next Frame** *buttons to move the cursor multiple frames.*
	**Next Frame**	Moves the cursor to the next frame.
	**Normal Edit Tool**	Select this button to perform event editing. Click the down arrow ▾ and choose a tool from the menu to select the mode that will be used for editing events. For more information, see "Editing Tool" on page 15 •  **Normal Edit Tool**: Use to trim the ends of events. For more information, see "Adjusting an event's length" on page 142 •  **Shuffle Tool**: Use to rearrange events on the timeline. For more information, see "Shuffling events" on page 134 •  **Slip Tool**: Use to slip an event's media without moving the event on the timeline. For more information, see "Slipping and sliding events" on page 147 •  **Slide Tool**: Use to move an event on the timeline without moving the underlying media. For more information, see "Slipping and sliding events" on page 147 •  **Time Stretch/Compress Tool**: Use to make events longer or shorter while changing the velocity of the media to create fast- or slow-motion effects. For more information, see "Adjusting an event's length" on page 142

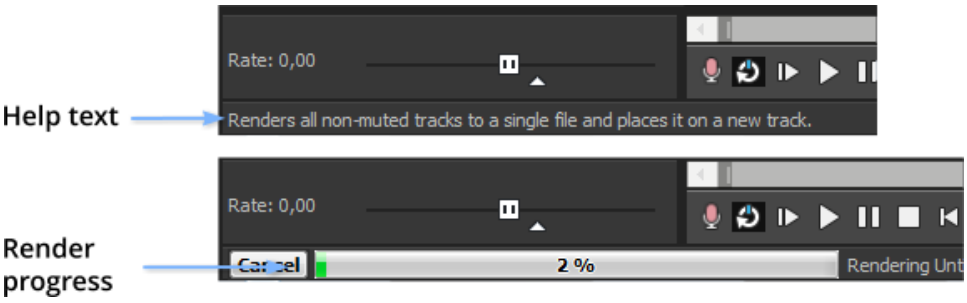
Button	Name	Description
		• **Split Trim Tool**: Use to split an event at the point you click and trim the event in the direction you drag (eraser mode). For more information, see "Slipping and sliding events" on page 147
	Envelope Edit Tool	Select this button when you want to edit multiple envelopes without moving the events. For more information, see "Editing Tool" on page 15
	Selection Edit Tool	Select this button when you want to select multiple events. For more information, see "Editing Tool" on page 15
	Zoom Edit Tool	Magnifies the current project. For more information, see "Editing Tool" on page 15
	Delete	Deletes the selected events or tracks. For more information, see "Deleting events" on page 129
	Trim	Trims a time selection. For more information, see "Trimming events" on page 130
	Trim Start	Trims the start of the selected event to the cursor. For more information, see "Trimming events" on page 130
	Trim End	Trims the end of the selected event to the cursor. For more information, see "Trimming events" on page 130
	Split	Click to split an event. For more information, see "Splitting events" on page 132
	Smart Split	Click to Smart Split an event For more information, see "Smart Splitting Events" on page 133
	Lock	Locks an event so that it cannot be moved or edited. For more information, see "Applying switches to events" on page 169
	Insert Marker	Adds a marker at the cursor position. For more information, see "Inserting markers" on page 203
	Insert Region	Adds region tags at each end of the selection. For more information, see "Inserting regions" on page 204
	Enable Snapping	Turns on snapping and enables the **Snap to Grid** and **Snap to Markers** commands. For more information, see "Enable snapping" on page 124
	Automatic Crossfades	Select this button to automatically create a crossfade when two or more events overlap. For more information, see "Automatic crossfades" on page 123
	Auto Ripple	Select this button and choose a mode from the drop-down list to automatically ripple the contents of the timeline following an edit after adjusting an event's length, cutting, copying, pasting, or deleting events. For more information, see "Post-edit ripple" on page 131
	Lock Envelopes to Events	Select this button if you want envelope points to follow an event when it is moved along the timeline. For more information, see "Video track automation" on page 240
	Ignore Event Grouping	Select this button to override event groups without removing the groups. For more information, see "Grouping events" on page 167

Button	Name	Description
		Select this button to show or hide the HDR-compatible Color Grading tools.For more information, see "Using the Color Grading panel" on page 292
		Select this button to close the current nested timeline and open its parent timeline.For more information, see "Nested Timelines" on page 55
		Select this button to open the currently selected event as a nested timeline.
		Select this button to create and open a nested timeline from the currently selected timeline events.

Viewing the status bar

From the View menu, choose **Status Bar** to toggle the display of the status bar at the bottom of the VEGAS Pro window.

The status bar displays help text when your mouse is over menu items, shows the available record time in the selected folder, and will also show progress meters for any actions that take time to complete.



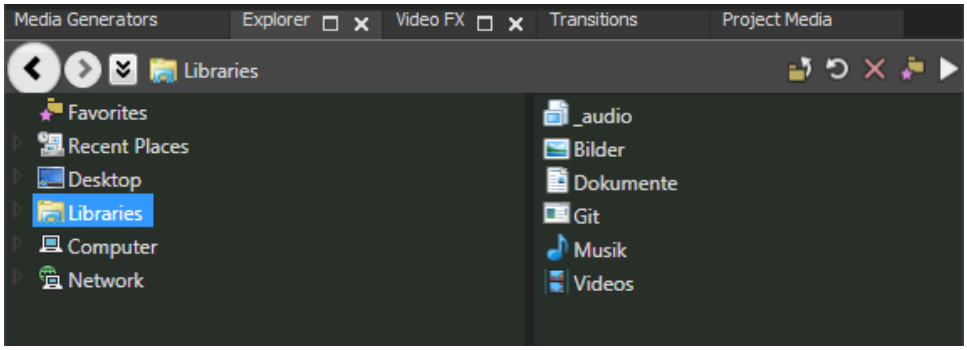
To change the recorded files folder, choose **Properties** *from the File menu and click the Audio tab.For more information, see "Setting project properties" on page 41*

Window Docking Area and Floating Window Docks

You can use the window docking area to keep frequently used windows available, but out of the way, while you are working with a project.

Tips:

- If you want to display the window docking area at the top of the VEGAS® Pro window, select the **Display timeline at bottom of main window** check box on the Display tab of the Preferences dialog. Clear the check box to display the docking area at the bottom of the VEGAS Pro window.
- If you want to display tabs at the top of docking windows, select the **Position tabs at top of docked windows** check box on the Display tab of the Preferences dialog.



You can also create multiple floating docks to organize your VEGAS Pro windows. These docks can float over the VEGAS Pro window or – if you have a dual-monitor video card – on a secondary monitor.

- To dock a window, ctrl + drag it by the title bar to the docking area or a floating dock. Drop near the top of the window to create a tabbed window or a new docking area. Drop at the top of the window to dock the window at the top. Drop at the bottom of the window to dock the window at the bottom.
- To undock a window, click the and drag the window tab out of the docking area or floating dock.
- To prevent a window from docking when you drag it, do not hold the Ctrl key.

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

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

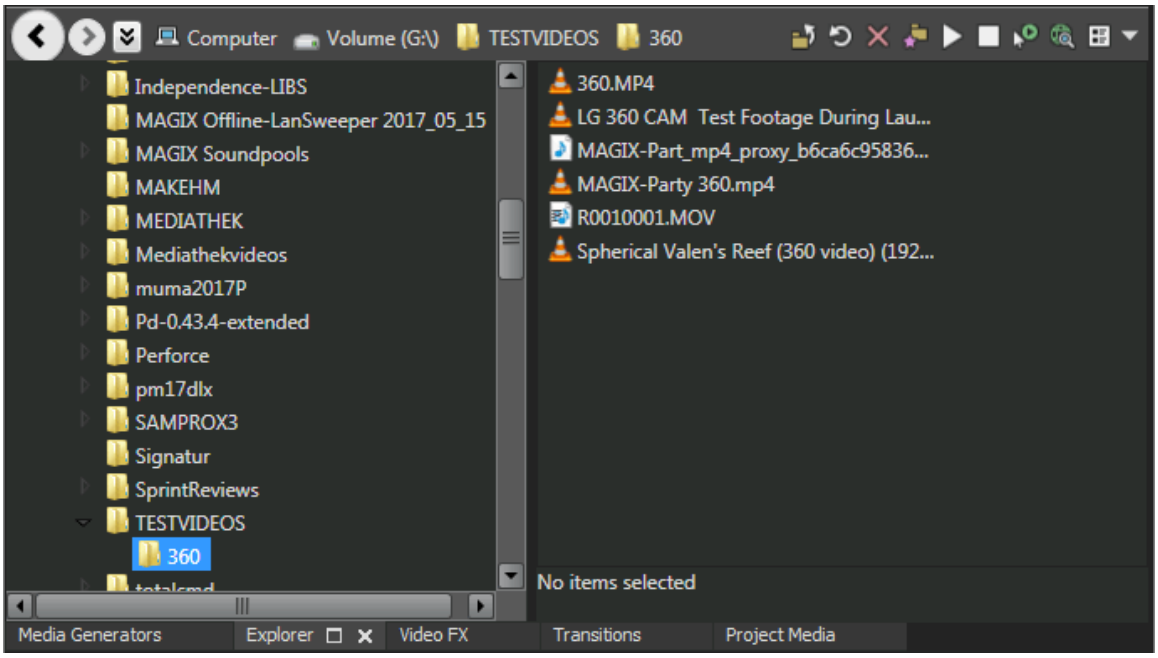
You can dock several windows in the same area of the screen, and the windows will be layered. Click a window's tab to bring it to the top.

The Explorer Window

Choose **View** > **Window** > **Explorer** to toggle the display of the Explorer window.

Like the Project Media window, you can use the Explorer window to view, preview, and add media files to your project.

Learning more about the Explorer window



Item	Name	Description
	Back/Forward	Use the **Back** and **Forward** buttons to navigate the folder history.
	Address Bar	Displays the path to the current folder.
	Tree View	Displays all of the available files and folders where you can find media files.
	Contents Pane	Displays the folders and media files contained in the active folder.
	Up	Opens the folder one level above the active folder.
	Refresh	Refreshes the contents of the active folder. If you insert a new CD (or other removable media), click to refresh the Explorer.
	Delete	Deletes the selected folder or file.
	Add to Favorites	Adds the selected folder to the Favorites folder in the tree view. The Favorites folder contains links to folders that you use most often.
	Start Preview	Plays the selected media file.
	Stop Preview	Stops the playback of the selected media file.
	Auto Preview	Automatically preview media files when you click them in the Explorer window. For more information, see "Previewing media files" on page 74
	Get Media from the Web	Opens the Get Media from the Web dialog, where you can download files to use in your project.
	Views	Allows you to change the way the files are viewed in the list view.

Item	Name	Description
		• **Details** - Displays the file size, date and when the file was last created or last modified. • **List** - Displays a simple list of the file name of each file in the Explorer window. • **Thumbnail** - Displays the first frame of a video file. • **Regions** - Displays any regions that have been defined in the selected media file. • **Summary** - Displays a short description of the selected media file at the bottom of the Explorer window. • **Tree** - Displays all of the available drives and folders that you may choose from to find files. • **All Files** - Displays all file types in the active folder.

Adding regions from a file to the timeline

When **Regions** is selected in the Explorer window, any regions saved in the selected file are displayed in the bottom of the Explorer window.

You can drag a region to the timeline to create an event using a portion of a file.

You can save regions and markers in a media file using the Trimmer window. For more information, see "Using the Trimmer" on page 135

Click the down arrow next to the **Views** button and choose **Regions** to toggle the display of regions in the Explorer window.

Using the Favorites folder

Select the Favorites folder in the tree view to view the contents of the Favorites folder. This folder contains shortcuts to folders that you use often.

Favorites are saved in the following file:**C:\Users*user name*\AppData\Local\Vegas\VEGAS Pro\18\NewExplorerFavorites.txt**.

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

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

Adding a folder to the Favorites folder

1. Browse to the folder you want to add.
2. Right-click the folder and choose **Add Folder to Favorites** from the shortcut menu. A shortcut to the folder is added to the Favorites folder.

Removing a folder from the Favorites folder

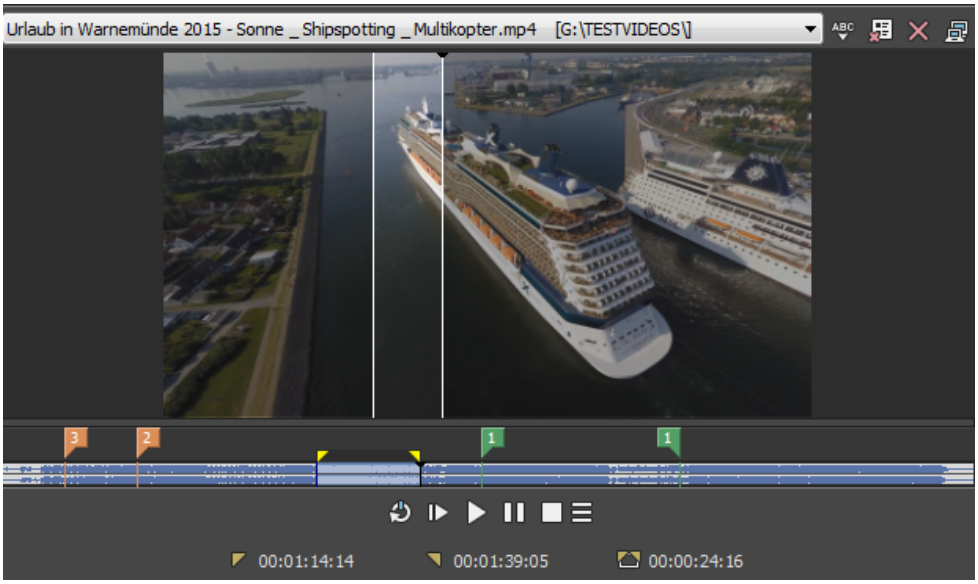
1. Select the Favorites folder.
2. Right-click the folder you want to delete and choose **Delete** from the shortcut menu.

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

The Trimmer Window

The Trimmer window is a good place to edit any media file. When a media file is placed in the Trimmer window, you can place portions of the file on separate tracks by dragging and dropping.

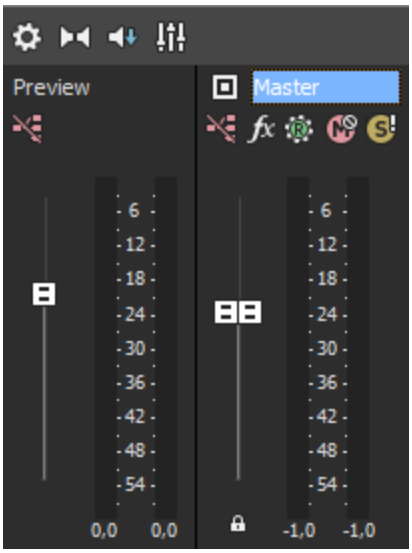
For more information, see "Using the Trimmer" on page 135



The Master Bus Window

The Master Bus window provides you with a streamlined view of your project's master output.

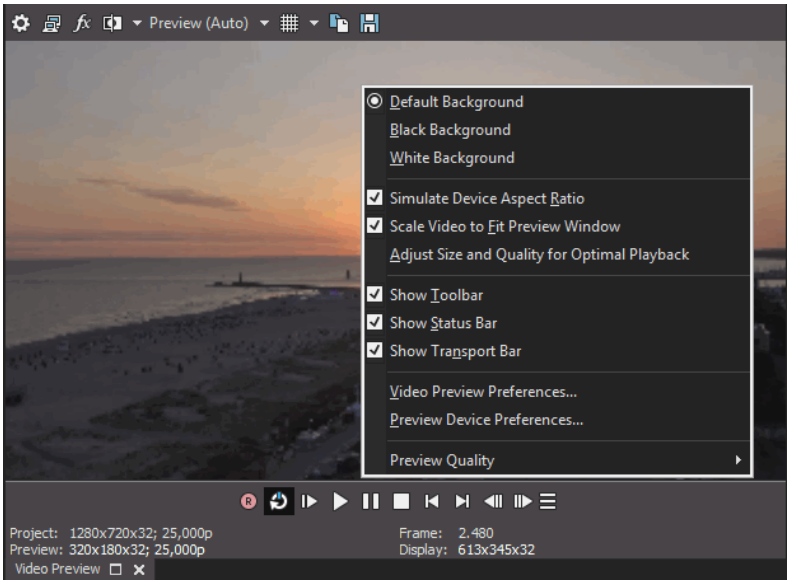
For more information, see "Using the Master Bus Window" on page 303



The Video Preview Window

Choose **View** > **Window** > **Video Preview** to toggle the display of the Video Preview window.
The Video Preview window displays a project's video output at the current cursor position during editing and playback. The playback includes any effects that you have applied to it. This window is also useful when editing frame by frame for synchronizing audio. Right-click anywhere in the window to display a shortcut menu with Video Preview window options.

For more information, see "Using the Video Preview window" on page 423

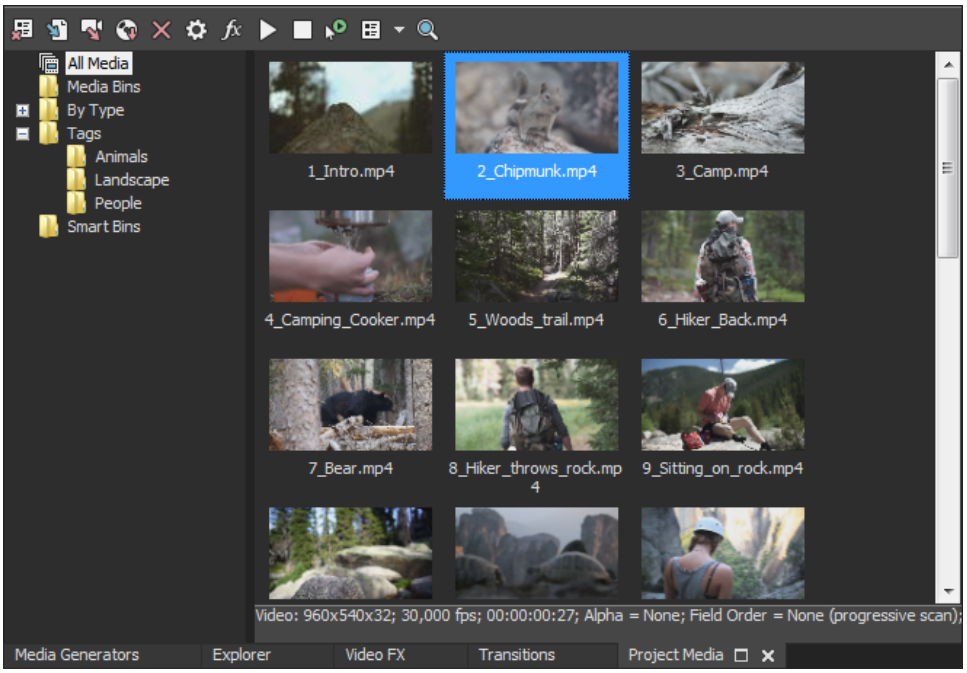


The Project Media Window

Choose **View** > **Window** > **Project Media** to toggle the display of the Project Media window.

You can use the Project Media window to collect and arrange all the media you will use in your project. You can add media, preview it, view and change file properties, and add effects to a file.

For more information, see "Using the Project Media window" on page 68



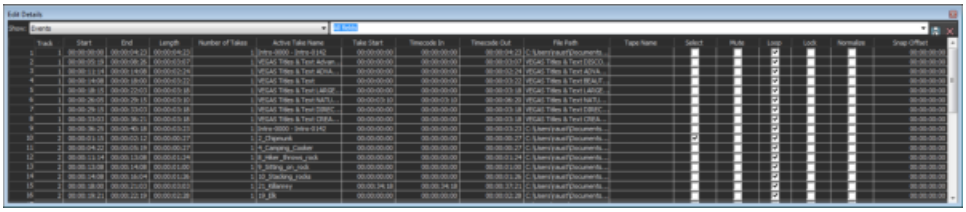
The Edit Details Window

Choose **View** > **Window** > **Edit Details** to toggle the display of the Edit Details window.

The Edit Details window displays a database for all of the media in your project. It shows information about how files in the project are being used and allows you to modify many of those properties. You may sort, add or change information, rearrange columns, and edit items in the project.

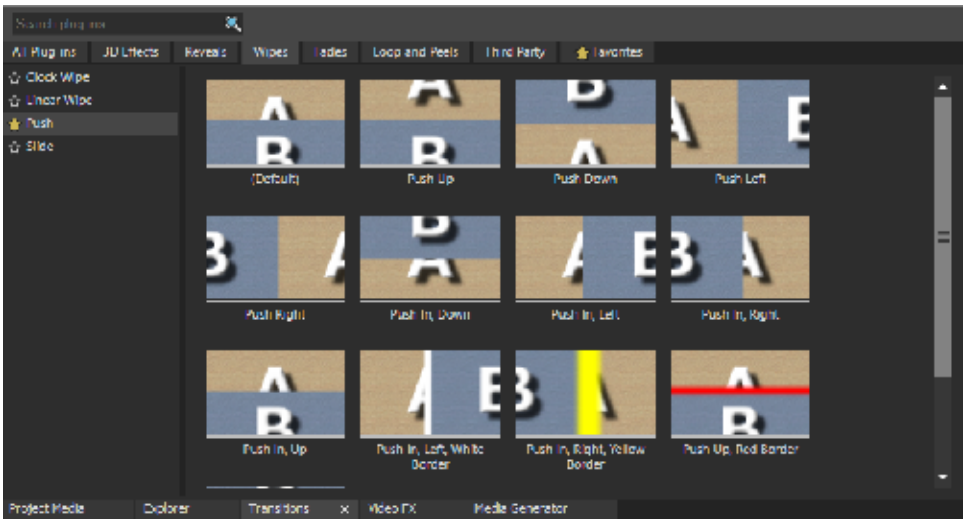
This window provides an alternate method for working with events, audio CD track lists, commands, markers, and regions.

For more information, see "Using the Edit Details Window" on page 178



The Transitions Window

Choose **View** > **Window** > **Transitions** to display or hide the Transitions window. Use this window to choose and preview transition effects that you can use to control how a video event begins or ends, or to change the way one event flows into another.



At the top of the window you can see the available video effects organized into categories. In addition to categories such as **Fades**, **Wipes** or **3D Effects**, there are three special categories:

- **All plug-ins**: All available plug-ins are listed here.
- **Third party:** Additionally installed third-party plug-ins are displayed here. If you select this category, an additional **Filter** drop-down menu will appear in the upper right corner, where you can filter the third-party plug-ins by provider.
- **Favorites:** All plug-ins that you have marked as favorites are listed here. You mark a plug-in as a favorite by clicking on the little star in front of the plug-in name .

The left pane lists each of the available transitions of the selected category. The thumbnail images in the right pane represent each of the existing presets for the selected transition. Hover your cursor over a preset to see an animated example.

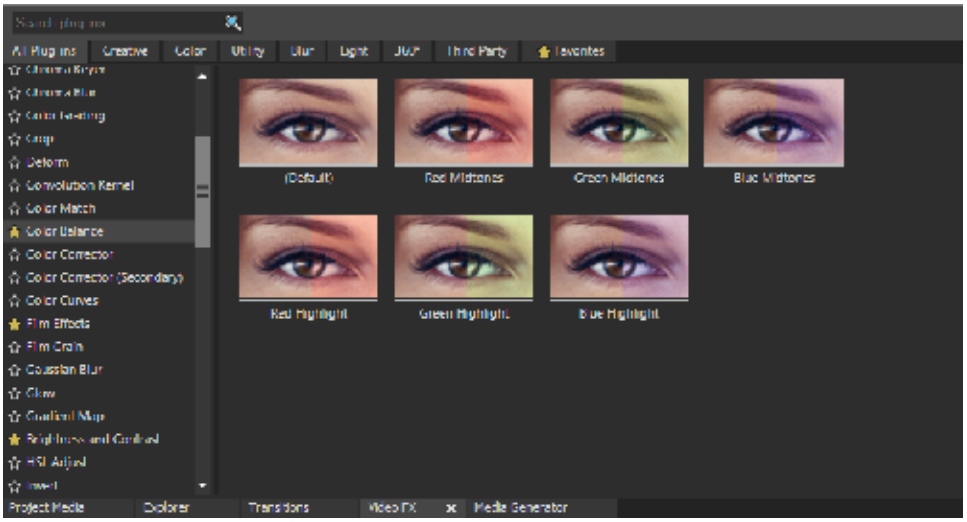
Drag a transition preset to overlapping video events in the timeline to add a transition.

You can type in the **Search plug-ins** box to find plug-ins. For example, if you wanted to find a specific color-correction plug-in, you could type "color" in the box to display only plug-ins that include the term "color" in the plug-in name, description, or group name.

For more information, see "Adding transitions" on page 293

The Video FX Window

Choose **View** > **Window** > **Video FX** to toggle the display of the Video FX window.



At the top of the window you can see the available video effects organized into categories. In addition to categories such as **Color**, **Light** or **Utilities**, there are three special categories:

- **All plug-ins**: All available plug-ins are listed here.
- **Third party:** Additionally installed third-party plug-ins are displayed here. If you select this category, an additional **Filter** drop-down menu will appear in the upper right corner, where you can filter the third-party plug-ins by provider.
- **Favorites:** All plug-ins that you have marked as favorites are listed here. You mark a plug-in as a favorite by clicking on the little star in front of the plug-in name .

The left pane lists each of the available video effects of the selected category. The thumbnail images in the right pane represent each of the existing presets for the selected effect. Hover your cursor over a preset to see an animated example.

You can type in the **Search plug-ins** *box to find plug-ins. For example, if you wanted to find a specific color-correction plug-in, you could type "color" in the box to display only plug-ins that include the term "color" in the plug-in name, description, or group name.*

You can drag a preset thumbnail to a track, event, or to the Video Preview window to apply the effect.

For more information, see "Adding video effects" on page 287

The Media Generators Window

Choose **View** > **Window** > **Media Generators** to toggle the display of the Media Generators window. You can use this window to add text, titles, backgrounds, and other generated media.

At the top of the window you can see the available Media Generators organized into categories. In addition to categories such as **Creative Graphics**, **Text and Titles** or **Utilities**, there are three special categories:

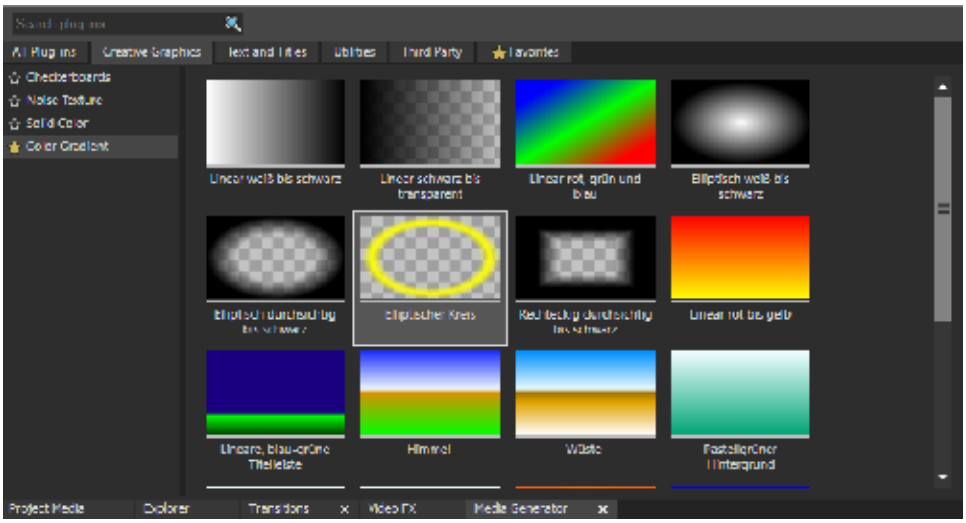
- **All plug-ins**: All available plug-ins are listed here.
- **Third party:** Additionally installed third-party plug-ins are displayed here. If you select this category, an additional **Filter** drop-down menu will appear in the upper right corner, where you can filter the third-party plug-ins by provider.
- **Favorites:** All plug-ins that you have marked as favorites are listed here. You mark a plug-in as a favorite by clicking on the little star in front of the plug-in name .

The left pane lists each of the available media generators of the selected category. The thumbnail images in the right pane represent each of the existing presets for the selected effect. Hover your cursor over a preset to see an animated example.

You can type in the **Search plug-ins** *box to find plug-ins. For example, if you wanted to find a specific color-correction plug-in, you could type "color" in the box to display only plug-ins that include the term "color" in the plug-in name, description, or group name.*

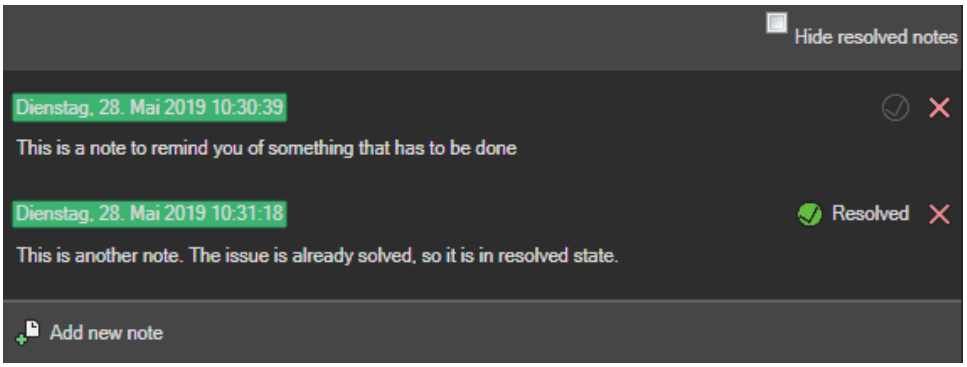
You can drag a preset thumbnail to a track to add media.

For more information about using generated media, see "Adding generated media to your project" on page 297



The Project Notes window

You can add notes about your project in the Project Notes window. Use this function, for instance, if you want to hand your project to another editor and leave him some information. Or you can maintain a checklist for all the tasks you want to do in your project.



Click on **Add new note** you create a new note, the notes will get a timestamp. All notes are listed in the order of this time stamp, beginning with the oldest one.

To set a note to **Resolved** click the grey checkmark icon to the right of a note, it turns green then. To delete a note, click the delete button .

To get the resolved notes out of view, click the check box **Hide resolved notes**, they will be hidden then. When you load a project, this check is always deselected, so all notes are visible regardless of their state.

The Compositors Window

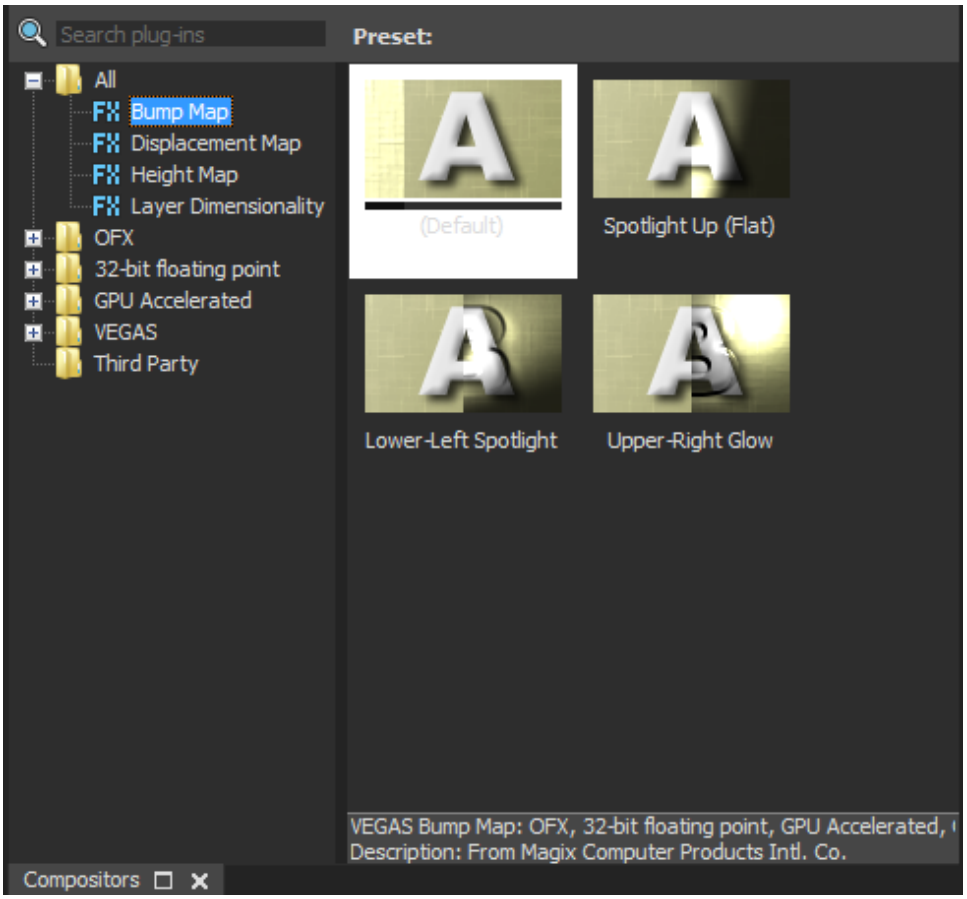
Choose **View** > **Window** > **Compositors** to toggle the display of the Compositors window. You can use this window to add compositing effects.

The left pane lists each of the available compositors organized in folders. Click the **Expand** ⊞ and **Collapse** ⊟ buttons to open and close the folders, and select a plug-in name. The thumbnail images in the right pane represent each of the existing presets for the selected compositor. Hover your cursor over a preset to see an animated example.

You can type in the **Search plug-ins** *box to find plug-ins. For example, if you wanted to find a specific color-correction plug-in, you could type "color" in the box to display only plug-ins that include the term "color" in the plug-in name, description, or group name.*

You can drag a preset thumbnail to a track to add media.

For more information, see "Compositing and masks" on page 349

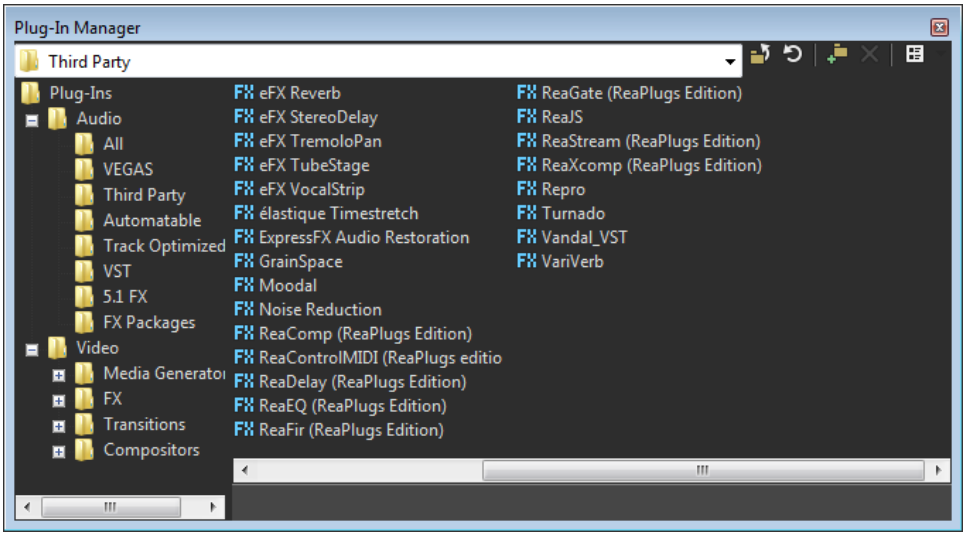


The Plug-In Manager Window

Choose **View** > **Window** > **Plug-In Manager** to toggle the display of the Plug-In Manager window.

You can use this window to access effects and effects packages that can be applied to events, tracks, and busses. This window also allows you to rename and reorganize plug-ins. For more information, see "Applying effects" on page 276

To add effects quickly, you can drag plug-ins and plug-in packages from the Plug-In Manager window to events, tracks, busses, and the Audio Plug-In, Video FX, or Video Preview windows.



The Video Scopes Window

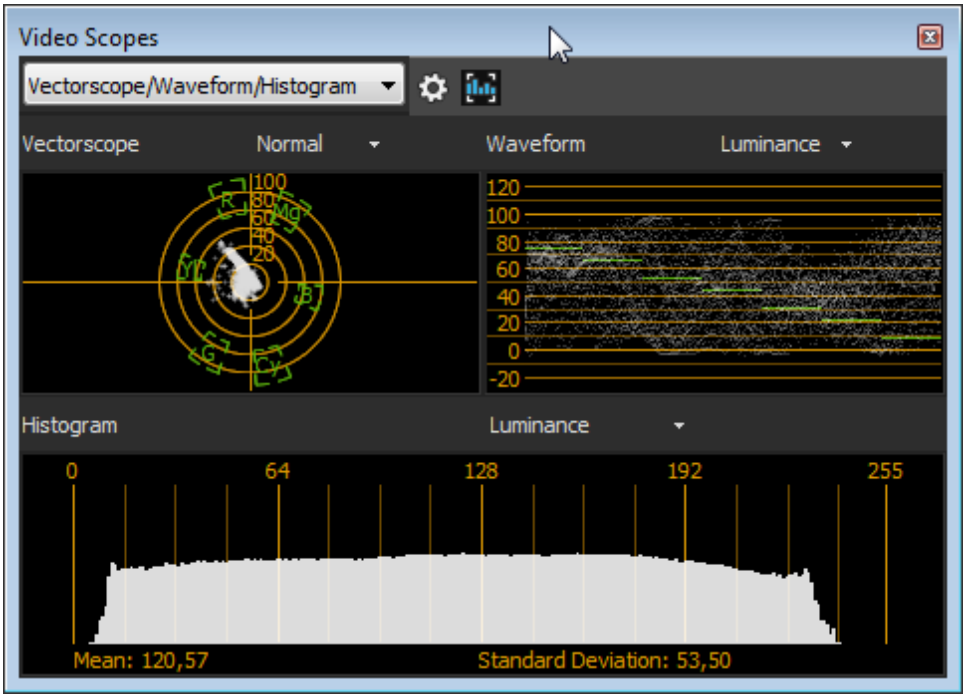
Choose **View** > **Window** > **Video Scopes** to toggle the display of the Video Scopes window in VEGAS® Pro.

Broadcast video uses a narrower range of color than the RGB you see on your computer. When you broadcast a project that contains out-of-gamut (out-of-range) colors, you can introduce image problems or even noise into the audio stream.

Use the scopes to analyze your video and adjust accordingly with the Brightness and Contrast, Broadcast Colors, Color Corrector, Color Corrector (Secondary), and Levels plug-ins before rendering.

Choose a setting from the drop-down list to choose which scope you want to display.

For more information, see "Monitoring video with scopes" on page 441



The Surround Panner Window

Choose **View** > **Window** > **Surround Panner** to toggle the display of the Surround Panner window. Use the Surround Panner window to pan tracks, busses, and assignable effects chains.

For more information, see "5.1 surround projects" on page 397

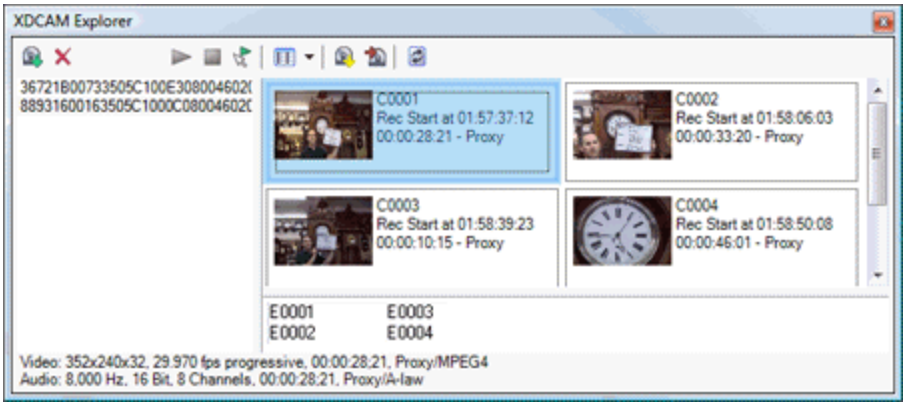


The XDCAM Explorer Window

Choose **View** > **Window** > **XDCAM Explorer** to toggle the display of the XDCAM Explorer window.

You can use this window to import, manage, and export XDCAM clips.

For more information, see "Using the XDCAM Explorer Window" on page 371



The Mixing Console Window

Choose **View** > **Window** > **Mixing Console** to display the Mixing Console window.

The Mixing Console window provides an integrated view of all tracks and busses in your project using the appearance of a traditional hardware-based mixer.

For more information, see "The Mixing Console" on page 317

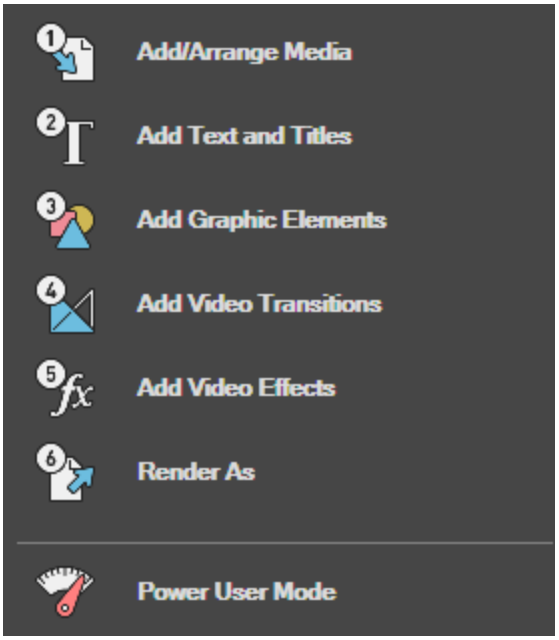


The Dashboard

The **Dashboard** provides you with **Easy editing modes** that lead you step-by-step through the creation of a movie from adding media until the rendering of the final product.

In this modes, you work with a simplified version of the user interface that show only the most important controls for the according step.

If want to go back to the normal complete user interface, click on **Power User Mode** to get back the normal, complete VEGAS Pro window.



The tool tips on the links give you a very brief explanation how to operate the according function!

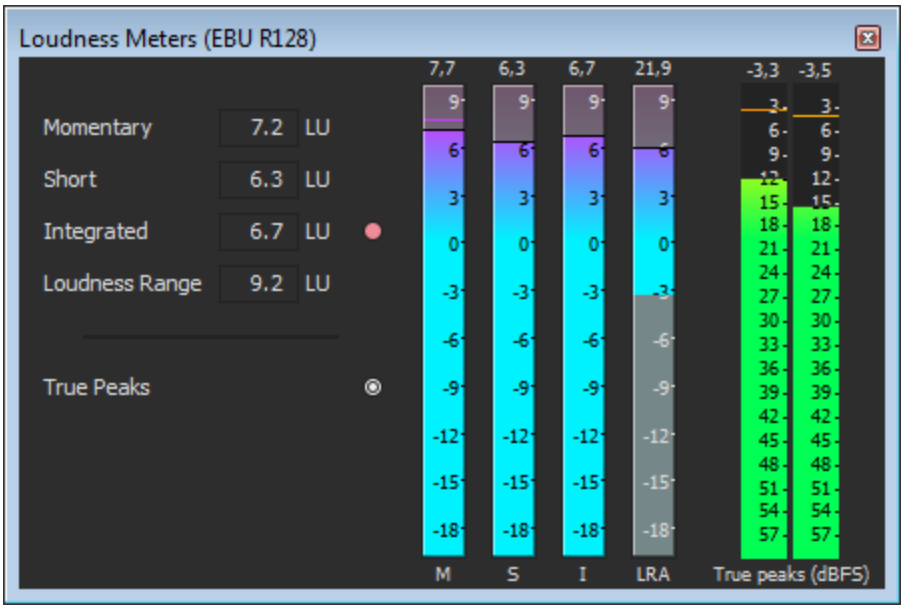
If you've closed the Dashboard window and want to show it again, chose **Dashboard** it from the **View** > **Window** menu or press Ctrl+Alt+F8.

The Easy Editing modes are also available in the **View** > **Window Layouts** *sub-menu. For more information, see* ***Window Layouts***

Loudness meters

Choose **View** > **Window** > **Loudness Meters** to display the Loudness Meters window.

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



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

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

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

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

Loudness is recalculated whenever you start, stop, seek, or change playback direction. If you want to force a recalculation, right-click the window and choose **Reset Metering Engine** from the shortcut menu.

When the **Master bus mode** drop-down list on the Audio tab of the Project Properties dialog is set to **5.1 Surround**, surround processing is applied when measuring loudness (a gain of ~1.5 dB is applied to the left and right surround channels). When the **Master bus mode** drop-down list is set to **Stereo**, all channels contribute equally to the loudness measurement.

Choosing a metering mode

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

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

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

Choosing a loudness scale

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

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

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

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

Configuring peak meters

To toggle the True Peaks meters in the Loudness Meters window, choose **Options** > **Loudness Meters** > **Show True Peak Meter** (you can also right-click the meter to set its options).

Please note that true peaks are calculated using a higher sample rate than peaks in the Master Bus window for increased accuracy.

Peak levels may be miscalculated if audio signals are asymmetrical or if a DC offset is present. To enable filtering, choose **Options** > **Loudness Meters** > **True Peak Blocking Filter**. When **True Peak Blocking Filter** is selected, peaks are calculated as the maximum of the filtered and unfiltered signals.

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

Working with projects

A project (.veg) file saves the relevant information about your source media: file locations, edits, insertion points, transitions, and effects.

A project file is not a multimedia file. It contains pointers to the original source files, so you can edit your project nondestructively – you can be creative without worrying about corrupting your source files.

Creating a new project

The first step in creating your masterpiece is to create a VEGAS® Pro project file.



You can quickly create a project by clicking the **New** *button*  *on the toolbar or pressing Ctrl+Shift+N. The project will use the default settings, but you can use the Project Properties dialog to edit the settings later. For more information, see "Setting project properties" below*

1. From the File menu, choose **New**. The New Project dialog is displayed.
2. Use the New Project dialog to set your project properties. For a detailed description of all the settings see below

   Set the **Start all new projects with these settings** *check box at the bottom of each tab to make the actual settings default.*
3. Click **OK** to create the project.

Setting project properties

Use the Project Properties dialog to control the default settings and store information about the current project. From the File menu, choose **Properties** to display the dialog.

Select the **Start all new projects with these settings** *check box to use the current settings whenever a new project is created.*

Video

Use the Video tab to adjust the video format of your project. You can also click the **Project Video Properties** button  on the Video Preview window to display this tab.

Item	Description
Template	Allows you to select a preset template to automatically configure the controls in the dialog. You may also manually change the settings and save them as a custom template for future use. To create a new template, enter a name in the text box and click the **Save Template** button  . The new custom template name is added to the drop-down list. To set your project properties to match the properties of an existing media file, click the **Match Media Settings** button  and browse to the file you want to use.
Width and Height	Determines the frame size of your final movie when rendered.

Item	Description
	The maximum frame size for AVI, MPEG, QuickTime, Windows Media, and still-image output is 2048x2048. *The maximum frame size is 4096x4096.*
Field order	Determines field order of the frames when drawn on the screen. Consult your capture/video output card's documentation for the proper field order for your specific device. • **None (progressive scan)**: Select this option when viewing the video on a computer. This option ignores interlacing. • **Upper field first**: Select this option (also called *odd* or *field A*) for video that will be viewed on a television. • **Lower field first**: Select this option (also called *even* or *field B*) for DV output or if **Upper field first** produces jittery or shaky output.
Pixel aspect ratio	Choose a setting from the drop-down list to change the pixel aspect ratio of your project. This setting will depend on your capture/video output card. Computers display pixels as squares, or a ratio of 1.0. Televisions display pixels as rectangles (ratios other than 1.0). Using the incorrect setting can result in distortion or stretching. Consult your capture/video output card's manual for the proper settings.
HDR Mode	Selecting **HDR10** or **HLG** in the drop-down menu will turn on all of the following settings: 1. Set Project Pixel format to "32-bit floating point (full range)" in Project Properties Dialog 2. Set appropriate View Transform ("Rec 2020 ST2084 1000 nits (ACES)" for HDR10 and "Rec 2020 HLG 1000 nits (ACES)" for HLG) in Project Properties Dialog 3. Enable "HDR Preview" in the **Preferences** > **Preview Device** dialog and the "HDR Preview" toolbar button above preview window, if suitable hardware is available. This applies to both windowed and full-screen preview 4. Set the **HDR Compatible Output** filter in the **Render As...** dialog. The presets will be filtered based on HDR mode. 5. Enable the **Master Display** Settings in Project Properties dialog. 6. Selecting **Off** will reset all of the settings to default project settings.
Output rotation	Choose a setting from the drop-down list to rotate your project's output. Use output rotation to edit projects for display in portrait (rather than landscape) or inverted orientation:  In this example, the video was shot with the camera tripod

Item	Description
	rotated 90 degrees. However, with the project output unrotated, the video is pillarboxed within the standard landscape frame.  After choosing **90 clockwise°** from the **Output rotation** drop-down list, the Video Preview window is rotated, and the video fills the frame. *If you want to rotate a media file's orientation, you can use the* **Rotation** *drop-down list on the* ***Media Properties*** *dialog.* For more information, see "Creating rotated projects" on page 53
Frame rate	Choose a setting from the drop-down list to change the frame rate of your project. The television frame rate in the US, North and Central America, parts of South America, and Japan (NTSC) is 29.97 frames per second (fps). In many parts of the world, including Europe and much of Asia, the television standard is PAL at 25 fps. France, Russia, and most of Eastern Europe use SECAM, which is a variation on PAL and also uses 25 fps.
Stereoscopic 3D mode	Choose a setting from the drop-down list to create a stereoscopic 3D project, or choose **Off** to create a 2D project. By default, the project's **Stereoscopic 3D mode**, **Swap Left/Right**, and crosstalk cancellation settings will also be used when previewing and rendering your project, but you can override the project settings if necessary. For more information, see "Setting up your stereoscopic 3D project" on page 191
360° Output	Prepares the Project for 360° video output.For more information, see "Preparing a project for 360° movies" on page 393
Pixel format	Choose a setting from the drop-down list to indicate whether you want to perform video processing (compositing, scaling, previewing, rendering, and most video plug-ins) using 8-bit or 32-bit, floating-point arithmetic. • **Legacy 8-bit (video levels)**: Performs video processing using 8-bit arithmetic and in the video (studio RGB, or 16-235) color space.

Item	Description
	• **8-bit (full range)**: Performs video processing using 8-bit arithmetic and in the full range (0-255) color space. In this pixel format mode, standard video formats in limited range are converted into full range RGB space by reading color range information provided in the media files. If the media file's color range is limited or undefined, then it is automatically converted full range RGB. If the color range is full, no level conversion is performed when decoding into RGB color space. This is the default pixel format for new projects. For more information, see "8-bit Pixel Format in Projects" on page 50. • **32-bit floating point (video levels)**: Performs video processing using 32-bit arithmetic and in the video color space. • **32-bit floating point (full range)**: Performs video processing using 32-bit arithmetic and in the full-range color space. The **32-bit floating point** settings allow greater precision for processing video, but require significantly more processing power than working with 8-bit video.  *Tips:* • 32-bit floating point (video levels) is recommended when working with 10-bit YUV input/output or when using xvYCC/x.v.Color media. • When using 8-bit input/output, the **32-bit floating point (video levels)** setting can prevent banding from compositing that contains fades, feathered edges, or gradients. • Video plug-ins and media generators that support floating-point processing are included in the **32-bit floating point** folder in the Transitions, Video FX, Media Generators, Compositors, and Plug-In Manager windows. • If you're creating a 32-bit project, you can increase performance during editing and playback by using the **8-bit** setting during editing and switching to **32-bit floating point (video levels)** before rendering. • When working in **8-bit (full range)** project mode, most of the reader plugins support the color range override option. To override the color range of a media file, right-click an event in the timeline and choose Properties from the context menu. In the **Properties** dialog, click the **Media** tab. Choose the option you want from the Color Range drop-down list. Color range information will be persisted with projects.
Compositing gamma	When you choose **32-bit floating point (full range)** from the **Pixel format** drop-down list, you can choose a compositing gamma value. • **1.000 (Linear)**: The default setting when you choose **32-bit floating point (full range)** from the **Pixel format** drop-down list.

Item	Description
	• **2.222 (Video)**: Processing in 8-bit video is always performed using a setting of 2.222.
ACES Version / ACES color space	Choose ACES version and Color space. For more information, see "VEGAS Pro 18 ACES 1.1 updates" on page 391
View transform	Choose the reference view transform to use for the project. For more information, see "Enabling color management in your VEGAS Pro project" on page 388
Look modification transform	**Look modification transform** (LMT) is helpful feature when working with 32 bit full range or in HDR project. LMT has two options: **None** - This is default option. **Apply Blue Light Artifact Fix** - Use this LMT for desaturating blue hues to reduce the artifact caused by bright blue colors (e.g. sirens, headlights, LED lighting, etc.) In 32 bit full range project or in HDR mode, you can choose "Apply Blue Light Artifact Fix", if the video preview shows any blue light artifact due to clipping caused by bright blue colors. In an 8 bit project or 32 bit Video level project or when view transform is off, LMT will be disabled.
Full-resolution rendering quality	Choose a setting from the drop-down list to set the quality of the rendered video. Unless you have specific performance problems, choose **Good**. Choosing **Best** can dramatically increase rendering times. **Good** uses bilinear scaling without integration, while **Best** uses bicubic scaling with integration. If you're using high-resolution stills (or video) that will be scaled down to the final output size, choosing **Best** can prevent artifacts.  *Some file formats allow you to associate a video rendering quality setting with a custom rendering template. Final rendering template settings override the* **Full-resolution rendering quality** *setting in the Project Properties dialog. For more information, see "Custom rendering templates" on page 481*
Motion blur type	Choose a setting from the drop-down list to choose the curve that is used to blur frames when you add a motion blur envelope to the video bus track. For more information, see "Video bus track" on page 230 Motion blurring creates the illusion of motion on individual frames (much like using a long exposure time) and can make computer-generated animation appear more smooth and natural. • **Gaussian**: Gives more weight to the central frame in the blur and less weight to the outer frames. A bell-shaped curve is used between the central and outer frames. Gaussian blur is the best choice in most situations where blurring is required. • **Pyramid**: Gives more weight to the central frame in the blur and the least weight to the outer frames. A linear slope is used between the central and outer frames.

Item	Description
	• **Box**: Uses an equal weighting for all frames, essentially averaging the frames in the blur. The **Gaussian (asymmetric)**, **Pyramid (asymmetric)**, and **Box (asymmetric)** settings use only the left half of each curve, from the central frame back. Asymmetric settings create a hard leading edge with a trailing blur behind the moving object.
Deinterlace method	Choose a setting from this drop-down list to determine the method used to render effects and deinterlace the two fields that make up a frame. • **None**: Performs no deinterlacing. • **Blend fields**: Uses contents from both fields and works well for high-detail, low-motion video. • **Interpolate**: Uses a single field at a time and works well for high-motion, low-detail video. • **Smart adaptive (GPU only)**: An advanced deinterlacing method that you can use when upscaling video for 4K/Ultra HD output. This setting is for use with interlaced clips up to 2048x1080. *No deinterlacing occurs in the* **Draft** *and* **Preview** *video preview modes. The* **Good** *and* **Best** *modes apply the selected deinterlacing method.*
Resample mode	Choose a setting from the drop-down list to determine how video frames will be resampled when the frame rate of a media file is lower than the project's frame rate. This can occur either when the event has a velocity envelope or when the frame rate of the original media is different than the **Frame rate** setting on the Video tab of the Project Properties dialog. With resampling, the intervening frames are interpolated from the source frames, much like a crossfade effect between the original frames. This may solve some interlacing problems and other jittery output problems. • **Smart resample** Resampling occurs only when an event's calculated frame rate does not match the project frame rate and the project frame rate is 24 fps or greater. The calculated frame rate takes into account any changes made to event speed with velocity envelope, playback rate, and undersample rate. • **Force resample** Events are always resampled, regardless of frame rate or the output frame rate. • **Disable resample** No resampling will occur *You can override the project* **Resample mode** *setting for each event using the event switches. For more information, see* *"Applying switches to events" on page 169*

Item	Description
Adjust source media to better match project or render settings	Select this check box if you want VEGAS Pro to scale images or adjust interlacing to allow media files to work better with your project. This setting will correct for the following types of inconsistencies: • DV media will be cropped for 320x240 Internet renders to prevent letterboxing. • DV widescreen media will be cropped in HD projects. • HD media will be cropped in DV widescreen projects. • 486-line media will be cropped in 480-line projects. • 480-line media will be padded in 486-line projects. When the check box is cleared, source media files are processed with their native settings.
Prerendered files folder	Prerendered video files are saved to this folder so that you don't need to rerender the project every time you view it. For more information, see "Selectively prerender video" on page 435 If you want to change the location of the folder, click the **Browse** button and choose a location. Ideally, this location should be on a different hard drive than the one where your operating system is installed. *Prerendered files can consume significant drive space. Select a folder on an a/v-capable drive with ample free space: DV requires approximately 228 MB per minute.*
Free storage space in selected folder	Displays the total amount of available space on the selected drive.

Audio

Use the Audio tab to change the data format of the current project.

Item	Description
Master bus mode	Choose **Stereo** from the drop-down list to create a two-channel stereo project. Choose **5.1 Surround** if you want to perform advanced 5.1-channel mixing. For more information, see "5.1 surround projects" on page 397
Number of stereo busses	Enter the number of stereo busses for the project. For more information, see "Adding audio busses" on page 305
Sample rate	Choose a sample rate from the drop-down list or enter a value in the edit box.
Bit depth	Select a setting from the drop-down list to specify the number of bits used to store each sample. Higher values will increase the quality of playback and any recordings that you make.
Resample and stretch quality	Choose a setting from the drop-down list to determine the accuracy with which audio files will be resampled to match your project settings.

Item	Description
	The **Resample and stretch quality** setting also determines the quality of processing when time-stretching audio events. For more information, see "Editing event properties" on page 173
Enable low-pass filter on LFE	Select this check box if you want to apply a low-pass filter to each track in a 5.1 surround project that is assigned to the LFE channel. For more information, see "5.1 surround panning and mixing" on page 399 Applying a low-pass filter approximates the bass-management system in a 5.1 decoder and ensures that you're sending only low-frequency audio to the LFE channel. *Before rendering your surround project, check your surround authoring application's documentation to determine its required audio format. Some encoders require a specific cutoff frequency and rolloff, and your encoder may require that no filter be applied before encoding.*
Cutoff frequency for low-pass filter	Choose a frequency from the drop-down list or type a frequency in the box to set the frequency above which audio will be ignored by the LFE channel.
Low-pass filter quality	Choose a setting from the drop-down list to determine the sharpness of filter's rolloff curve. **Best** produces the sharpest curve.
Recorded files folder	When you record audio tracks, your recorded files are saved in a single folder. If you want to change the location of the folder, click the **Browse** button and choose a location. Ideally, this location should be on a different hard drive than the one where your operating system is installed. *If you have not specified a location, you will be prompted for the location where you want to save your recorded audio when you click the* **Arm for Record** *button in the track header:* 
Free storage space in selected folder	Displays the total amount of available space on the selected drive.

Ruler

Use the Ruler tab to change the format used to display the timeline ruler. VEGAS Pro also sends tempo information to tempo-aware audio plug-ins.

Item	Description
Ruler time format	Choose a setting from the drop-down list to choose how you want

Item	Description
	the Time Ruler to be displayed. You can change the format at any time after project creation. For more information about each time format, see "Time ruler" on page 524
Ruler start time	Enter the desired starting time for the project. For example, the ruler can be offset to start at 1 hour for timecode synchronization purposes.
Beats per minute	Enter your project tempo in Beats Per Minute. This tempo is used to determine the scale of the ruler (if you choose **Measures & Beats** from the **Ruler time format** drop-down list) and to specify the tempo used by the metronome. Select the **Import at project tempo** check box on the Audio tab of the Preferences dialog if you want ACID loops to be stretched to match the project tempo when you add them to the timeline or preview from the Explorer window. Clear the **Import at project tempo** check box if you want to ignore tempo information.
Beats per measure	Specify the number of beats in each measure. This tempo is used to determine the scale of the ruler (if you choose **Measures & Beats** from the **Ruler time format** drop-down list) and to specify the tempo used by the metronome.
Note that gets one beat	Specify the note that receives one beat. For example, if this value is four, then a quarter note gets one beat. This tempo is used to determine the scale of the ruler (if you choose **Measures & Beats** from the **Ruler time format** drop-down list) and to specify the tempo used by the metronome.

Summary

Item	Description
Title	Enter a title for the project.
Artist	Enter the name of the artist.
Engineer	Enter the name of the person who mixed or edited the project.
Copyright	Enter copyright information for the project.
Comments	Enter any comments you want to associate with the project.

Audio CD

Use the Audio CD tab to configure options for burning disc-at-once CDs. For more information, see "Disc-at-once (DAO or Red Book) CD Burning" on page 454

Item	Description
Universal Product Code/ Media Catalog Number	Universal Product Codes (UPC) or Media Catalog Numbers (MCN) can be written to a CD as a means of identification. However, not all CD-R drives support this feature. Check your CD-R drive documentation to determine if your drive will write these codes.

Item	Description
	Enter the code in this box, and the codes will be written to the CD along with the rest of the project. Universal product codes are administered by GS1 US: http://www.gs1us.org/.
First track number on disc	Enter a number in the box or to specify the track number of the first track. *Specifying a value other than one will produce a valid Red Book CD, but some audio CD players may be unable to play the disc.*

8-bit Pixel Format in Projects

VEGAS Pro 18 supports two modes for 8-bit projects:

8-bit (video level)

This mode is the same as the 8-bit mode in VEGAS Pro 17 and previous versions. In this mode, VEGAS Pro decodes many common video formats like AVC, MPEG2, HEVC files to studio RGB levels (video levels) regardless of whether they are full range files or not, which could cause information to be lost in deep blacks and bright whites. This mode ignores the color range metadata information available in many files and does not perform any automatic level conversion when converting Y'CbCr format to RGB space. RGB video files and still images are decoded into full range RGB levels.

8-bit (full range)

In this project mode, standard video formats in limited range are converted into full range RGB space by reading color range information provided in the media files. If the media files color range is limited or undefined, then they are automatically converted full range RGB. If the color range is full, no level conversion is performed when decoding into RGB color space. Also note that, no level conversion is performed, when reading RGB format media or still images and media generators since their outputs are generally full range.

In this project mode, all the media in the timeline will be in full range and match the video preview behavior. This removes the need to apply a studio RGB to computer RGB effect in order to adjust the preview. It also eliminates the need to enable the **Adjust levels from studio RGB to computer RGB** option in **external monitor preview settings**. So, if the color range is “limited” or “Undefined” in Y’CbCr format, 16-236 and 16-255 color ranges will be converted to 0-255 RGB.

In VEGAS Pro, most of the reader plugins support the color range override option. To override the color range of a media file, right-click an event in the timeline and choose Properties from the context menu. In the **Properties** dialog, click the **Media** tab. Choose the option you want from the Color Range drop-down list. Color range information will be persisted with projects.

Note: The color range override option is applicable only when you've set your project properties to full range mode. Currently color range override is not supported in some reader plug-ins like MVC and WMV, or in still-image readers.

Opening a project or media file

From the File menu, choose **Open** to open a media file or VEGAS Pro project.

You can open multiple VEGAS Pro projects by launching another instance of the application (if your computer has enough resources).

- Opening a project closes the current project and displays the opened project in the VEGAS Pro window.
- Opening a media file will place the event that contains the media onto a new track in the current project.

Opening a VEGAS Pro project

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

   Tips:
   - To limit the files displayed in the dialog, choose a file type from the **Files of Type** drop-down list or enter *. and an extension in the **File name** box. For example, enter **.wav* to display all wave files in the current folder, or enter **guitar*.wav* to display all wave files that have the word guitar in the file name.
   - To open a project quickly, double-click a .veg file in the Explorer window.
4. Click **Open**. If you have not saved the current project, you will be prompted to save your changes.

Adding a VEGAS Pro project to the current project (nesting)

Nesting allows you to add a VEGAS Pro project to the timeline of another project. Nesting can help you organize a timeline or create other effects. For more information, see "Nesting projects" on page 54



Use nested projects to organize a project that uses extensive compositing.

Perform either of the following actions to nest a VEGAS Pro project within the current project:

- Drag a VEGAS Pro project from the Explorer window (or Windows Explorer) to the timeline.
- From the File menu, choose **Import**, then choose **Media** from the submenu, and then browse to the project you want to use.

The file is added to the Project Media window and an event is created where you drop the project in the timeline or at the cursor position before you opened the Import Media dialog.

Opening a media file

1. From the File menu, choose **Open**. The Open dialog box is displayed.
2. Choose the folder where the file you want to open is stored:
   - Choose a drive and folder from the **Look in** drop-down list.
   - Choose a folder from the **Recent** drop-down list to quickly select a folder from which you have previously opened files.

3. Select a file in the browse window or type a name in the **File name** box. Detailed information about the selected file appears at the bottom of the dialog box.

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

   If you want to use RAW camera files in your project, the Microsoft Camera Codec Pack will allow you to view RAW camera files and add them to the timeline. For more information, see ***http://www.microsoft.com/download/en/details.aspx?id=26829****.*

4. Click **Open**.
5. The file is added to the Project Media window and an event is created. The event is created at the cursor position in the selected track, or a new track will be created if no tracks of the appropriate type exist. For example, if your current project contains three audio tracks when you open an AVI file, a video track will be created for the AVI.

Opening a still-image sequence

If you've exported a video clip as a still-image sequence using another application (a 3D-rendering application, for example), you can add the sequence to the VEGAS Pro timeline as a single event.

1. From the File menu, choose **Open**. The Open dialog box is displayed.
2. Choose the folder where the sequence you want to open is stored:
   - Choose a drive and folder from the **Look in** drop-down list.
   - Choose a folder from the **Recent** drop-down list to quickly select a folder from which you have previously opened files.
3. Select the first image in the sequence (or the image you want to use to start the event). Detailed information about the selected file appears at the bottom of the dialog box.
4. Select the **Open sequence** check box.
5. In the **Last image** box, type the number of the last image you want to open. For example, if you'd selected *AnimationOne_00001.tga* in step 3, you could type 120 in this box to create a new event using *AnimationOne_00001.tga* to *AnimationOne_00120.tga.*
6. Click **Open** to display the Media Properties dialog, where you can view or edit information about the sequence. For more information, see "Viewing or changing media file properties" on page 94
7. Click **OK**. A new event is created at the cursor position in the selected track (a new track will be added if no track is selected). Each image in the sequence will be displayed for one frame.

Opening a CD Architect version 4 project

If you have existing CD Architect version 4 projects, you can use VEGAS Pro to open your project files and create Red Book CDs.

1. From the File menu, choose **Open**. The Open dialog box is displayed.
2. Choose the folder where your CD Architect project file (.cdp) is stored:
   - Choose a drive and folder from the **Look in** drop-down list.
   - Choose a folder from the **Recent** drop-down list to quickly select a folder from which you have previously opened files.

3. Select a project file in the browse window or type a name in the **File name** box.
4. Click **Open**. If you have not saved the current project, you will be prompted to save your changes.

   For more information about creating Red Book CDs, see "Disc-at-once (DAO or Red Book) CD Burning" on page 454

Creating rotated projects

The use of rotated displays – monitors that display vertical media – has become increasingly popular: you can see them in kiosks, presentations, and even on the nightly news. If you have a project that you'd like to display in a rotated format, VEGAS Pro makes it easy.

1. Create a new project.
2. Set your project properties as needed, and then choose a setting from the **Output rotation** drop-down list to indicate the orientation of your destination display device. If you want to display your project in portrait (tall) mode, choose **90° clockwise** or **90° counterclockwise**. For more information, see "Setting project properties" on page 41

   In this example, the video was shot with the camera tripod rotated 90 degrees. However, because neither the project or the media has been rotated, the video is displayed sideways within the standard landscape frame.

   After choosing **90° clockwise** from the **Output rotation** drop-down list, the Video Preview window is rotated. Because the media hasn't been rotated yet, it doesn't match the project orientation and is letterboxed within the frame.
3. Add your media files to your project. For more information, see "Adding media files to your project" on page 114
4. Edit the properties for each of your media files to set its rotation as needed:
   a. Right-click a media file in the Project Media window and choose **Properties** from the shortcut menu. The Media Properties dialog is displayed.
   b. Choose a setting from the **Rotation** drop-down list to indicate the direction you want to rotate your media.

      After choosing **90° clockwise** from the **Rotation** drop-down list, the media is rotated, and the video fills the frame.

c. Click **OK** to close the Media Properties dialog and save your changes.

To rotate multiple files quickly, select them in the Project Media window, right-click a selected file, and then choose **Rotate 90° Clockwise** *or* **Rotate 90° Counterclockwise** *from the shortcut menu.*

5. Drag your clips from the Project Media window to the timeline to create events.
6. Edit your project as needed. For more information, see "Editing events on the timeline" on page 114
7. Render your project to any supported rendering format. For more information, see "Rendering projects (Render As)" on page 469

   In the Render As dialog, click the **Render Options** button and select the **Use project output rotation setting** check box if you want to use the **Output rotation** setting from the Project Properties dialog for your rendered file. When the check box is cleared, the media is rotated according to its Media Properties setting, but the project itself is unrotated–you can use this setting to proof your project on an unrotated display.

   To render a portrait-oriented file for viewing on a computer without a rotated display, you can create a rendering template that matches the proportions of your project. For more information, see "Custom rendering templates" on page 481

   a. Right-click the Video Preview window and ensure **Simulate Device Aspect Ratio** is selected.
   b. Next, adjust the size of the Video Preview window to match the frame size you'd like to render and note the **Display** dimensions in the lower-right corner of the Video Preview window.
   c. From the File menu, choose **Render As**, choose the desired rendering format from the **Formats** box list, and then choose a rendering template that's close to the frame size you noted in step b. Windows Media Video is a good choice.
   d. Click the **Custom** button, and then use the Video tab in the Custom Template dialog to adjust the frame size to match the dimensions you noted in step 7b.
   e. Save your template for later use.
   f. Clear the **Use project output rotation setting** check box and render your file.

Nesting projects

Nesting allows you to add a VEGAS Pro project to the timeline of another project. Nesting can help you organize a timeline or create other effects:

- Create a single element – such as a lower-third graphic or watermark – that you can use in multiple timeline locations or projects.
- Create a complex composited element that you can use as a single media object in the timeline. For more information, see "Compositing video" on page 349
- Create a transition across multiple events by placing the events in a nested project and applying a transition to the nested project event.
- Create a musical composition with its own tempo and FX bus structure that you can use in another project.
- Create a separate project for each scene in a video and nest those projects in a master video project. You can apply color correction to each shot within the scene and then apply color correction to the entire scene in the master project.
- Use master projects to deliver a single project in multiple formats without time- and disk-consuming intermediate renders: for example, you could add your 24p, 16:9 HD (high-definition) project to a master project to reformat the project as widescreen SD (standard definition) for DVD, letterboxed SD for VHS, 4:3 pan-and-scan SD, or 25p.

Perform either of the following actions to nest a VEGAS Pro project within the current project:

- Drag a VEGAS Pro project from the Explorer window (or Windows Explorer) to the timeline.
- From the File menu, choose **Import**, then choose **Media** from the submenu, and then browse to the project you want to use.

The file is added to the Project Media window and an event is created where you drop the project in the timeline (or at the cursor position if import or use the Explorer to open a project file).

You can edit the nested project's events just like any other event on the timeline: trim, shuffle, stretch, crop, or apply event switches.

For more information, see "Editing events on the timeline" on page 114

Notes:

- The output from the nested project's master bus is used to create the audio event. If you nest a 5.1 surround project, the audio event will be a stereo downmix of the surround master bus. For more information, see "5.1 surround projects" on page 397
- Audio events from nested projects cannot be edited in a sound editor. For more information, see "Opening events in an audio editor" on page 172
- The audio from a nested project will require that a proxy file be built. To avoid building proxy files, delete audio from nested projects and use the master project to create your audio.

  From the Tools menu, choose **Rebuild Offline Nested Audio** to rerender any offline audio proxy files in your project. Audio proxy files can be offline if you cancel rendering when adding a nested project.
- Markers and regions in the nested project are displayed in the timeline as media markers in the event. For more information, see "Using media markers and regions" on page 205
- Prerendered video from a project will be used when that project is nested in another project's timeline.
- You can edit a nested project by right-clicking the event in the timeline and choosing **Edit Source Project** from the shortcut menu. A new VEGAS Pro window will open to allow you to edit the project. For more information, see "Project references in rendered files" on page 60

Nested Timelines

You may have a section of a timeline edited and then decide that you'd like that section to be treated as just one event (or, more precisely, one audio and one video event that are grouped together) rather than multiple components. Then you can create a **Nested Timeline**.

Nested Timelines leverage the existing **nested projects** capabilities. Nested timelines are technically just nested projects, but with a big improvement: To edit it, you don't have to open it in a separate instance of VEGAS Pro, you can switch back and forth between the nested project and the parent project all in one instance.

When you create a nested timeline, you are actually creating another project. That project can be treated as a nest, or worked on individually and the parent project updates automatically.

To create a new nested timeline:

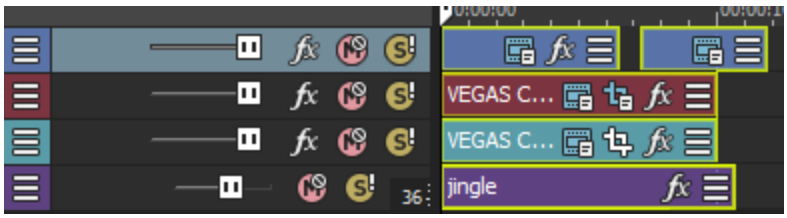
1. Select one or more sequential events from one or more tracks and click the **Create Nested Timeline** button from the Transport and Editing toolbar.

   If haven't already saved your (parent) project, you will be prompted to save it now.

2. You will be prompted to save the nested timeline, too.

   Note that the proposed name is the name of the parent project + underscore + "Untitled Timeline" rather than "Untitled" for easy identification.

3. Creating the nested timeline navigates you into the new timeline that contains the previously selected events only.



4. You could do further editing in this timeline now, it will behave exactly like the parent timeline. But since the very purpose of the action was to use the arrangement of these events as a whole, you will want to return to the parent project now.

   To navigate back to a nested timeline's parent timeline, click the **Open Parent Timeline** button from the Transport and Editing toolbar.

5. Back in the parent timeline, the nested timeline will appear on the parent timeline as a grouped audio and video event pair that replace the original events that were used to create the nested timeline.



   The nested timeline event length will initially be of the length of the nested timeline when it was created.

6. The nested timeline is an event like any other event in the timeline and can be edited, moved, duplicated and so on.
7. To open the nested timeline again to change something *inside* the nested timeline click the **Open Nested Timeline** button from the Transport and Editing toolbar (or choose the command from the nested timeline event's context menu).

Opening a recent project

A list of recently used project files is maintained at the bottom of the File menu. Choosing a project from this list allows you to quickly return to work on that project.

You can use the General tab in the Preferences dialog to turn the recently used file list on or off and to specify how many files should be displayed. For more information, see "Preferences - General Tab" on page 529

Saving a project

From the File menu, choose **Save** to save changes to the current VEGAS Pro project (.veg). When a VEGAS Pro project is saved, all of the layout of tracks, envelope adjustments, effects parameters, etc. are saved in this project file.

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

If you want to keep the previous version of your project before you made changes, use the **Save As** *command to save the new version of the project with a new name. For more information, see* *"Saving and renaming a project (Save As)" on page 59*

Saving a new version of the project (Incremental Save)

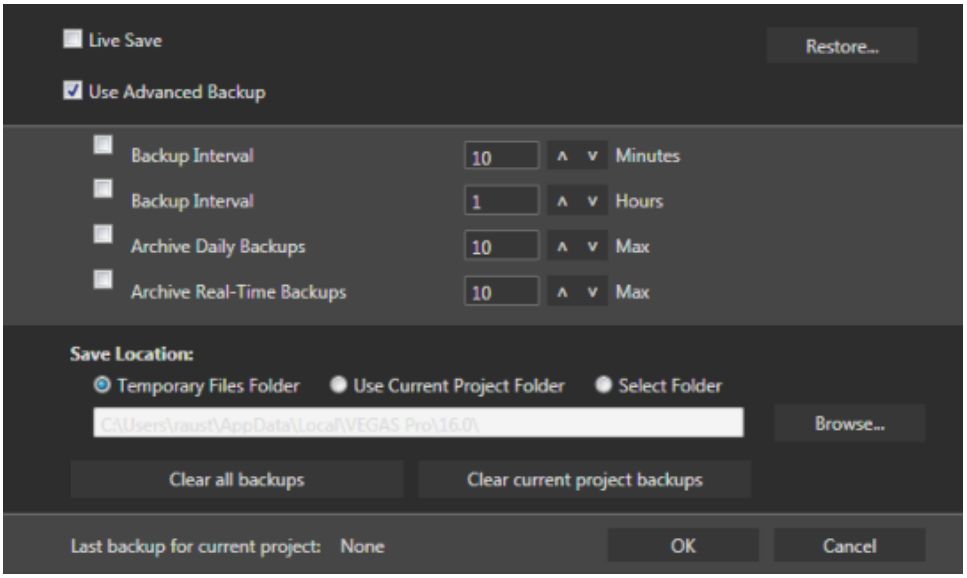
To keep older work states of your project, you normally use the **Save As** function. You save your current project under a new project file name (e.g. <project name>_001) and continue to work with this project. The old work state remains available in the original project.

The File menu > **Save Version** command automates this process so that you do not have to set a name for the new file version each time. Save your project once under the desired project name (e.g. "myproject..veg"). If you now call the **Save Version** function, the current project is saved under the name myproject_0001, next time as myproject_0002 and so on. The appended number is incremented, so this function is also called Incremental Save.

The default keyboard shortcut for Incremental Save is Ctrl + Alt + S. There is also a toolbar button available, but it is not visible by default. You can add it by ***customizing your toolbar****.*

Advanced Save - Live Save & Automatic Backups

The advanced auto save feature allows you to have flexibility for saving and backing up your projects. It replaces the simple legacy Autosave function from former versions of VEGAS Pro.



Live Save

Activate this option to save your current project after every edit. This could potentially lead to some reduced performance on your system.

If **Live Save** is enabled, you will be unable to use the **Real-Time backups** feature.

A project must be saved once before the **Live Save** *will start to work.*

Creating timed project backups

Checking **Use Advanced Backup** will give you a number of options for automatically backing up your project.

The creation of automatic backups begins when a change is made to the project.

- If **Use Advanced Backup** is off, VEGAS Pro will use the legacy **Autosave** function (look above).
- **Backup Interval (Minutes):** This saves a backup every time the specified time has elapsed if the project has been edited. Backups with this option are only stored within the last hour. Any older backups will be deleted. That means, when you keep the default time of 10 minutes, the last 6 backup files are held, when you reduce the time span to 6 minutes, you'll end up with 10 backup files.
- **Backup Interval (Hours):** This will create a backup after the specified number of hours if the project has been edited. Backups created with this option are only stored within the last 10 hours. Any older backups will be deleted.
- **Archive Daily Backups:** This option will create a backup once a day or upon the close of the application. You can set how many of these backups are stored on the computer (up to 500). The oldest backup is deleted when the limit is reached.

  Note that these three options can all be combined: The idea is that you keep some (minor) backups for the most recent changes (in the last hour), but also at least one (major) backup for every hour later and, if required, a backup a day.

- **Archive Real-Time Backups:** Activate this option to create a backup for each edit. You can set how many of these backups are stored on the computer (up to 500). The oldest backup is deleted when the limit is reached.

  When **Realtime backups** *are enabled, the minutely, hourly and daily backups are not available.*

  Realtime backups will remarkably slow down your computer's performance!

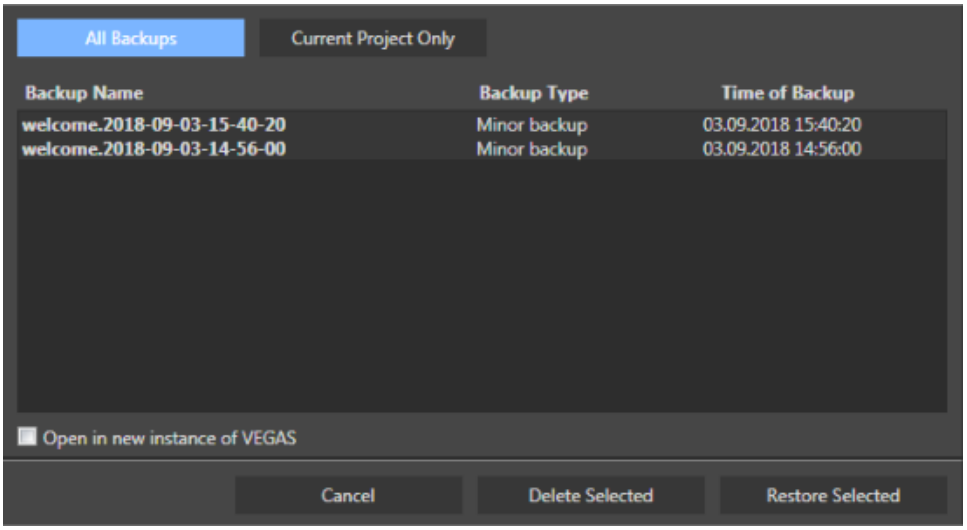
You can set the location for the backups under **Save Location** (This does not apply to **Live Save**.)

- **Temporary Files Folder** will store the files in the temporary files location that is set in **preferences**.
- **Use Current Project Folder** will store the files where the current project has been saved at.
- **Select Folder** will allow you to select a specific location where the backup files will be stored (using the **Browse...** button and edit box)

The four different backup types: minutely, hourly, daily and real-time are stored in separate sub-folders in this location

Restoring backups

To restore a backup, press the **Restore** button. This will open the **Restore Backup** dialog window which contains a list of the backups on the system.



To filter the list to show only the backups for the current project that you are working in, press **Current Project Only**.

To restore a backup, select it from the list and press **Restore Selected**.

The current project is closed and the backup project is opened in the current instance of VEGAS Pro. If you want to open the backup project in a new instance of VEGAS Pro check **Open in new instance of VEGAS**.

To delete a single backup file, select it and press **Delete Selected**.

Deleting backups

To delete all backups, press **Clear all backups**.

To delete only the backups from the current project, press **Clear current project backups**.

To delete a specific backup, you have to go to the **Restore Backups** dialog window (look above)

Saving and renaming a project (Save As)

From the File menu, choose **Save As** to save the current project to a different location or with a new name.

1. From the File menu, choose **Save As**.
2. Select the drive and folder where you want to store the project.
3. Type a name in the **File Name** box.
4. Select the **Copy media with project** check box if you want to create copies of each of the project's media files in the same location as the project file. This allows you to collect all of a project's assets in a single location.
5. Click the **Save** button.
6. If you selected the **Copy media with project** check box, a dialog is displayed to allow you to specify how you want to copy media files:
   - Select the **Copy source media** radio button to copy the entire source media files to your project folder.

     Any project media files from folders outside the project folder are copied to the project folder. Media files that are saved in folders below the project folder are not copied.

- Select the **Create trimmed copies of source media** radio button and enter a value in the **Extra head and tail** box to reduce the number and size of media files necessary to represent your project.

  Your project will be scanned to determine how much of each media file is being used and those regions will be rendered to new media files. The amount of time specified in the **Extra head and tail** setting will be added before and after the media file to allow subsequent edits. All events are then updated to point to the new files. Finally, inactive takes are removed from the project, and the project is saved.

The newly rendered files will match the source files' properties as closely as possible:

- Audio/video events are saved in a new AVI file. You can trim DV AVI, uncompressed AVI, and YUV AVI files. Because of the lossy nature of other video formats, those video files will not be trimmed, but will simply be copied to the project folder.
- Audio-only events will be rendered to the Wave format if under 2 GB (or Wave64 if over 2 GB), and DV files will be rendered as DV AVI files.

Project references in rendered files

When your VEGAS Pro project uses media that was rendered with an embedded project path reference, you can easily open the source project in the associated application if you need to edit the media later. ACID 5.0, Sound Forge 8.0, and VEGAS Pro 6.0 and later allow you to save the project path reference when you render files.

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

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

Saving the project path in the rendered file

1. Save your VEGAS Pro project. The project must be saved before you can embed the project reference in the rendered file.
2. Perform the procedure described in the Rendering Projects topic to choose the file type and location for rendering your files, and select the **Save project as path reference in rendered media** check box.

   For more information, see "Rendering projects (Render As)" on page 469

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

Editing a referenced project

1. Perform one of the following actions:
   - Right-click a media file in the Explorer window.
   - Right-click a media file in the Project Media window.
   - Right-click an event on the timeline.

2. From the shortcut menu, choose **Edit Source Project**. An ACID, VEGAS Pro, or SOUND FORGE window will open with the source project.

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

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

   If you're editing an existing track, your project will automatically be updated to use the latest rendered media file.

Sharing a project online

From the File menu, choose **Share Online** and then follow the on-screen instructions to choose a publishing provider and save your current project to the Web so you can share it with others.

Uploading your movie to YouTube

When you're done with your movie, you're probably going to want to share it with your friends and family as soon as possible.

*This feature requires that you have a YouTube account. If you don't already have an account, you can go to **http://www.youtube.com/signup** to sign up.*

1. From the File menu , choose **Share Online > Upload to YouTube**. The Upload to YouTube dialog is displayed.
2. Type a title to identify your video in the **Title** box.

   The information from the **Title** box of on the Summary tab of the Project Properties dialog is used by default.For more information, see "Setting project properties" on page 41
3. Type a description of your movie in the **Description** box.

   The information from the **Comments** box on the Summary tab of the Project Properties dialog is used by default.
4. Type keywords you want to associate with your movie in the **Tags** box. Use words that relate to your movie and describe its content. These tags will be used when searching YouTube. Use commas to separate multiple keywords.

   If you are uploading a stereoscopic 3D project, VEGAS Pro automatically adds the tags needed to enable 3D viewing on YouTube. For more information, see "Stereoscopic 3D editing" on page 191
5. Select the **Public** or **Private** radio button to set broadcast options for your movie. Public videos can be seen by any YouTube user; private videos can be seen only by members you specify.

6. Select the **Normal** or **Higher** radio button to set the video quality for your movie. The **Higher** setting creates better-looking video for broadband connections but will take longer to render.

   The estimated file size is displayed at the bottom of the dialog.
7. Select the **Render and upload loop region only** check box if you want to save only the portion of the project that is contained within the loop region. **Loop Playback** does not need to be selected for this option to work.
8. Click the **Upload** button to start uploading your movie to YouTube. If you do this the first time, the **Log In to Google** dialog is displayed. Log in to your Google account with your Google Email and Password. Now select the Youtube account that is connected to your Google account and authorize MAGIX AG to manage your Youtube account.

   *Note that you authorize not only your VEGAS Pro program to access your Youtube account but any MAGIX Video Editing Software. That means, once authorized you can use the Youtube upload with any recent MAGIX video program without entering any password again. To revoke the access, go to your **Google connected Apps settings**, click on MAGIX AG and click Remove.*
9. After the upload has finished your web browser will open on the site to let you edit further settings of the just uploaded video.

Uploading your movie to Vimeo

When you're done with your movie, you can upload it to Vimeo to share it with your friends, family, and followers.

This feature requires that you have a Vimeo account. If you don't already have an account, you can go to ***https://vimeo.com*** *to sign up.*

1. From the File menu , choose **Share Online > Upload to Vimeo**. The Upload to Vimeo dialog is displayed.
2. Type a title to identify your video in the **Title** box.

   The information from the **Title** box of on the Summary tab of the Project Properties dialog is used by default.For more information, see "Setting project properties" on page 41
3. Type a description of your movie in the **Description** box. This description will be included when your video is posted.

   The information from the **Comments** box on the Summary tab of the Project Properties dialog is used by default.
4. Add tags in the **Tags** field to make it easier to find your videos on the site.
5. Select the **Normal** or **Higher** radio button to set the video quality for your movie. The **Higher** setting creates better-looking video for broadband connections but will take longer to render.

   The estimated file size is displayed at the bottom of the dialog.
6. Select the **Render and upload loop region only** check box if you want to save only the portion of the project that is contained within the loop region. **Loop Playback** does not need to be selected for this option to work.
7. Click the **Upload** button to start uploading your movie to Vimeo. If you do this the first time, the **Log In to Vimeo** dialog is displayed. Log in to your Vimeo account with your Vimeo Email and Password or use your Facebook credentials. Now click on **Allow** to authorize VEGAS Pro to access your Vimeo account.

   Note that you authorize not only your VEGAS Pro program to access your Vimeo account but any MAGIX Video Editing Software. That means, once authorized you can use the Vimeo upload with any recent MAGIX video program without entering any password again. To revoke the access, go to your Vimeo profile settings and remove the MAGIX Video Editing App under Connected Apps.
8. After the upload has finished your web browser will open on the site to let you edit further settings of the just uploaded video.

Importing and exporting projects

Project-interchange tools add flexibility to your workflow, allowing you to exchange projects with other popular editing platforms.

Importing a project

1. From the File menu, choose **Import**, and then choose a project type from the submenu:
   - **Premiere/After Effects (*.pproj)**: imports an Adobe Premiere or After Effects project.
   - **Final Cut Pro 7/DaVinci Resolve (*.xml)**: imports an XML file from Apple Final Cut Pro 7 or DaVinci Resolve.
   - **Final Cut Pro X (*.fcpxml)**: imports an XML file from Apple Final Cut Pro X.

- **EDL Text File (*.txt)**: imports an EDL text file. For more information, see "Edit Decision Lists" on page 66

The Import dialog is displayed.

2. Choose the folder where the project you want to open is stored:
   - Choose a drive and folder from the **Look in** drop-down list.
   - Choose a folder from the **Recent** drop-down list to quickly select a folder from which you have previously opened files.
3. Select a file in the browse window or type a name in the **File name** box.
4. Click **Open**.

   If elements in the project could not be imported, a report is displayed.

Exporting a project

1. From the File menu, choose **Export**, and then choose a project type from the submenu:
   - **Premiere/After Effects (*.pproj)**: exports your project for use in Adobe Premiere or After Effects project.
   - **Final Cut Pro 7/DaVinci Resolve (*.xml)**: exports your project to an XML file for use in Apple Final Cut Pro 7 or DaVinci Resolve.
   - **Final Cut Pro X (*.fcpxml)**: exports your project to an XML file for use in Apple Final Cut Pro X.
   - **EDL Text File (*.txt)**: exports your project to an EDL text file. For more information, see "Edit Decision Lists" on page 66

   The export dialog is displayed.
2. Choose the folder where you want to export the project:
   - Choose a drive and folder from the **Look in** drop-down list.
   - Choose a folder from the **Recent** drop-down list to quickly select a folder from which you have previously opened files.
3. Type a name in the **File name** box.
4. Click **Save**.

   If elements in the project could not be exported, a report is displayed.

Archiving projects

Choose **File** > **Export** >**Vegas Project Archive** to export your project and its associated media.

1. Choose **File** > **Export** >**Vegas Project Archive**. The Vegas Project Archive dialog is displayed.
2. Use the Vegas Project Archive dialog to choose options for saving your archive:
   a. In the **Project file** box, choose the folder and file name you want to use to save your archive.
   b. Select the **Include nested projects** check box if you want to include nested projects in the archive.
   c. Select the **Include media** if you want to copy media files with the archive.
   d. Select the **Include video proxy/audio peak files** check box if you want to include audio peaks and audio/video proxy files with the archive. For more information, see "Rebuild audio peaks" on page 181 or "Creating proxy files for high-definition editing" on page 90
   e. Select the **Exclude unused media** if you want to skip archiving unused media files. If you clear the check box, all project media will be archived.
3. Click the **Finish** button to create your project archive.

Working with P2 Video

The following steps will guide you through the process of using P2 video in your VEGAS Pro project.

1. Shoot your video with a P2 camera.
2. Start a new VEGAS Pro project, and set your project properties to the format that most closely matches your desired output format (or use the **Match Media Video Settings** button in the Project Properties dialog to match an existing media file).
   For more information, see "Setting project properties" on page 41
3. Use the Device Explorer window to import your P2 files.
   For more information, see "The Device Explorer Window."
4. Drag your clips from the Project Media window to the timeline to create events.
5. Edit your project as needed.

   If you're working on a system with limited processing power, converting to a lower-resolution format will streamline the editing process and allow you to preview your project with higher frame rates. This process is called proxy editing.

   For more information, see "Creating proxy files for high-definition editing" on page 90
6. Render your project to any supported rendering format.

If you want to render to P2 format and export the rendered file to a P2 camera, please use the following steps:

1. Verify that your VEGAS Pro project is set match your P2 file settings.
2. From the File menu, choose **Render As**.
3. In the Render As dialog, choose **Panasonic P2 MXF** in the Output Format box.
4. Use one of the following templates, or select a template and click the **Customize Template** button to edit its settings.
   If you use the Custom Template dialog to customize your rendering template, leave all settings at their default values except for the **Frame size** control.
5. Use the Output File controls to choose where the files will be rendered. The P2 file format has strict file-naming requirements, so when you render P2 files, you choose an output *folder* rather than rendered *file names*.
   Click the **Browse** button to choose where you want to render:

- To render to a P2 camera that's connected to your computer, choose the CONTENTS folder on the camera's memory card.
- To render to a folder on your computer, choose a folder. If a P2-format CONTENTS folder exists in the selected folder, VEGAS Pro will use the existing folder structure. If no P2-format CONTENTS folder exists, VEGAS Pro will create all necessary files and folders
  File names are automatically incremented when you render. For example, if the highest-numbered clip in the selected render folder is `..\CONTENTS\VIDEO\00036R.mxf`, the next file you render to that folder will be created as `..\CONTENTS\VIDEO\0004xx.mxf`.

  File naming is an important part of the P2 file specification. Do not change the file names in a P2 CONTENTS folder.

Working with HDR video

When working with HDR video footage, there is a convenient **HDR mode** setting in the **Project Properties** dialog to assist you to set several relevant options for HDR in one place.

Selecting **HDR10** or **HLG** in the drop-down menu will turn on all of the following settings:

1. Set Project Pixel format to "32-bit floating point (full range)" in Project Properties Dialog
2. Set appropriate View Transform ("Rec 2020 ST2084 1000 nits (ACES)" for HDR10 and "Rec 2020 HLG 1000 nits (ACES)" for HLG) in Project Properties Dialog
3. Enable "HDR Preview" in the **Preferences** > **Preview Device** dialog and the "HDR Preview" toolbar button above preview window, if suitable hardware is available. This applies to both windowed and full-screen preview
4. Set the **HDR Compatible Output** filter in the **Render As...** dialog. The presets will be filtered based on HDR mode.
5. Enable the **Master Display** Settings in Project Properties dialog.
6. Selecting **Off** will reset all of the settings to default project settings.

Edit Decision Lists

An Edit Decision List (EDL) is a text summary of a project. An EDL lists of all of the media files used, where they are placed on the timeline, and how they are trimmed.

VEGAS Pro EDLs are not the same as those used in traditional linear editing suites and are not intended as a project interchange for other editing applications.

Because of the significant differences between editing applications, projects that are converted from EDLs (or exported to EDLs) are necessarily simplified. Events are inserted into the timeline on a single track, and transition effects from the other application are replaced with crossfades. Projects that are imported from another application's EDL are initially limited to four audio tracks. If you add more tracks, save the project as a .veg file.

Creating an EDL

1. From the File menu, choose **Export** > **EDL Text File (*.txt)**. The export dialog is displayed.
2. Select the drive and folder where you want to store the project.

   EDL files do not contain information about the location of source media. Save the .txt file in the same folder as the source media.

3. Type a name in the **File name** box.
4. Click **OK**.

Opening an EDL

1. From the File menu, choose **Import** > **EDL Text File (*.txt)**. The import dialog is displayed.
2. Choose the folder where the project you want to open is stored:
   - Choose a drive and folder from the Look in drop-down list.

     –or–
   - Choose a folder from the **Recent** drop-down list to quickly select a folder from which you have previously opened files.
3. Select a file in the browse window or type a name in the **File name** box.
4. Click **Open**. If you have not saved the current project, you will be prompted to save your changes.

   Events are placed in the VEGAS Pro timeline. All transitions are replaced with crossfades. You can change the crossfades to other transition types if desired. For more information, see "Automatic crossfades" on page 123

Closing a Project

From the File menu, choose **Close** to close the current project. If you have not saved the project since changes were last made, a dialog appears asking if you want to save your changes.

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

Use the Save As command to save your project under a different name or file type. For more information, see "Saving and renaming a project (Save As)" on page 59

Exiting the VEGAS Pro Application

From the File menu, choose **Exit** to close the application and return to your desktop.

If you have not saved the current project since changes were last made, a dialog appears asking if you want to save your changes.

- Click **No** if you want to exit without saving your project.
- Click **Yes** to save your changes.
- Click **Cancel** to return to the VEGAS Pro window and your current project.

Use the Save As command to save your project under a different name or file type. For more information, see "Saving and renaming a project (Save As)" on page 59

Adding, managing, and arranging media

After you've created a project, you're going to need to add media to it.

The objects you work with in VEGAS® Pro projects are referred to as media files and events:

- Media files are the source audio and video files that are stored on your hard disk. VEGAS Pro projects do not operate on or modify these files. Files can be accessed from the Explorer window.
- An event is an occurrence of a media file on the VEGAS Pro timeline. An event can represent an entire media file or a portion of it. A single media file can be used repeatedly to create any number of different events, since each event can be trimmed independently. An event's position on the timeline determines when it will be played back in your project.

Using the Project Media window

Choose **View** > **Window** > **Project Media** to toggle the display of the Project Media window.

You can use the Project Media window to collect and arrange all the media you will use in your project. You can add media, preview it, view and change file properties, and add effects to a file.

Adding media files to the Project Media window

Files are added to the Project Media window when you open media files, import media, or add media files to the timeline using the Explorer.

You can also drag the files to the Project Media window from the VEGAS Pro Explorer or Windows Explorer.

To add media files from external sources, use the buttons in the Project Media toolbar:

Item	Description
	**Import Media**: click to add a media file to your project. Besides the button there is an arrow to open a menu to change the function of the button, providing you access to other import functions like importing audio from a CD or capturing video from a DV tape.
	**Capture Video**: click to start the video capture application specified on the Video tab of the Preferences dialog. For more information, see "Capturing video" on page 104
	**Extract Audio from CD**: click to extract a track from an audio CD. For more information, see "Extracting audio from CDs" on page 112  *VEGAS Pro is not intended, and should not be used for, illegal or infringing purposes, such as the illegal copying or sharing of copyrighted materials. Using VEGAS Pro for such purposes is, among other things, against United States and international copyright laws and contrary to the terms and conditions of the End User License Agreement. Such activity may be punishable by law and may also subject you to the breach remedies set forth in the End User License Agreement.*
	**Get Media from the Web**: click to open the Get Media from the Web dialog, where you can download files to use in your project.

Project Media Hover Scrubbing

When the Project Media list is in Thumbnail Mode (see below under Changing the appearance of the Project Media window) you can hover with your mouse pointer over the thumbnail picture of a video to scrub thru it. This is like a simplified version of the **Trimmer window**. As with the big trimmer window, you can click into the picture and drag to select a part of the video. And you can import just this selection into the time line, offering you a way to roughly edit of your movie directly from the project media window.

To make a selection in the thumbnail, you can:

- Click and drag over the thumbnail to select the part of the item you want to load.
- Select the item with a left-click. Then, while hovering over the item at the desired location, press I to set the In Point and O to set the Out Point.

To edit the In- and Out-Points, drag the selection borders with the mouse.



You can dynamically re-size the thumbnails by using Ctrl+Mouse Wheel.

To load an item from the Project Media window into the project, you can:

- Drag it into the time line to the desired position. If there is a selection in the thumbnail, only this part will be used for the new created event.

  Because media selection is also performed by dragging it is important that you start dragging vertically to not accidentally destroy your selection.

- Select the track and place the cursor at the position where the item should be inserted. Double-click the item or press the *Enter* key to load.

Cleaning the Project Media list

Click the **Remove All Unused Media from Project** button to remove any files that have not been used on the timeline.

Removing a media file from the project

Click the **Remove Selected Media from Project** button to remove all selected media files from the Project Media window and project.

If a file is in use by an event on the timeline, you will be prompted to delete the event.

Swapping video files

Click the Swap Media button to replace video files in the project with alternative files with the same file name. You will need to select a folder where the exchange files are stored. Any reference to a video file in the project will be changed to refer to the new file in the specified folder if there is a file with the same name in that folder. The file extension is not relevant.

You can also perform this exchange at render time.

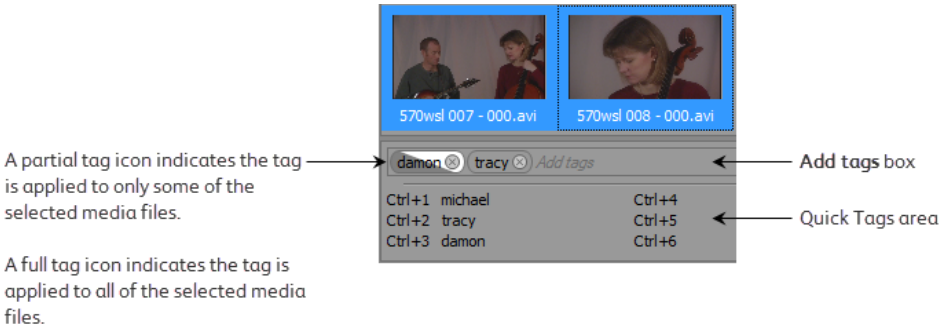
Viewing or editing file properties

Click the **Properties** button to display the Properties dialog for the selected media file. For more information, see "Viewing or changing media file properties" on page 94

In most cases, you will not need to edit file properties. However, adjusting the **Field Order** setting for video files can help correct jitter when you output your project to a television monitor.

Tagging media files

Use the Media Tags panel in the Project Media window to add tags to your media files. To show or hide the Media Tags panel, click the down arrow next to the **Views** button and choose **Media Tags**.



When you add tags to media files, media bins are created for each tag under the "Tags" folder. For more information, see "Sorting your media with bins" on page 92

Adding tags

1. Select one or more media files in the Project Media window.
2. Type the tag text in the **Add tags** box.
3. Press Enter to add the tag to the media files.

You can also add tags using keyboard shortcuts. For more information, see "Creating Quick Tags" below

Removing tags

1. Select one or more media files in the Project Media window.
2. Press Backspace in the **Add tags** box to remove tags from the media files.

You can also click the "x" in the tag icon to remove a tag from a media file:



Creating Quick Tags

Quick Tags allow you to assign tags to keyboard shortcuts that you can use to quickly add tags to media files.

1. Select one or more media files in the Project Media window.
2. Type the tag text in the **Add tags** box.
3. Press Ctrl+Shift and the number you want to assign for the shortcut. For example, press Ctrl+Shift+1 to assign the tag text to the Ctrl+1 shortcut.
4. Press Enter to add the tag to the media files.

Editing Quick Tags

Right-click the Quick Tags area and choose **Edit Quick Tags** to display the Edit Quick Tags dialog. You can use this dialog to edit the text of existing Quick Tags or create new Quick Tags.

Configuring 24p pulldown removal

Right-click a DV AVI file in the Project Media window and choose **File Format Properties** from the shortcut menu to edit file settings from the file format plug-in associated with the media file type.

For 24p NTSC DV AVI files with 2-3 pulldown, you can use this dialog to configure removal of pulldown fields.

In most cases, you will not need to edit pulldown removal settings. However, if the settings were not properly set in the DV header when your video was captured, you can fine-tune pulldown removal without recapturing your video.

1. Right-click an AVI file in the Project Media window and choose **File Format Properties** from the shortcut menu. The AVI/DV Media Properties dialog is displayed.

   This command is not available for clips that are not AVI or DV or those that use 2-3-3-2 pulldown.
2. Select the **Enable 2-3 pulldown removal** check box.

   You can clear this check box if you want to override pulldown removal for individual files when the **Allow pulldown removal when opening 24p DV** *check box is selected on the General tab of the Preferences dialog.*
3. Choose a setting from the **Starting frame timecode offset** drop-down list to indicate what timecode numbers represent which frame in the video sequence.

   For example, if you have an NTSC DV file with 2-3 pulldown created on a Sony JH3 HDCAM deck, the default settings for timecode offset use 0 for the **Starting frame timecode offset**.

   If you have changed the timecode offsets on the deck (or if you have material with pulldown from another source) you will have to experiment with the settings to determine the correct offset.
4. Check for interlacing:
   a. In the Project Properties dialog, choose a NTSC DV 24p template from the Template drop-down list. For more information, see "Setting project properties" on page 41
   b. Choose the **Best (Full)** setting in the Video Preview window to show full frames.
   c. Step though the clip and look for interlace lines in moving objects or backgrounds.
   d. If you see interlace lines, repeat from step 3 and choose a different offset value.
   e. When no interlace lines appear, the offset is set correctly.

Adding effects to a media file

Click the **Media FX** button  to add an effect to every occurrence of the selected media file in your project (the source media file is not affected).

Media FX are used for video files only. For more information about adding video effects, see "Adding video effects" on page 287

Previewing a media file

Select the media file you want to preview.

- Click the **Start Preview** button to begin previewing the media file.
- Click the **Stop Preview** button to stop previewing the media file.
- Select the **Auto Preview** button to automatically preview a media file when you click it.

Select the **Auto Preview** button to automatically preview a media file when you click it.

Pairing two media files as a stereoscopic 3D subclip

If you have two files that have synchronized timecode – such as video shot on a 3D camera that creates separate left- and right-eye clips – you don't need to align the audio and video. Just select the clips in the Project Media window and choose **Pair as Stereoscopic 3D Subclip** from the shortcut menu.

If you view the clip properties for the new subclip, you'll see that the **Stereoscopic 3D Mode** is set to **Pair with next stream**.

For more information, see "Stereoscopic 3D editing" on page 191

Changing the appearance of the Project Media window

Click the **Views** button and choose a setting from the menu to change the display of the Project Media window:

Item	Description
List	Displays a simple list of the file name of each file in the Project Media window.
Details	Displays a list of each file in the Project Media window and a spreadsheet that displays information about the media file: You can control the information that is displayed by right-clicking the Project Media window and choosing **View** from the shortcut menu. A list of the available fields is displayed in the shortcut menu. Specific fields can be hidden by dragging them off of the Project Media window. The data fields are listed along the top of the Project Media window and can be reordered by dragging them. Click on the tabs along the top to sort the data in ascending or descending order. The **Comments** field can be used to add notes about a file in the Project Media window. Double-click the field to enter text. This information is saved with the project and is not saved with the media file itself.

Item	Description
	Depending on your current time ruler format, you may see inconsistencies in the timecode values for clips that you captured. Video Capture uses SMPTE drop time (29.97 fps). If you switch the time format to SMPTE drop time in the VEGAS Pro window, the same timecode information will be displayed in the Video Capture and VEGAS Pro windows.
Thumbnail	Displays the first frame of a video file.
Media Tags	Shows or hides the Media Tags panel. For more information, see "Tagging media files" on page 70

Recapturing video

If you've captured video files from a DV device using Video Capture, you can recapture your clips from the VEGAS Pro window if the media files are deleted.

If a media file cannot be found, any events that refer to the file will display **Media Offline**, and the clip will be displayed with a generic icon in the Project Media window (if you're using the Thumbnail view).

Select the clips that you want to recapture. Right-click a clip and choose **Recapture** from the shortcut menu. Video Capture starts in batch capture mode to recapture the clips.

Depending on your current time ruler format, you may see inconsistencies in the timecode values for clips that you captured. Video Capture uses SMPTE drop time (29.97 fps). If you switch the time to SMPTE drop time in the VEGAS Pro window, the same timecode information will be displayed in the Video Capture and VEGAS Pro windows.

Replacing a media file

You can replace a file in the Project Media window with a different file. Replacing a media file updates every occurrence of the event to use the new media file contents.

1. Right-click a file in the Project Media window, and choose **Replace** from the shortcut menu. The Replace Media File dialog is displayed.
2. In the Replace Media File dialog, select the file that you want to use in place of the current file.
3. Click the **Open** button. The file is replaced in the Project Media window, and every occurrence of the event is updated to use the new media file contents.

Creating video proxy files

Right-click a video file and choose **Create Video Proxy** to create a proxy file (.sfvp0) alongside the original video file. Proxy files are smaller and faster to work with on the timeline. For more information, see "Creating proxy files for high-definition editing" on page 90

Using bins to sort your media

Media bins are folders within projects that you can use to organize your media files. For more information, see "Sorting your media with bins" on page 92

Selecting all events that refer to a specific media file

Right-click a file in the Project Media window and choose **Select Timeline Events** from the shortcut menu.

The cursor moves to the first event that uses the media, the timeline scrolls to the cursor, and all events that use the selected media file in the active take are selected. For more information, see "Using takes as alternate versions of events" on page 165

Hold Ctrl or Shift while choosing **Select Timeline Events** from the shortcut menu to add the events to the current selection.

Tips:

- When multiple events are selected, press Ctrl+[or Ctrl+] to move the edge of the previous or next selected event.
- When multiple events are selected, press Ctrl+Shift+[or Ctrl+Shift+] to create a time selection from the previous or next selected event.

Add a high-frame-rate clip to the timeline and adjust its playback rate

Right-click a clip in the Project Media window and choose **Add At Project Frame Rate** to create an event at the cursor position and set the event's **Playback rate** value to allow the event to play back using the project frame rate.

For more information, see "Working with high-frame-rate (HFR) clips" on page 83

Matching project video settings to a media file

Right-click a file in the Project Media window and choose **Match Project Video Settings** to update your project video settings to match the selected file.

If you choose a VEGAS Pro project (.veg) file, VEGAS Pro will match the settings of the project, not the media within the project.

For more information, see "Setting project properties" on page 41

Previewing media files

You can preview media files from the Explorer window or Project Media window before placing them in your project. When you preview a file, the signal is sent to the Preview bus in the Master Bus window.

Previewing a media file

1. Select a media file in the VEGAS Pro Explorer or Project Media window.
2. Click the **Start Preview** button to preview the file.
3. Click the **Stop Preview** button, select a different file, or place the file in the project to stop previewing the file.

   Tips:

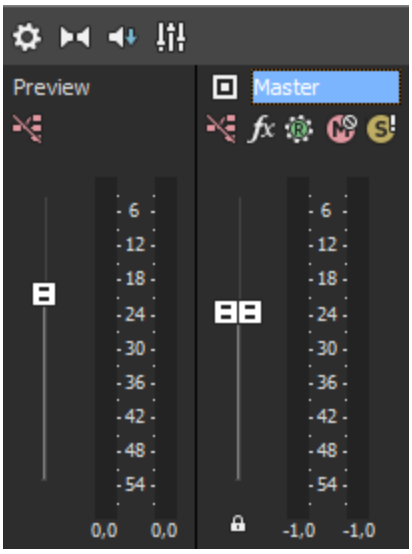
   - To automatically preview selections when you click a media file in the Explorer or Project Media window, select the **Auto Preview** button. To turn off Auto Preview, click the **Auto Preview** button again.
   - Video is previewed in the Trimmer window. If you want to preview in the Video Preview window, right-click the Trimmer window and deselect the **Show Video Monitor** command. For more information, see "Using the Trimmer" on page 135

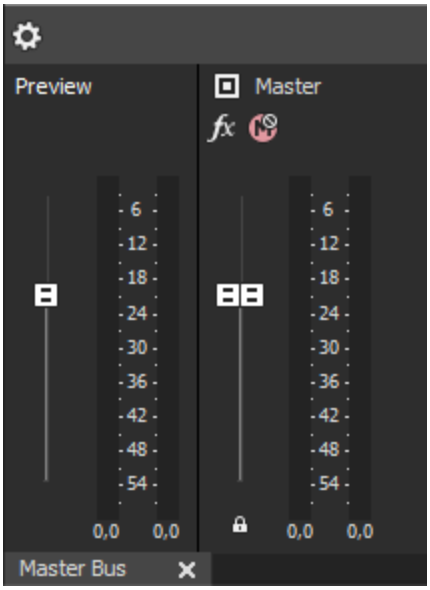
For more information, see "Using the Video Preview window" on page 423

In the Project Media Window, you can hover with your mouse pointer over the thumbnail picture of a video to scrub thru it. Read more under ***Project_Media Hover Scrubbing***

Adjusting audio preview volume

The Preview control in the Master Bus window allows you to view and adjust the playback volume level. If the control is not visible, choose **Mixer Preview Fader** from the View menu.





Item	Description
Fader	Drag the fader to adjust the playback volume while previewing the audio file.
Meter	Displays the playback level. Right-click and choose a command from the shortcut menu to adjust the range of the meter, reset clip indicators, or hold peaks/valleys.

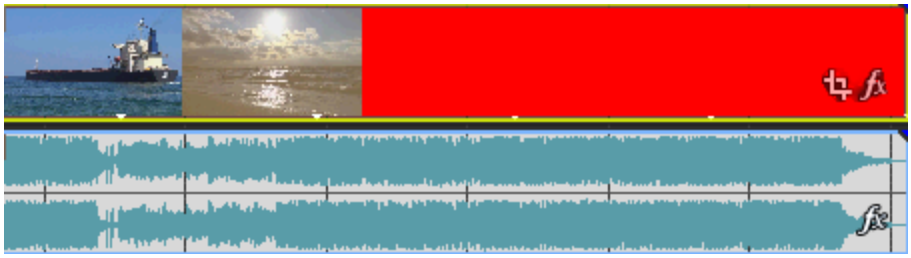
Adding media files to your project

After you've previewed files to determine which media files you want to use in your project, there are several ways you can add them to your project.

The volume for new audio tracks is determined by your default track properties. For more information, see "Setting default track properties" on page 233

Notes:

- Select the **Allow pulldown removal when opening 24p DV** check box on the General tab of the Preferences dialog if you want to remove pulldown when you open 24 fps progressive-scan DV video files. When the check box is cleared, 24p video will be read and edited as 29.97 fps interlaced video (60i). For more information, see "Preferences - General Tab" on page 529
- Select the **Import audio at project tempo** check box on the Audio tab of the Preferences dialog if you want ACID loops to be stretched to match the project tempo (specified on the Ruler tab of the Project Properties dialog) when you add them to the timeline or preview from the Explorer window. Clear the **Import at project tempo** check box if you want to ignore tempo information. For more information, see "Preferences - Audio Tab" on page 542 and "Setting project properties" on page 41
- When you add a multichannel audio file (.wav/.wav64, .avi, .mxf, ATRAC, and BWF) to your project, the audio is added across tracks. For example, if you import a four-channel WAV file, the audio will be added to four adjacent tracks. For control over which channels are used by each event, right-click a multichannel audio event, choose **Channels** from the shortcut menu, and choose a command from the submenu. For more information, see "Audio channels" on page 171
- When you add a multistream audio file to your project, you can choose which stream you want to use by right-clicking the event, choosing **Stream** from the shortcut menu, and then choosing a stream from the submenu.
- 5.1-channel audio from DVD camcorders will be downmixed to stereo when importing into a stereo project. When importing into a 5.1 surround project, audio will be added to separate tracks for the center, front, rear, and LFE channels.
- If VEGAS Pro cannot read frames in a video event, they will be displayed in red in the timeline (those frames will be black in the Video Preview window and the rendered output):



- If you want to use RAW camera files in your project, the **Microsoft Camera Codec Pack** will allow you to view RAW camera files and add them to the timeline.
- The first time you add video media to the timeline, VEGAS Pro will ask you whether you want to match your project video settings to match the first video media you add to the timeline.

  If you choose a VEGAS Pro project (.veg) file, VEGAS Pro will match the settings of the project, not the media within the project.

Using the Windows Explorer to add media and create events

If you're using the Windows Explorer to browse your computer for media, you can add a media file quickly by dragging it to the VEGAS Pro window.

The media file is added to the Project Media window, and an event is created where you drop the file. If you drop the file on an area of the timeline that does not contain a track, a new track will be created.

Using the VEGAS Pro Explorer to add media and create events

If you're using the VEGAS Pro Explorer to preview files, you can add media by performing either of the following actions:

- Double-click a media file or VEGAS Pro project to add it to your project. The file is added to the Project Media window, and an event is created at the cursor position.
- Drag a media or project file from the VEGAS Pro Explorer to the timeline. The file is added to the Project Media window, and an event is created where you drop the file.

Tips:

- To add multiple files to the timeline, Ctrl+click (or Shift+click) to select the files and drag them to the timeline or track list.
- Drag a .veg file to the timeline to add it to the current project as a nested project. For more information, see "Nesting projects" on page 54
- Double-click a .veg file in the Explorer window to open a project.
- To add a track from an audio CD, browse to your CD drive and double-click a .cda file (or drag it to the timeline). You will be prompted to type a name for the file, and then the track will be extracted. After the track is extracted, it will be added as an event on an audio track in your project.
- If you're adding video files to the timeline, you can choose to add only the audio or video stream to your project. Right-click and drag the files to the timeline. When you drop the files, a shortcut menu is displayed. Choose **Audio Only** or **Video Only** from the shortcut menu and choose a command from the submenu to arrange the event on the timeline.



VEGAS Pro is not intended, and should not be used for, illegal or infringing purposes, such as the illegal copying or sharing of copyrighted materials. Using VEGAS Pro for such purposes is, among other things, against United States and international copyright laws and contrary to the terms and conditions of the End User License Agreement. Such activity may be punishable by law and may also subject you to the breach remedies set forth in the End User License Agreement.

Adding multiple files and creating events

If you're using the Explorer or Project Media window, you can add several media files to your project at once.

1. Select the media files or VEGAS Pro projects you want to use.
2. Right-click the selected files and drag them to the timeline. A shortcut menu is displayed.
3. Choose a command from the shortcut menu to indicate how you want to arrange the events on the timeline.

Command	Description
Add Across Time	Adds the selected media files end-to-end on the track where you drop them. *Select the* **Automatically overlap multiple selected media when added** *check box on the Editing tab of the Preferences dialog if you want to overlap events when you add them to the same track.* **Automatic Crossfades** *must be turned on to use this feature. For more information, see "Preferences - Editing Tab" on page 550 and "Automatic crossfades" on page 123* To change the amount of overlap between events, adjust the **Amount** setting in the Cut-to-overlap conversion section of the dialog.
Add Across Tracks	Adds the selected media files as events on adjacent tracks.
Add As Takes	Adds the selected media files as multiple takes of the same event. For more information about choosing takes, see "Using takes as alternate versions of events" on page 165
Video Only	If you're dragging video files to the timeline, you can choose to add only the video stream to your project. Choose **Video Only** from the shortcut menu and choose a command from the submenu to indicate how you want to arrange the events on the timeline.
Audio Only	If you're dragging video files to the timeline, you can choose to add only the audio stream to your project. Choose **Audio Only** from the shortcut menu and choose a command from the submenu to indicate how you want to arrange the events on the timeline.

If you change your mind later and want to add a missing media stream to a video/audio only event, right click on an event and chose ***Add Missing Stream for Selected Event***

4. Events are created where you drop the files (and the media files are added to the Project Media window if you're using the Explorer).

   The order of the events is determined by file that you click before dragging and the order of the files in the Explorer or Project Media window: for example, select the files **A.wav, B.wav, and C.wav**. Right-click **B.wav** and drag the files to the timeline. When the shortcut menu is displayed, choose **Add Across Time**. When you drop the files, **B.wav** will be added as the first event, followed by **A.wav** and **C.wav**.

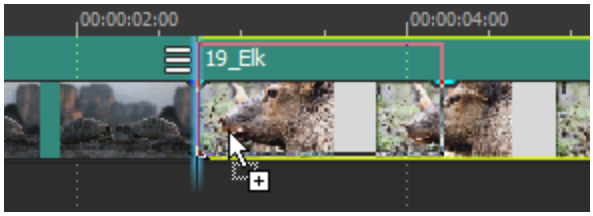
Adding media over other events (punching-in vs. inserting)

When you drop a file on a blank spot on the timeline, an event is created at that location. What happens if you drop a file on an existing event? You can either punch-in or insert an event.

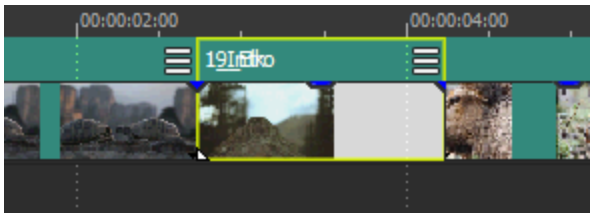
Punch-in

If you add a media file in the middle of another event, a punch-in is created: an event is created where you drop the file, and the new event simply lies on top of any existing events on the track.

1. Drag a media file from the VEGAS Pro Explorer or Project Media window to the middle of an existing event (or position the cursor and double-click a file in the VEGAS Pro Explorer or Project Media window).



2. The original event maintains its position on the timeline, but cuts to the new event where you added the new file:

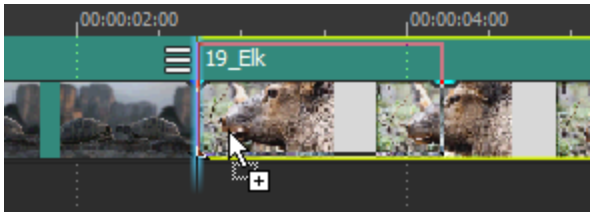


Inserting media

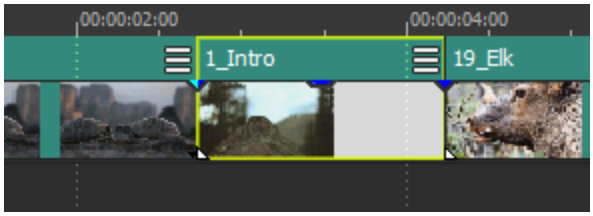
By using auto ripple, you can drop a media file in timeline and automatically move downstream events to make space for the new event. For more information, see "Post-edit ripple" on page 131

1. Select the **Auto Ripple** button  .
2. Drag a media file from the VEGAS Pro Explorer or Project Media window to a position on the timeline between two events (or position the cursor and double-click a file in the VEGAS Pro Explorer or Project Media window).

   If you want to insert an event in the middle of an existing event, you can split the existing event before adding the media file. For more information, see "Splitting events" on page 132



3. When you add the file, the events to the right move to make space for the new event:



Using the Project Media window to add media without creating events

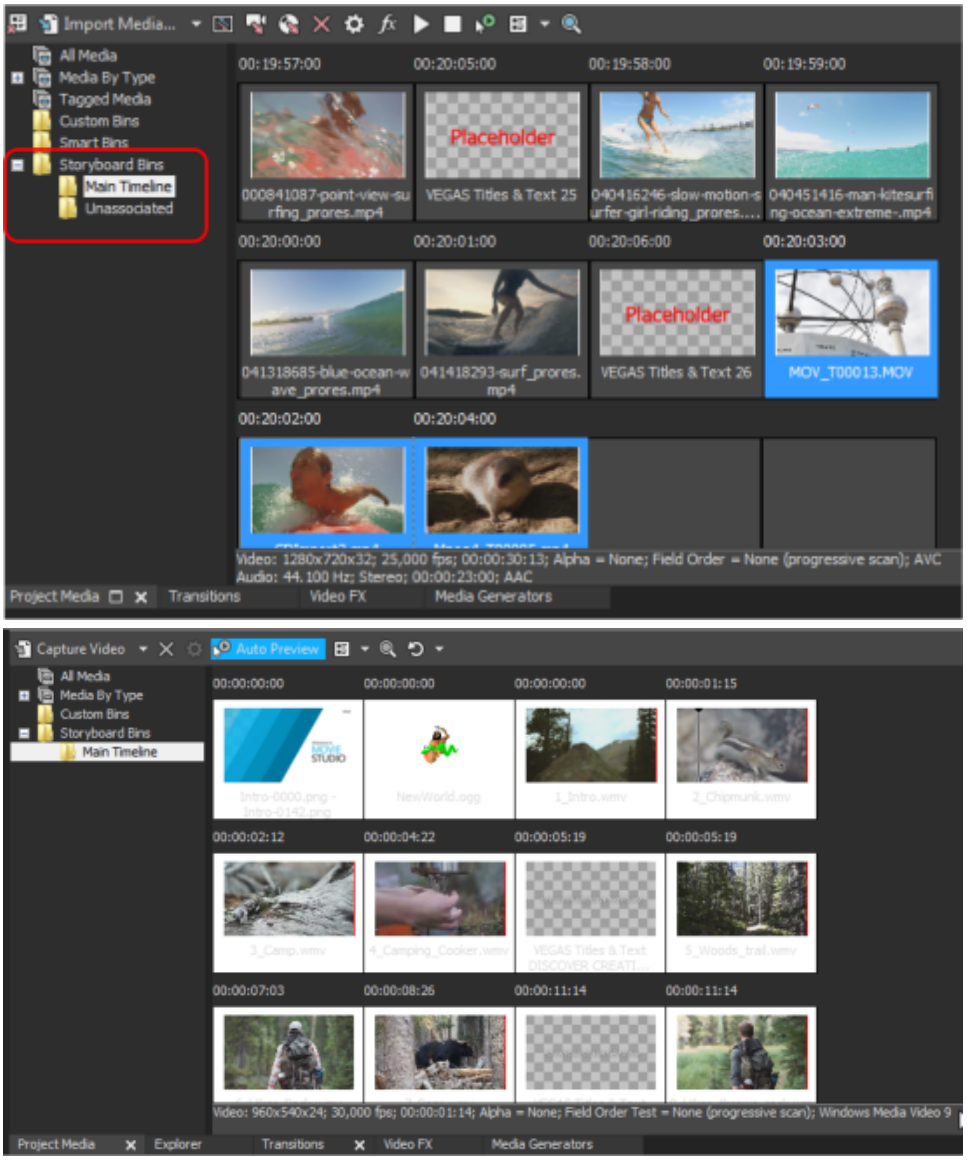
You can use the Project Media window to collect and arrange all the media you will use in your project before creating events on the timeline.

From the File menu, choose **Import**, and then choose **Media** from the submenu (or click the **Import Media** button  in the Project Media window) to add a media file to your project without adding it to the timeline. When you're ready to start adding events, you can drag media files from the Project Media window to the timeline.

For more information, see "Using the Project Media window" on page 68

Using Storyboards

VEGAS Pro enables you to quickly sequence your video in a lean, efficient storyboard workflow.



Storyboards are listed as a **bins** type in the **Project Media** window. Each project has at least one storyboard, the **Main Timeline** storyboard. The **Main Timeline** storyboard interacts directly with the main project timeline so that anything you do in one is reflected in the other.

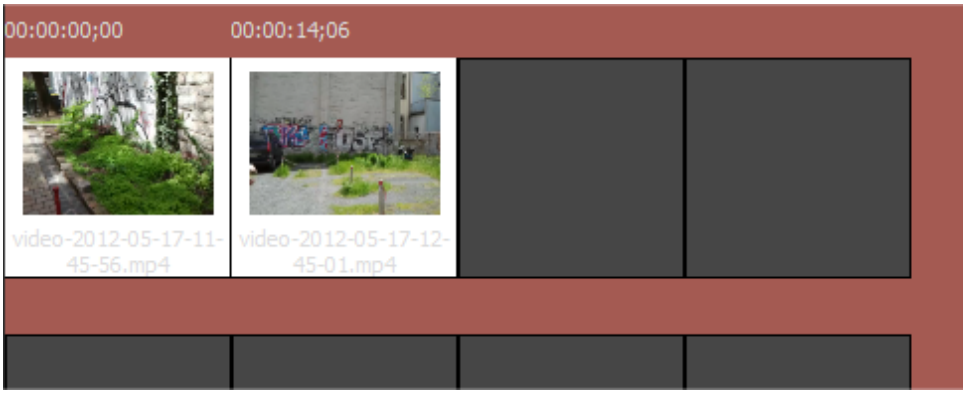
Adding media to a storyboard

There are two general ways to add media to a storyboard:

- Add media directly to your timeline. This also automatically adds that media to the **Main Timeline** storyboard and the timeline always matches the **Main Timeline** storyboard.
- Add media directly to the storyboard:
  1. Navigate to the storyboard you want to work with in the **Project Media** tree view
  2. Drag files from the **Explorer** Window and drop them into the storyboard cells:
     - Drop a file onto an empty cell to place the file there.
     - If you leave empty cells between the previous full cell and the one you are dropping the new file on, VEGAS Pro fills those empty cells with placeholder text files.
     - You can change the name of these placeholder files to leave yourself note about what you eventually want to put there.
     - You can drop a new file between two existing storyboard files to insert that file between the two existing ones.
     - You can drop a new file directly on top of an existing file in the storyboard to replace the existing file with the new one
  3. You can also drag files from the **Project Media** window **All Media** (or any other bin) into a storyboard:
     a. Drag the file from **All Media** and hover over the storyboard heading. After a moment, the **Storyboard** Bins heading expands to show you all of your storyboards.
     b. Hover over the storyboard you want to add the file to. After a moment that storyboard opens.
     c. Drop the file into the storyboard. This moves the file from any custom bin or storyboard into this storyboard. In order to copy the file from one bin or storyboard to the new storyboard so that it appears in both bins, hold the *Ctrl* key as you follow these steps.

Synchronization between the Timeline and the Main Timeline Storyboard

When you perform an edit on the timeline, the Main Timeline storyboard does not reflect the state of the timeline any more, it is not synchronized any more. You can see this by the colored background of the storyboard.



To synchronize the Main Timeline storyboard with the timeline, click the **Refresh storyboard** button . Click on the down arrow near this button to switch to **Automatically synchronize Main Timeline storyboard**. Now the storyboard is synchronized automatically after each edit on the timeline.

Note that this will affect the responsiveness of the program when performing complex edits.

While the storyboard is out of sync with the timeline, VEGAS Pro will not allow modifications of the storyboard until it is refreshed and will prompt you with the option to refresh.

Changes in the main timeline storyboard are always reflected on the timeline so there's no need for a synchronization in this direction.

Moving items around in the storyboard (organizing the storyboard)

Once files are placed in your storyboard, you can arrange them however you want. To move a file from one storyboard cell to another, hold the *Alt* key, drag the thumbnail to the new location, and release the mouse button to drop the thumbnail into the new position. The existing event in that spot and all following moves to the right to make room, the clips that follow the moved clip move to the left to close the gap.



The Alt key is necessary because simply dragging a thumbnail sets a selection on the media (see "Project Media Hover Scrubbing" on page 69 for details)

Previewing a storyboard

Once you have files in your storyboard, you can preview the storyboard to quickly review your edits so far:

- To preview a single file from the storyboard, select the file and click the Project Media window **Start Preview** button .
- To preview more than one file, select the files you want to view (use the *Ctrl* or *Shift* keys to select multiple files) and click the Start Preview button. This previews only the selected files one after the other in the order in which they appear in the storyboard.
- To preview all files in the storyboard sequentially, either select all of them, or deselect all of them and then click the Start Preview button. If all files or no files are selected, this will preview then entire storyboard from start to finish.

Creating a new storyboard

While each project has a Main Timeline storyboard by default, you can add as many new storyboards as you want. This enables you to experiment with alternate sequences for your project. To create a new storyboard, right-click the **Storyboard Bins** heading in the Project Media tree list and choose **Create New Bin** from the context menu.

Additional storyboards are not associated with the main timeline and changes you make to them will not be reflected on the main timeline, nor will changes to the main timeline have any affect on unassociated storyboards.

Adding a storyboard to the timeline

Changes made to the **Main Timeline** storyboard are automatically reflected in the main timeline, so you don't need to do anything special to add the **Main Timeline** storyboard to the timeline.

If you want to add the contents of an unassociated storyboard to your main timeline:

- Drag one or more files from the storyboard to the main timeline
- Drag the Storyboard bin to the timeline to add all files in the storyboard to the timeline

***Note**: When you drag files from an unassociated storyboard to the timeline, the* **Main Timeline** *storyboard is updated to reflect the changes made to the timeline*

Working with high-frame-rate (HFR) clips

If you want to use high-frame-rate clips to create slow-motion effects, you need to adjust the clip's playback rate to conform to the project's frame rate.

You can use the Project Media window to set the clip's playback rate when creating events, or you can use the Event Properties dialog to edit events already on the timeline.

Adding HFR clips from the Project Media window

1. Add your clips to the Project Media window. For more information, see "Using the Project Media window" on page 68
2. Click to position the cursor in the timeline where you want to create an event.
3. Right-click the clip in the Project Media window and choose **Add at Project Frame Rate**.

   An event is created at the cursor position, and the event's **Playback rate** value is calculated to allow the event to play back using the project frame rate. For example, if you add a 120 fps clip to a project with a frame rate of 30 fps, the event's playback rate will be set to .25.

   Event playback is limited to a range of .25 to 4.0x playback. If the event needs to be modified beyond that range, a velocity envelope is applied. For example, when using a 240 fps clip in a 24 fps project, the event's playback rate is set to .25, and a velocity envelope is applied to achieve the required playback rate of .1. In these cases, the event's audio will not play in sync with the video.

   If you need to check or adjust your project's frame rate, you can use the Project Properties dialog. For more information, see "Setting project properties" on page 41

Setting the playback rate of an existing event

1. Right-click the clip on the timeline and choose **Properties** from the shortcut menu.
2. On the Video Event tab of the Project Properties dialog, click the **Conform to Project Frame Rate** button.

   The event's **Playback rate** value is calculated to allow the event to play back using the project frame rate. For example, if you add a 120 fps clip to a project with a frame rate of 30 fps, the event's playback rate will be set to .25.

   Event playback is limited to a range of .25 to 4.0x playback. If the event needs to be modified beyond that range, a velocity envelope is applied. For example, when using a 240 fps clip in a 24 fps project, the event's playback rate is set to .25, and a velocity envelope is applied to achieve the required playback rate of .1. In these cases, the event's audio will not play in sync with the video.

   If you need to check or adjust your project's frame rate, you can use the Project Properties dialog. For more information, see "Setting project properties" on page 41
3. Trim the event end to adjust the event so all frames are visible. For more information, see "Adjusting an event's length" on page 142

Adding layered PSD files to the timeline

You can add layered PSD files to the VEGAS Pro timeline, with each layer of the file being an event on its own track.

These events are just like other events in VEGAS Pro software. For example, you could use track motion to move layers individually, use parent tracks to group and move layers together, apply track effects to animate just one layer of the graphic, or you could replace a layer with a video.

1. Select a layered PSD file in the Explorer or Project Media window.
2. Right-click and drag the file to the timeline.
3. When you release the mouse button, a shortcut menu is displayed. Choose **Add Across Tracks** to import the PSD layers across tracks in the timeline.

   The PSD layers, including the composite layer, are now available as streams. You can change an event's stream by right-clicking an event, choosing **Stream** from the shortcut menu, and then choosing the stream you want to use for the event.

The Slideshow Creator

From the Insert menu, choose **Slideshow** to add a photo slideshow to the selected video track.

1. Click in the timeline to select a track and position the cursor.

   The slideshow will be added to the selected track beginning at the cursor position. You can adjust the start time if needed.
2. From the Insert menu, choose **Slideshow**. The Slideshow Creator is displayed.

   The Pictures tab allows you to add and arrange pictures for your slideshow, and the Settings tab allows you to control the slideshow's start time, duration, and transitions between slides.
3. Add slides to your slideshow.
   a. Click the **Add Pictures** button  . A dialog is displayed for you to browse to a folder and select pictures. Hold Ctrl or Shift while clicking to select multiple pictures.
   b. Click the **Open** button to add the selected pictures to your slideshow.
   c. Repeat steps 3a and 3b as needed to add pictures from other folders.

   If you need to remove a photo, select it and click the **Delete** button  .
4. Use the Pictures tab to arrange your slides as needed:

a. If you need to rotate pictures, you can select a photo and click the **Rotate Counterclockwise** or **Rotate Clockwise** button. You can also rotate multiple selected photos at once (hold Ctrl or Shift while clicking to select multiple pictures).

b. If you want to change the order of your photos, you can use the **Move Selected -1**, **Move Selected +1**, or **Sort By** buttons.

- Click **Move Selected -1** to shift the selected photo earlier in the slideshow.
- Click **Move Selected +1** to shift the selected photo later in the slideshow.

You can also drag photos in the Slideshow Creator window to rearrange them.

- Click a toolbar button to sort the photos. You can sort alphabetically by file name, by date, or shuffle the photos in a random order.

Button	Description
	Sort photos alphabetically by file name.
	Sort photos in reverse alphabetical order by file name.
	Sort photos from newest to oldest.
	Sort photos from oldest to newest.
	Shuffle photos in a random order.

5. Use the Settings tab to adjust the slideshow's start time, duration, and transitions between slides:

a. The Slideshow Placement controls determine where your slideshow will begin on the selected track.

- Select the **Start at cursor** radio button if you want the slideshow to begin at the cursor position you set in step 1.
- Select the **Start at** radio button and type a time in the edit box if you want to adjust the start time.

b. The Duration controls determine the length of time each slide is displayed or the overall length of the slideshow.

- Select the **Time per picture** radio button and type a time (in seconds) in the edit box to set the length of time each slide will be displayed.
- Select the **Total length** radio button and type a time in the edit box to set the overall length of the slideshow. The duration will be divided equally among slides.

c. The Effects controls determine how the slideshow changes between slides.

Choose a setting from the **Effect** drop-down list to choose a transition, and type a value in the **Overlap** box to indicate how long slides will overlap. Type 0 in the **Overlap** box to change between slides with no transitions. This sort of abrupt change is called a *cut*.

6. Click the **Create** button.

You can preview your slideshow in the timeline. If you want to change the slideshow's settings, click to position the cursor at the beginning of the slideshow and use **Undo** *to remove the events from the timeline. You can then return to step 5 to change the slideshow's settings.*

Importing media from a project file

From the File menu, choose **Import**, and then choose **Media from Project** from the submenu to add media from another VEGAS Pro project file to your project.

Using this feature, you can create small, template projects to streamline frequent editing tasks.

Generated media and offline media files are not imported.

1. From the File menu, choose **Import**, and then choose **Media from Project** from the submenu. The Import Media dialog box is displayed.
2. Choose the folder where the file you want to open is stored:
   - Choose a drive and folder from the **Look in** drop-down list.
   - Choose a folder from the **Recent** drop-down list to quickly select a folder from which you have previously opened files.
3. Select a file in the browse window or type a name in the **File name** box.
4. If you want to import the project's media bins, select the **Import bins** check box. For more information, see "Sorting your media with bins" on page 92

   Select the **Merge with existing bins** check box if you want to merge the imported project's bins with the current project. When the check box is cleared, a bin is created using the imported project's name, and the project's bins are imported inside that bin.
5. Click **Open**.
6. The project's media is added to the Project Media window. For more information, see "Using the Project Media window" on page 68

Importing Broadcast Wave Format files

You can use Broadcast Wave Format (BWF) files to exchange audio between audio editors or broadcasting platforms.

Broadcast Wave Format files are similar to standard .wav files, but they contain additional metadata including timestamps that tell the software where to add audio on the VEGAS Pro timeline.

You can also add Broadcast Wave Format files to your project by dragging them from the Explorer window to the timeline. However, if you drag a BWF file to the timeline, events are created where you drop the file. Using the Import Broadcast Wave dialog ensures that events are arranged according to the timestamps in the file.

1. From the File menu, choose **Import**, and then choose **Broadcast Wave Format** from the submenu. The Import Broadcast Wave Format dialog is displayed.
2. Choose the folder where the project you want to open is stored:
   - Choose a drive and folder from the **Look in** drop-down list.
   - Choose a folder from the **Recent** drop-down list to quickly select a folder from which you have previously opened files.
3. Select the files you want to open in the browse window.

   Information about the selected files is displayed at the bottom of the Import Broadcast Wave dialog.

4. From the **Arrange** drop-down list, choose a setting to indicate how you want to arrange audio events on the timeline:

Setting	Description
Add across tracks	A separate track is created for each BWF file you import.
Add across time	All selected BWF files are added to a single track.

Audio from multichannel BWF files is always added across tracks, regardless of the **Arrange** *setting. For example, if you import a four-channel BWF file, the audio will be added to four adjacent tracks. For control over which channels are used by each event, right-click a multichannel audio event, choose* **Channels** *from the shortcut menu, and choose a command from the submenu. For more information, see* *"Audio channels" on page 171*

5. If you chose **Add across tracks** in step 4, choose a setting from the **Order tracks** drop-down list to indicate how you want to arrange the tracks in the track list:

Setting	Description
By timestamp	Sorts tracks chronologically using the timestamp in each file. Select a file in the Import Broadcast Wave dialog to display its timestamp at the bottom of the dialog.
Alphabetically by filename	Sorts tracks alphabetically using the names of the files you import.

6. Choose a setting from the **Positioning** drop-down list to indicate where imported audio will be added to the timeline.

Setting	Description
Use ruler time	Adds each imported file to the VEGAS Pro timeline at the exact position indicated by its timestamp. For example, if you import a BWF file with a timestamp of 00:00:30;00, the media would be added to the timeline at the thirty-second mark on the ruler.
Relative to cursor	Adds each imported file to the VEGAS Pro timeline and offsets the timestamp value by the cursor position. For example, if you position the cursor at 00:00:10;00 before importing a BWF file with a timestamp of 00:00:30;00, the media would be added to the timeline at the forty-second mark on the ruler.

7. Click **Open**. The selected files are imported and added to the timeline of the current project.

Importing video from a DVD camcorder

From the File menu, choose **Import**, and then choose **DVD Camcorder Disc** from the submenu to import video from a finalized Sony DVD Handycam® camcorder disc.

Notes:

- Before importing video, you'll need to finalize the disc. For information about finalizing a disc, please refer to your camcorder's documentation.
- 5.1-channel audio will be downmixed to stereo when importing into a stereo project. When importing into a 5.1 surround project, audio will be added to separate tracks for the center, front, rear, and LFE channels.

1. Place the DVD you want to import in your computer's DVD drive or connect your camcorder to your computer via USB.

   The Sony Handycam USB driver that is included with DVD-based camcorders can prevent VEGAS Pro from recognizing a USB-connected camera. If you use the Add/Remove Programs Control Panel to uninstall the "Sony DVD Handycam USB driver" component, VEGAS Pro will be able connect to the camera and import video.

2. From the File menu, choose **Import**, and then choose **DVD Camcorder Disc** from the submenu. The Import DVD Camcorder Disc dialog is displayed.
3. From the **Source** drop-down list, choose the disc that contains the video you want to import.
4. The **Destination** box displays the folder where the video will be imported. The folder name is based on the disc's volume label.

   Click the **Browse** button if you want to choose a different folder.
5. Click the **OK** button to start importing video.

   After importing is complete, the video from the disc is added to the Project Media window. Each chapter is imported as a separate file.

   You can then add the imported video to your project just like any other media file. For more information, see "Adding media files to your project" on page 114

Editing video from an XDCAM Station with StreamChase

XDCAM Station StreamChase allows you to edit XDCAM clips while they are still being ingested into the XDCAM Station device from an XDCAM optical disc or live-feed sources such as SDI. XDCAM clips from the XDCAM Station can also be imported after they have been ingested to the XDCAM Station.

When an MXF file is imported during ingest to the XDCAM Station device, only the material that has already been ingested will be imported. The clip's length can be updated during ingest by right-clicking the clip in the Project Media window and choosing **Refresh**. Refreshing the clip length allows you to work with the most recent material available.

The following formats are supported for StreamChase on the Sony XDS-PD2000 device:

- 1080i 35, 50Mb
- 720p 50Mb
- IMX 50Mb

1. Begin ingesting a clip on the XDCAM Station device.
2. Import the clip into your Vegas Pro project:
   - From the File menu, choose **Import** > **Media**, and then browse to the clip you want to import.
   - Using Windows Explorer or the VEGAS Pro Explorer window, drag a clip from the XDCAM Station to the VEGAS Protimeline.

   An event is created on the timeline and the clip is added to the Project Media window.

   In the Project Media window, clips that are currently being ingested are displayed with an orange indicator:

   After the clip is imported into the project and added to the timeline, it can be played, edited, and exported just like any other video clip.

3. While the clip is ingesting, refresh the file to work with the most recent material available. To update the clip's length, right-click it in the Project Media window and choose **Refresh** from the shortcut menu. For more information, see "Using the Project Media window" on page 68

   Notice that the clip's **Length** value (displayed at the bottom of the Project Media window) increases each time the clip is refreshed during ingest if new media is available.

   New, usable media is made available periodically by the XDCAM Station device. This is dependent on the media format being ingested, but most media formats can be refreshed at ten-second intervals. Refreshes performed between these intervals will result in no visible update to the media in Vegas Pro.

   The new clip length will be reflected in the Trimmer window if the clip is loaded. For more information, see "Using the Trimmer" on page 135

   Additionally, if one or more events from the clip have been added to the timeline, the event length in the timeline can be extended to use the available material:

   a. Drag the right edge of the event to the right past the clip length. A notch is displayed in the event to represent the end of the clip:

   If you want to create a placeholder event, drag past the end of the clip length. When the clip is refreshed, the notch will move to show the new end of the clip, and the event will be filled with updated video.

   Notes:

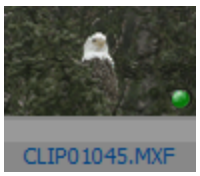
   - The image displayed after the notch will be either a loop of the existing media or a still frame of the last frame of video depending on the **Enable looping on events by default** setting on the Editing tab of the Preferences dialog. For more information, see "Preferences - Editing Tab" on page 550
   - The in point for placeholder event segments must always start at or before the last frame of the existing media. Placeholder events cannot be created for media that has not been ingested. For example, you cannot create a placeholder with an in point 30 seconds after the current end of the available media.
   - If a you split a placeholder event, the in point of the placeholder segment on the right side of the split will begin at the end frame of the currently available media.

   b. If you want to resize the event to the current media length, drag the right edge of the event back to the notch to set the event length. If **Enable Snapping** is selected, the event edge will snap to the notch. For more information, see "Enable snapping" on page 124

   For more information about adjusting events, see "Adjusting an event's length" on page 142

4. Continue to edit your project, refreshing StreamChase clips as needed. For more information, see "Editing events on the timeline" on page 114

   Clips that are refreshed after they have been ingested by the XDCAM Station are displayed with a green indicator, and the Length value at the bottom of the Project Media window represents the final clip length:

5. Render your project to your required output format. For more information, see "Rendering projects (Render As)" on page 469

Creating proxy files for high-definition editing

If you're working on a system with limited processing power, creating a proxy file will streamline the editing process and allow you to preview your project.

Video proxy files are not used for rendering your project.

1. Capture or import your high-definition clips.
2. Start a new project.
3. Add your high-definition clips to the Project Media window.
4. Right-click the clips in the Project Media window and choose **Create Video Proxy** from the shortcut menu.

   VEGAS Pro creates video proxy files (.sfvp0) alongside the original files in Windows Explorer. You will not see these files in the Project Media window or VEGAS Pro Explorer.

   Proxy files are created automatically when working with 4K video.
5. Add your high-definition clips to the timeline and edit your project as usual.

   The **Preview Quality** setting in the Video Preview window determines whether the proxy files or original files are used for editing and preview:

   - When the preview quality is set to **Draft** or **Preview**, the proxy file is used.
   - When the preview quality is set to **Good** or **Best**, the original file is used.

   For more information, see "Adjusting the preview quality and resolution" on page 425

Using HitFilm effects

If you have HitFilm Pro installed, you can use HitFilm projects in your VEGAS Pro timeline.

Adding a HitFilm project to the timeline

You can add HitFilm projects to your VEGAS Pro project in the same way you add other media files: simply add the HitFilm project (.hfp) file to your project.

For more information, see "Adding media files to your project" on page 114

Adding HitFilm effects to an event

1. Right-click the video event where you want to add the effects and choose **Add HitFilm Effect** from the shortcut menu.

   A HitFilm project (.hfp) file is created in the folder where your media file is saved using the same base name as your media file, and the event's active take is updated to use the HitFilm project file. For more information, see "Using takes as alternate versions of events" on page 165

   If you have multiple events selected, the event under the mouse pointer is used.
2. HitFilm Pro starts so you can edit your HitFilm effects as necessary.

   For more information about using HitFilm Pro, please refer to its documentation.
3. When you're finished editing, save your HitFilm project and close HitFilm Pro. The event's active take is updated with the edited version of your HitFilm project.

Editing HitFilm effects on an event

1. Right-click a video event that is using a HitFilm project (.hfp) as its active take and choose **Edit in HitFilm** from the shortcut menu.
2. HitFilm Pro starts so you can edit your HitFilm effects as necessary.

   For more information about using HitFilm Pro, please refer to its documentation.

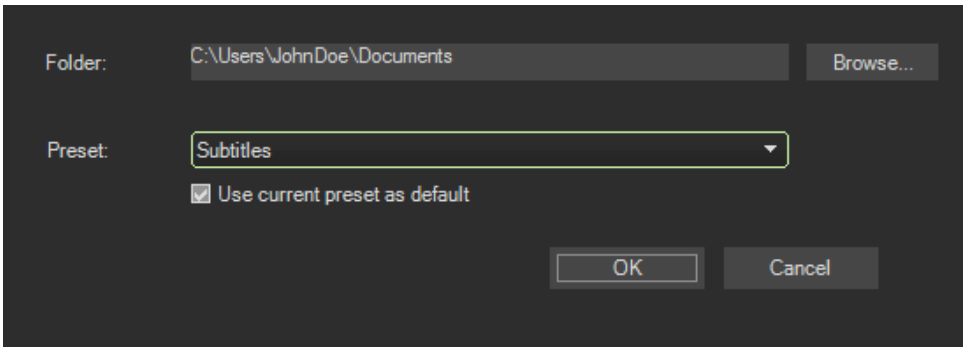
3. When you're finished editing, save your HitFilm project and close HitFilm Pro. The event's active take is updated with the edited version of your HitFilm project.

Inserting Subtitles

Add subtitles to your video by importing it from a TXT or CSV file or by creating **regions** and converting them into subtitles.

Inserting subtitles from a file

To import text to the timeline, for instance as subtitles for video clips, choose **Insert Subtitles from Files** from the **Insert** menu. This opens the **Insert Subtitles** dialog:



1. Click the **Browse** button to open a file, you can use the TXT or CSV file format:
   - If you use a simple .txt file containing only the desired subtitles, a title event is created from every line in the file. The events start from the beginning of the project and have a default length of 5 seconds each.
   - If you want to place the text precisely with the right time positions and length, then you can use the .txt or .csv format. The CSV format is a simple database format, where one record is one text line with values stored in text format, separated by commas (hence the name csv, comma separated values). If you use a .txt file, separate each chunk of information with tabs. In this case, each line in the file must be in the following format: "Timecode Start, Timecode End, Timecode Length, Subtitle Text". The Timecode has to be formatted as hh:mm:ss;ff (hh:hour, mm:minutes,ss:seconds, ff:frames) when your project timeline format is set to the default SMPTE Drop (29.97 fps Video) setting.
2. Choose the text preset that you want to use for the title events from the **Preset** drop-down list . When you select the **Use current preset as default** option, the chosen preset becomes the default that will be used when you use this function in the future.
3. When you click **OK**, the dialog is closed and a new track is created as the top track in your project, and contains the title events with the text from the file.

Inserting subtitles from regions

You can also create subtitle from named regions in the project:

1. Select the time span where a subtitle should be created and press the *R* key.
2. A new region is created and a text entry field is shown for the region to name it. Enter your subtitle content here.
3. Repeat step 1 and 2 for all subtitles you want to create.
4. Choose **Insert Subtitles from Regions** from the **Insert** menu. This opens the **Insert Subtitles from regions** dialog:
5. Choose the text preset that you want to use for the title events from the **Preset** drop-down list . When you select the **Use current preset as default** option, the chosen preset becomes the default that will be used when you use this function in the future.
6. When you click **OK**, the dialog is closed and a new track is created on topmost in the track list containing the title events with the text from the Region names.

Sorting your media with bins

When you're creating your masterpiece, your project is likely to get a little unwieldy–you can't express creative genius with a handful of media files, after all.

The detailed view of the Project Media window helps you sort your media files using their attributes, but for more control, you can create bins. Bins are folders within projects that you can use to organize your media files.

Media bins are virtual folders that are saved with your project. They do not affect the way media is saved on your computer.

Tips:

- Bins are automatically created for each media tag. For more information, see "Tagging media files" on page 70
- Bins are automatically created for each type of media in your project: audio, video, and still images.

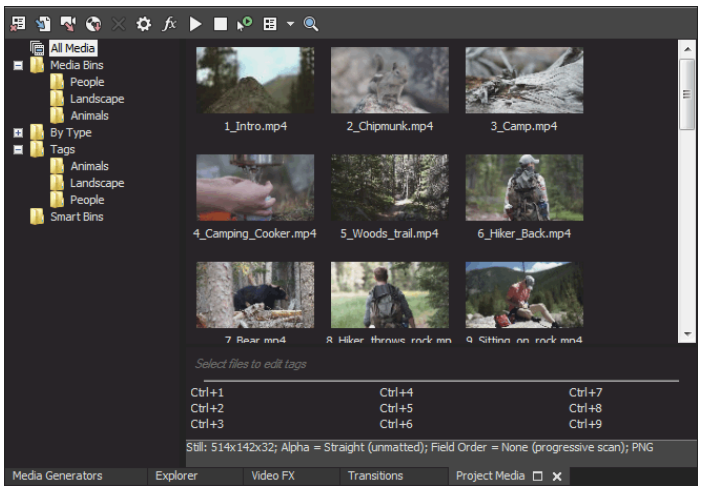
Creating a bin

Right-click the parent bin where you want to create a new bin and choose **Create New Bin** from the shortcut menu.

The new bin is created inside the bin you clicked.

Adding media to a bin

1. Browse your existing bins to find the media file you want to move. The All Media folder contains all media files in your project.



2. Drag a file from the right pane to a bin.

Searching media bins

1. Right-click a media bin and choose **Search Media Bins** from the shortcut menu.
2. The Search Media Bins dialog is displayed.
3. Use the drop-down lists in the Search Media Bins dialog to set your search conditions, and then click the **Search** button to search the selected bin and all subbins.
4. Your search is added to the folder list. Click the **Search Results** icon to view the matching files.

Right-click the **Search Results** *icon and choose* **Save as Bin** *from the shortcut menu to save the results of your search as a new media bin.*

Using smart bins

Smart bins are saved search results that are automatically updated when new media items match the search results. You can also edit the search criteria of an existing smart bin.

Creating a smart bin

Right-click the **Search Results** icon and choose **Save as Smart Bin** from the shortcut menu to save the results of your search as a new smart bin.

Editing a smart bin

Right-click the smart bin and choose **Edit Search** from the shortcut menu to display the Search Media Bins dialog and edit your search conditions. Click the **Search** button when you are done.

Automatically adding recorded or captured files to a media bin

Select a media bin if you want to automatically add your recorded audio to a media bin.

If the **Add captured clips to Media Pool** check box is selected in the Video Capture post-capture dialog, your captured clips will be added to the selected media bin.

Deleting media from a bin

1. Select a media file.

2. Press Delete on your keyboard.
   - If the All Media folder is selected, the file will be removed from your project.
   - If a media bin is selected, the file is removed from the bin, but remains part of your project. The file is still available in the All Media folder.

Viewing or changing media file properties

In the Project Media window, click the **Media Properties** button to display the Properties dialog for the selected media file.

The application will try to detect the properties of your media files automatically. In most cases, you will not need to edit file properties.

Editing properties for an audio file

Select an audio file in the Project Media window and click the **Media Properties** button to display the Properties dialog.

You can also view the properties for the media file associated with an event. Right-click the event, choose **Properties** *from the shortcut menu, and click the Media tab.*

The following settings are available for audio files.

Item	Description
File name	Displays the current media file name and location.
Tape name	This can be used to display the name of the tape from which you recorded the audio. The name can be edited here or in the corresponding field in the Edit Details window. For more information, see "Using the Edit Details Window" on page 178
Stream	If a file contains multiple streams, you can use this control to select the stream for which you want view properties.
Attributes	Displays the file's sample rate, bit depth, number of channels, and length.
Format	Displays the compression format of the file.

Editing properties for a video file

Select a video file in the Project Media window and click the **Media Properties** button to display the Properties dialog.

You can also view the properties for the media file associated with an event. Right-click the event, choose **Properties** *from the shortcut menu, and click the Media tab.*

The following settings are available for video files.

Item	Description
File name	Displays the current media file name and location.
Tape name	This can be used to display the name of the tape from which you captured the video. The name can be edited here or in the corresponding field in the Edit Details window. For more

Item	Description
	information, see "Using the Edit Details Window" on page 178
Use timecode in file	Select this radio button to accept the default timecode settings.
Use custom timecode	Select this radio button to specify a beginning value for the timecode.
Stream	If a file contains multiple streams, you can use this control to select the stream for which you want view properties.
Format	Displays the compression format of the file.
Attributes	Displays the frame size, in pixels (x,y). color depth, and length of the file.
Field order	Choose a setting from the drop-down list to change the field order of the file. Consult your capture/video output card's manual for the proper field order. • **None (progressive scan)** - Select this option when viewing the video on a computer. This option ignores interlacing. • **Upper field first** - Select this option (also called *odd* or *field A*) for video that will be viewed on a television. • **Lower field first** - Select this option (also called *even* or *field B*) for DV output or if **Upper field first** produces jittery or shaky output or if your hardware manual specifies lower field first.
Pixel aspect ratio	Choose a setting from the drop-down list to change the pixel aspect of the file. This setting will depend on your capture/video output card. Consult your capture/video output card manual for the proper settings.
Alpha channel	Choose a setting from the drop-down list to change the alpha channel information for the file. If the alpha channel in an image is not detected, choose the correct type of alpha channel from this drop-down list. If you're unsure, try the **Premultiplied** setting first. • **Undefined** - Video provides no alpha channel information. This setting ignores any alpha channel information in the file. • **None** - Video has no alpha channel or there is an alpha channel but it's completely opaque (solid). • **Straight (unmatted)** - Transparency information is maintained in only the alpha channel. Alpha information must be applied to the RGB channels before compositing. • **Premultiplied** - The standard method of handling alpha information. Transparency information is maintained in the alpha and RGB channels, and the image is ready for compositing. No RGB component exceeds the alpha value. • **Premultiplied (dirty)** - Similar to **Premultiplied**, but RGB components may exceed the alpha. This setting is used mainly for images created by 3D applications involving compositing of 3D images over a non-solid color image background.
Color space	Choose the color space that the media is in. For more information, see "Specifying the color space for individual shots"

Item	Description
	on page 389
Color Range	Choose the color range of the selected media. VEGAS Pro detects the media's color range if the media supports color range metadata. Most reader plug-ins support the color range override option. *Note: If the color range is "limited" or "Undefined" in Y'CbCr format, 16-236 and 16-255 color ranges will be converted to 0-255 RGB (full range). If the color range is full, no level conversion is performed when decoding Y'CbCr format into RGB color space.* *The color range override option is applicable only when you've set your **Project Properties to full range mode**. Currently, color range override is not supported in some reader plugins like MVC and WMV, or in still images readers.*
Rotation	Choose a setting from the drop-down list to rotate a media file's orientation.  In this example, the video was shot with the camera tripod rotated 90 degrees. The project is rotated, but the media doesn't match the project orientation, so the video is letterboxed within the frame.  After choosing **90 clockwise°** from the **Rotation** drop-down list, the media is rotated, and the video fills the frame.

Item	Description
	Tips: • If you want to rotate a project's orientation, you can use the **Output rotation** drop-down list on the Video tab of the Project Properties dialog. For more information, see "Setting project properties" on page 41 • To rotate multiple files quickly, select them in the Project Media window, right-click a selected file, and then choose **Rotate 90 Clockwise°** or **Rotate 90 Counterclockwise°** from the shortcut menu. • For more information about working with rotated projects, see "Creating rotated projects" on page 53
Stereoscopic 3D mode	Choose a setting from the drop-down list to choose the stereoscopic 3D mode for the media file. For more information, see "Stereoscopic 3D editing" on page 191 • **Off** - Choose this setting for 2D media or to treat a multistream video as 2D. • **Pair with next stream** - Choose this setting for multistream 3D video, such as video from paired files CineForm Neo3D files (version 5.1 or later), or files from a 3D camera. • **Side by side (half)** - Choose this setting when your video contains left- and right-eye views in a single frame. Left- and right-eye views are displayed as half of the available horizontal resolution. • **Side by side (full)** - Choose this setting when your video contains left- and right-eye views in a single frame. Left- and right-eye views are displayed using the full horizontal resolution. • **Top/bottom (half)** - Choose this setting when your video contains left- and right-eye views stacked in a single frame. Left- and right-eye views are displayed as half of the available vertical resolution. • **Top/bottom (full)** - Choose this setting when your video contains left- and right-eye views stacked in a single frame. Left- and right-eye views are displayed using the full vertical resolution. • **Line alternate** - Choose this setting when your video contains interlaced 3D video. Left- and right-eye views are interlaced using half of the available vertical resolution.
Swap Left/Right	Select this check box if you need to switch the left- and right-eye pictures. This setting is useful if you're using a line-alternate display that displays the right eye on top, if you're using magenta/green anaglyphic glasses, or to create cross-eye free-view 3D.

Editing properties for multiple video files

Select two or more video files in the Project Media window and click the **Media Properties** button  to

display the Properties dialog.
The following settings can be edited for multiple video files:

- **Frame rate** (for still-image sequences)
- **Field order**
- **Pixel aspect ratio**
- **Alpha channel** and **Background color**
- **Color space**
- **Rotation**
- **Stereoscopic 3D mode**
- **Swap Left/Right**

If a setting is not the same for all selected video files, **(differing values)** is displayed. If you do not change the setting, the differing values are kept.

Saving settings to video profiles for future auto-detection

If you frequently need to edit the settings for a type of video file, click the **Save settings to video profiles for future auto-detection** button  after editing the settings on the Properties dialog.
The new settings are used whenever a file of that type is detected.

Inserting audio tracks

From the Insert menu, choose **Audio Track** to add a new, blank track at the end of the track list.
If you want to add a track in a specific location, right-click a track header and choose **Insert Audio Track** from the shortcut menu. The new track will be inserted above the selected track.

When you drag a media file from the Explorer window or Project Media window to an area of the timeline that does not contain a track, a new track will be created and a new event containing the media file is added to the new track.

You can change the default track volume, pan type, height, track effects, and record input monitor status by right-clicking a track and choosing **Set Default Track Properties** *from the shortcut menu. For more information, see "Setting default track properties" on page 233*

Inserting video tracks

From the **Insert** menu, choose **Video Track** to add a new, blank track at the top of the track list.
If you want to add a track in a specific location, right-click a track header and choose **Insert Video Track** from the shortcut menu. The new track will be inserted above the selected track.

When you drag a media file from the Explorer window or Project Media window to an area of the timeline that does not contain a track, a new track will be created and a new event containing the media file is added to the new track.

You can change the default compositing mode, height, and track effects by right-clicking a track and choosing **Set Default Track Properties** *from the shortcut menu. For more information, see "Setting default track properties" on page 233*

Recording audio

VEGAS Pro can record audio into multiple mono or stereo tracks while simultaneously playing back existing audio and video tracks. You are limited only by the performance of your computer system and audio hardware. Audio is recorded to a media file on your computer and into an event on the timeline.

You can record into an empty track, a time selection, an event, or a combination of time and event selection. You can also record multiple takes for an event so you can maintain multiple versions of an event that you can play back and edit.

Tips:

- Select a media bin before recording if you want to automatically add your recorded audio to a media bin. For more information, see "Sorting your media with bins" on page 92
- To save track effects with your recorded files, create an effects package of the track effect settings and apply the chain to the event as a non-real time event effect. For more information, see "Sorting your media with bins" on page 92 and "Applying non-real-time event effects" on page 280
- Press Alt+Down Arrow during playback to move the edit cursor to the playback cursor.
- When the **Record Broadcast Wave Format** check box is selected on the Audio tab of the Preferences dialog, VEGAS Pro records Broadcast Wave Format (.bwf) metadata when recording .wav files. You can view this information on the General tab of the Properties dialog for an event.

  Included in the .bwf metadata is a **Time reference** value. This item tracks where on the timeline the file was recorded. When you import a recorded .bwf file, it is added to the timeline at the same location it was originally recorded.

  The originator (VEGAS Pro) and originator reference (a unique ID number) are also recorded.

When input monitoring is on during audio recording, audio effects chains that contain non-in-place plug-ins are displayed in yellow ( ) to indicate that automatic plug-in delay compensation is being used. Chains that cannot be used for live monitoring are automatically bypassed and are displayed in red ( ).

Recording audio

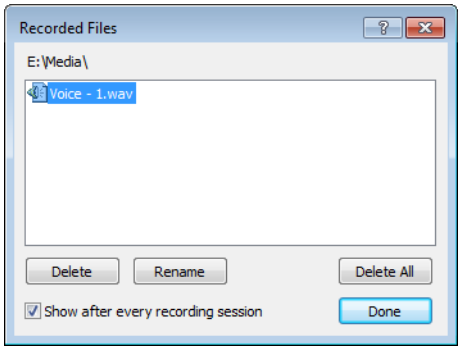
1. Connect an audio source to your sound card's input.
2. Position the cursor where you want to start recording.
3. Select the **Arm for Record** buttons on the tracks where you want to record. Arming a track enables it for recording.

   When a track is armed, the track meter displays the track's level. If input monitoring is not on, the meter displays the level of your input source. If input monitoring is turned on, the meter shows the level of the input source plus the track effects chain.



4. Click the **Record** button on the Transport bar to start recording.
5. To stop recording, click the **Record** button again or click the **Stop** button on the Transport bar. The Recorded Files dialog is displayed.

6. Use the Recorded Files dialog to confirm the file name and location of your recorded audio. Click **Delete** or **Delete All** if you do not want to save the recorded files, or click **Rename** to change the file's name.



7. Click **Done** to close the Recorded Files dialog. Your recorded file is displayed as a new event in the timeline, and the recorded file is added to the Project Media window.

Recording multiple takes

If **Loop Playback** is turned on for your project, playback will loop during recording and a take will be created each time playback returns to the start of the loop region. The last take recorded is set as the active take.

A region is created to indicate the beginning and ending of each take in the recorded file. These regions are not part of your project, but are visible in the Trimmer window.

For more information, see "Using the Trimmer" on page 135 and "Using takes as alternate versions of events" on page 165

Recording a new take for an audio event

You can record into an audio event by selecting it. The record time is determined by the event's length.

1. Select the event and position the cursor at the beginning of the event.
2. Select the **Arm for Record** button on the track that contains the event.



3. Click the **Record** button on the Transport bar to start recording.
4. To stop recording, click the **Record** button again or click the **Stop** button on the Transport bar. The Recorded Files dialog is displayed.

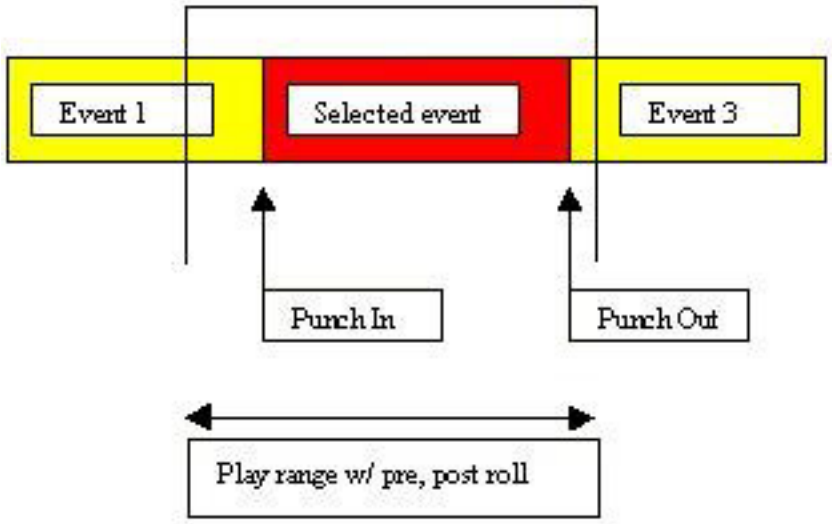
Select the **Loop Playback** *button on the Transport bar to record multiple takes within the selected event.*

The last take recorded is set as the active take for the event. For more information, see "Using takes as alternate versions of events" on page 165

Recording into a time selection or event (punch-in)

You can record a new take into a selected audio event using a time selection. This option provides room for pre-roll and post-roll during recording.

1. Select the event you want to punch into:
   - If you want to punch into the middle of an event, select the portion of the event you want to replace and press S to split the event. For more information, see "Splitting events" on page 132
   - Select multiple events to create multiple punch-in and -out points.
2. Create a time selection to set the amount of pre-roll and post-roll and position the cursor at the beginning of the time selection. The edges of the selected events serve as the punch-in and punch-out points:



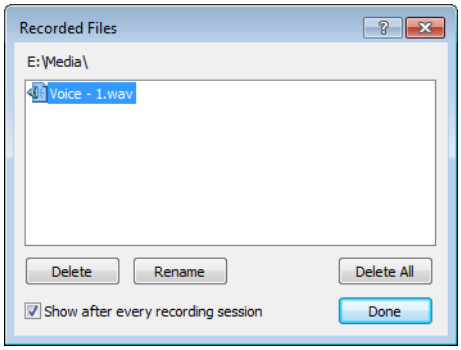
3. Select the **Loop Playback** button if you want to record multiple takes of each event. A new take will be created each time the cursor passes through the selection.
4. Select the **Arm for Record** button on the track that contains the event.



5. Click the **Record** button on the Transport bar to start recording.

   If input monitoring is turned on, the track's original audio is played until the cursor reaches the selected event. When the cursor plays through the selected event, you'll hear your recording input, and the track's original audio is played again when the cursor moves past the selected event.
6. To stop recording, click the **Record** button again or click the **Stop** button on the Transport bar. The Recorded Files dialog is displayed.

7. Use the Recorded Files dialog to confirm the file name and location of your recorded audio. Click **Delete** or **Delete All** if you do not want to save the recorded files, or click **Rename** to change the file's name.

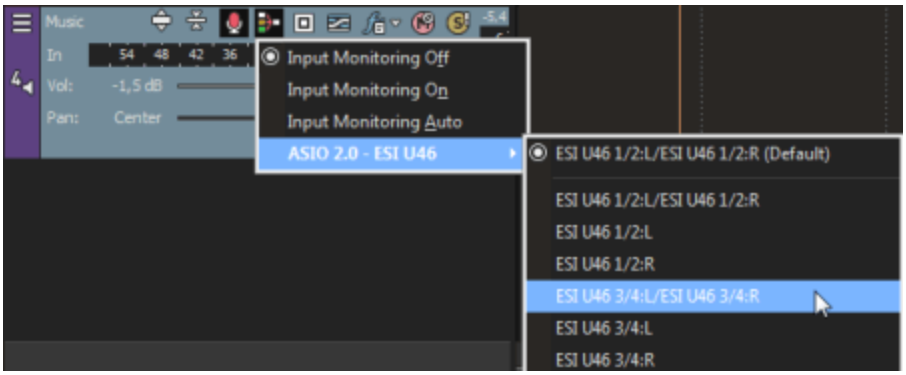


8. Click **Done** to close the Recorded Files dialog.
   The last take recorded is set as the active take for the event. For more information, see "Using takes as alternate versions of events" on page 165

   When performing punch-in recording, recording occurs underneath the pre- and post-roll. If your subject starts early, for example, you can adjust the event to uncover the recording. Hold Ctrl+Alt while dragging the crossfaded area to slip the crossfade in either direction. For more information, see "Adjusting an event's length" on page 142 and "Slipping and sliding events" on page 147

Changing the recording device and attributes for recording audio

The **Record Input** button in a track header chooses the audio input that will be used to record to a track and allows you to configure input monitoring.



To choose your recording input, click the **Record Input** button, choose an audio device from the menu, choose **Mono** or **Stereo** from the submenu, and then choose an input.

To record from an input bus, click the **Record Input** button, choose **Input Busses** from the menu, and then choose an input bus from the submenu.

For more information, see "Using input busses" on page 309

Monitoring audio levels

While you're recording, a responsive meter is displayed in the track header to monitor the incoming signal level of the selected recording device. It is important that you record with the highest signal possible without clipping.

When a track is armed, the track meter displays the track's input level. If input monitoring is not on, the meter displays the level of your input source. If input monitoring is turned on, the meter shows the level of the input source plus the track effects chain.



A reading of 0 dB is the maximum for a digital signal. Clipping occurs when the incoming signal is too high to be represented as a digital value. The result is distortion in the recording. A clipped signal will be indicated by a red **Clip** warning at the top of the meters.

Right-click the meters and choose a command from the shortcut menu to adjust the display of the meters.

Toggling record input monitoring

If you're using a low-latency audio device, VEGAS Pro can perform record input monitoring so you can hear your recording signal with real-time track effects.

To turn on input monitoring, click the **Record Input** button and choose **Input Monitoring On** or **Input Monitoring Auto** from the submenu. During recording, your signal will be played back with the current track effects chain, but a dry (unprocessed) signal is recorded.

When **Input Monitoring Auto** is selected, you will hear the input monitor signal when playback is stopped and during recording. If you're recording into selected events, you'll hear the input monitor signal only when the cursor passes over the selected events.

When **Input Monitoring On** is selected, the behavior is similar to **Input Monitoring Auto** mode, but you will always hear the input monitor during recording–monitoring is not toggled on and off when recording in to a selected event.

For more information, see "Adding audio track effects" on page 276

Your ability to monitor effects in real time is dependent on your computer's performance. Effect automation envelopes are bypassed during record monitoring.

Recording using the metronome

From the Options menu, choose **Metronome** before recording. When you start recording, the metronome will start playing at the tempo specified on the Ruler tab of the Project Properties dialog.

To change the sounds used by the metronome, use the Audio tab in the Preferences dialog. For more information, see "Preferences - Audio Tab" on page 542

The metronome's sound is not mixed in the final rendering of the project.

Metronome

From the Options menu, choose **Metronome** if you want the metronome to keep time while you're recording. When you start recording, the metronome will start playing at the tempo specified on the Ruler tab of the Project Properties dialog. For more information, see "Setting project properties" on page 41

To change the sounds used by the metronome, use the Audio tab in the Preferences dialog. For more information, see "Preferences - Audio Tab" on page 542

The metronome's sound is not mixed in the final rendering of the project.

Capturing video

All that footage on your video camera isn't going to do you any good until you can get it onto your computer. With VEGAS Pro, it's easy to capture video from your camera and add it to your project.

Capturing video can be demanding on your computer's resources. To avoid potential problems, we offer the following suggestions:

- Defragment your hard drive. Click the **Start** button on the Windows taskbar and choose **All Programs** > **Accessories** > **System Tools** > **Disk Defragmenter**.
- Don't use other software applications or screen savers while capturing video.

Notes:

- If you are using a DVD-based video camera, you can use the Import DVD Camcorder Disc dialog to import your video into your VEGAS Pro project. For more information, see "Importing video from a DVD camcorder" on page 87
- If you are using an XDCAM camera, you can use the XDCAM Explorer window to import XDCAM clips from a camera or deck. For more information, see "Importing XDCAM Discs" on page 373

1. From the File menu, choose **Capture Video** (or click the arrow near the Import Media button  on the Project Media window and choose **Capture Video** from the menu.
2. A dialog is displayed to allow you to choose how you want to capture video:
   a. Select the **DV** radio button if you want to capture DV or Video for Windows clips using the video capture application specified on the Video tab of the Preferences dialog.For more information, see "Preferences - Video Tab" on page 533
   b. Select the **HDV or SDI** radio button if you want to capture SDI/HDV clips using the internal VEGAS Pro video capture application.

      If you always capture from the same device, select the **Always use the selected format** check box, and you won't be prompted to choose a capture format again. You can change the format later using the Video tab of the Preferences dialog.
3. Click the **OK** button to start the selected video capture application.
4. Capture your video:
   - To learn how to capture DV clips with Vegas Video Capture, see the online help.
   - To learn how to capture HDV clips, see "Capturing HDV clips" on page 367
   - To learn how to capture clips from a tape deck via an SDI (serial digital interface) card, see "Capturing from an SDI card" below
5. When you're finished capturing, your video is added to the Project Media list.

Capturing from an SDI card

If you have an SDI card, you can use the card to capture video and print to tape from the timeline. For more information, see "Printing video to tape from the timeline" on page 461

The following procedure will guide you through the process of capturing clips from the an SDI card.

Before you begin capturing video, use the Capture Preferences dialog to configure your SDI card. For more information, see "Capture preferences" on page 107

Important:

- Supported Blackmagic Design devices:
  - DeckLink 4K Extreme 12G, 4K Pro, 4K Extreme, Studio 4K, SDI 4K, HD Extreme, Extreme 3D, Mini Monitor, and Mini Recorder.
  - Intensity Shuttle, Pro 4K, and Pro.
  - UltraStudio 4K Extreme, 4K, Pro, SDI, Express, Mini Monitor, and Mini Recorder.
- Supported AJA devices: AJA Io 4K, KONA 3x, LH, LHe, LHi, LS, and LSe. Please note that AJA XENA cards are now branded as KONA cards. For more information, see **http://www.aja.-com/products/kona/transition.php**.
- HDMI capture is supported on the Blackmagic Design DeckLink HD Extreme/Intensity Pro/HD Extreme 3D, AJA Io 4K and AJA KONA LHi cards.
- VEGAS Pro does not support analog video inputs for SDI cards. However, VEGAS Pro does support component video output for external preview.

Capturing a single clip or entire tape

Connect your deck and power it on before starting VEGAS Pro.

1. Use the transport controls below the Video Preview window to cue your tape.
2. If you want to encode your video during capture, you can choose a setting from the **Encoding** drop-down list. Depending on your input format, the available encoding formats are as follows:

Input	Encoding
HDV	MPEG-2 Transport Stream
SD SDI	8-bit YUV AVI (uncompressed) IMX MXF (compressed)
HD SDI	8-bit YUV AVI (uncompressed) HD422 MXF (compressed)
10-bit SDI	10-bit YUV AVI (uncompressed)

   When capturing to compressed formats, you can drag the **Video quality** slider on the General tab of the Capture Preferences dialog to adjust performance. For more information, see "Capture preferences" on page 107 When you drag the slider to the left, you can increase performance by decreasing video quality. When you drag the slider to the right, higher-quality video is captured, and more processing power is required.

   Quality settings affect various types of material differently. With some experimentation, you may find that certain types of scenes can be captured at lower quality settings with little or no apparent loss of quality. Other material may need the highest possible setting to achieve the desired quality level.
3. The **Capture folder** box displays the path to the folder where your video will be saved. You can click the **Browse** button to choose a different folder.
4. Click the **Start Capture** button to start capturing.
5. Click the **Stop** button to end the capture procedure.

   Your clip is saved to the folder specified in the **Capture Folder** box.

   If you selected the **Add new clips to project media** check box on the General tab of the Capture Preferences dialog, the clip is also added to the Project Media list, from which you can add it to the timeline.

   If you've configured your capture device to capture multiple channels of audio, the audio will be added across tracks when you add the clip to the timeline. You can open the clips in the Trimmer window to choose which channels you want to use. For more information, see "Using the Trimmer" on page 135

Logging multiple clips and perform a batch capture

Connect your deck and power it on before starting VEGAS Pro.

1. Use the transport controls below the Video Preview window to cue your tape.
2. Click the Clip Edit tab on the right side of Video Capture window and log your clips:
   a. In the **Clip Name** box, type the file name you want to use to save the clip.
   b. In the **Tape Name** box, type the name of the tape that contains the clip.
   c. In the **Timecode In** box, type the timecode value that corresponds to the beginning of the clip, or click the **Mark Timecode In** button to use the current frame if you're cueing with the controls on your deck.
   d. In the **Timecode Out** box, type the timecode value that corresponds to the end of the clip, or click the **Mark Timecode Out** button to use the current frame.

      Select the button next to the **Timecode in**, **Timecode out**, *or* **Length** *box to prevent editing of that setting and calculate its value based on the other two timecode values.*

   e. Click the **Add Clip to Log** button to add the clip to the Clip Log.
   f. Repeat steps 2a through 2f for each clip you want to capture.
3. If you want to encode your video during capture, you can choose a setting from the **Encoding** drop-down list. Depending on your input format, the available encoding formats are as follows:

Input	Encoding
HDV	MPEG-2 Transport Stream
SD SDI	8-bit YUV AVI IMX MXF
HD SDI	8-bit YUV AVI HD422 MXF
10-bit SDI	10-bit YUV AVI

4. The **Capture folder** box displays the path to the folder where your video will be saved. You can click the **Browse** button to choose a different folder.

   For uncompressed capture, select a folder on a fast RAID drive.

5. Click the Clip Log tab on the right side of Video Capture window.

6. Click the **Capture Clips** button and choose a command from the drop-down list to start capturing clips to the folder specified on the Disk Management tab of the Capture Preferences dialog.

Command	Description
Capture all clips	Captures all clips in the log. If a clip has already been captured, it will be recaptured.
Capture selected clips	Captures all selected clips in the log. Hold Shift or Ctrl to select multiple clips.
Capture offline clips	Captures all clips with a status of Offline in the log.

The captured clips are also added to the Project Media list, and you can add them to the timeline.

If you've configured your capture device to capture multiple channels of audio, the audio will be added across tracks when you add the clip to the timeline. You can open the clips in the Trimmer window to choose which channels you want to use. For more information, see "Using the Trimmer" on page 135

Tips:

- Click the **Save Clip Log** button to save the current clip log as an XML file if you want to save your clip log for capture or recapture at a later time.
- Click the **Open Clip Log** button and browse to a saved clip log to load a previously saved clip log.

Capture preferences

You can use the Capture Preferences dialog to set options for capturing video from an SDI or HDV device.

1. Enable the Vegas Video Capture application:
   a. From the Options menu, choose **Preferences**.
   b. Click the Video tab.
   c. Clear the **Use external video capture application** check box.
   d. Click the **OK** button.
2. From the File menu, choose **Capture Video** (or click the **Capture Video** button in the Project Media window) to start the Vegas Video Capture application.
3. Click the **Capture Preferences** button in the Capture window to open the Capture Preferences dialog.

VEGAS Pro does not support analog video inputs for SDI cards. However, VEGAS Pro does support component video output for external preview.

General tab

Item	Description
Stop device on loss of focus	Stops the selected capture device when focus is switched away from the capture application.
Show video when device is stopped	Displays the current frame when the selected capture device is stopped.
Show video when device is fast-forwarding and	Displays video in the capture preview window when you fast-forward or rewind the device.

Item	Description
rewinding	
Add new clips to project media	Select this check box if you want to add captured clips to the Project Media window when capturing is complete.
Simulate device pixel aspect ratio	Displays square pixels in the capture preview window even if the capture format is using nonsquare pixels.
Fail on dropped frames	Select this check box if you want to stop capturing if a dropped frame is detected.
When capture fails, stop batch capture	Select this check box if you want to stop a batch capture if a dropped frame is detected.
Enable HDV scene detection	Select this check box if you want to create multiple files if scene changes are detected. When the check box is cleared, HDV clips will be captured to a single file.
Preroll	Type a value in the box to specify the number of seconds of preroll Video Capture should use for batch capture. When you click **Capture Clips**  , on the Clip Log tab, Video Capture will seek to a point prior to your **Timecode In** setting determined by the number of seconds you enter in the **Preroll** box. Video Capture will begin playback at the preroll location, and switch to capture when it reaches the timecode you specified in the **Timecode In** box. Notes: • Batch capture will fail if there is not enough lead-in time. The deck must be able to find the timecode that equals the **Timecode In** value minus the **Preroll** value. • VITC and HANC timecode sources require less preroll than RS-422, as RS-422 needs time to synchronize timecodes with video frames.
Maximum RAM buffer size	Drag the slider to allocate a portion of your system memory as a buffer. During capture, this buffer is used to prevent dropped frames if your hard disk is unable to write a frame. When performing compressed capture to MXF format, increasing the buffer size can help prevent dropped frames when encoding complex frames.
MPEG video quality	When capturing to compressed formats, you can drag the slider to adjust performance. When you drag the slider to the left, you can increase performance by decreasing video quality. When you drag the slider to the right, higher-quality video is captured, and more processing power is required. *Quality settings affect various types of material differently. With some experimentation, you may find that certain types of scenes can be captured at lower quality settings with little or no apparent loss of quality. Other material may need the highest possible setting to achieve the desired quality level.*

Device tab (for IEEE 1394 HDV devices)

Item	Description
Device type	Choose **IEEE 1394/MPEG2-TS Device**.
Device	Choose your HDV camera.
Video	Choose a setting from the drop-down list to specify the desired video format.
Details	Displays information regarding the capture device specified in the **Device** drop-down list.

Device tab (for AJA devices)

Item	Description
Device type	Choose **AJA Video Device**.
Device	Choose your device.
Input	Choose **SDI** or **HDMI**. If **HDMI** is selected, only two channels of audio will be captured.
Video	Choose a setting from the drop-down list to select the format that matches the signal connected to your SDI card.
Audio	Choose a setting from the drop-down list to specify the desired number of channels for capturing SDI-embedded audio. *Multichannel audio capture is available only if supported by your camera or deck.*
Use progressive segmented frame (psf) video formats	Select this check box if you want to capture from a device that stores and transfers progressive-scan frames by dividing fields.
Use 10-bit encoding	Select this check box if you want to capture 10-bit source material for increased color resolution. Source material with gradients in the background can benefit from 10-bit encoding. When you use 10-bit video in your project, choose **32-bit floating point (video levels)** from the **Pixel format** setting on the Video tab of the Project Properties tab. For more information, see "Setting project properties" on page 41"Setting project properties" on page 41 Do not select this check box if you want to capture with MXF encoding.
Timecode source	Choose a setting from the drop-down list to specify the desired timecode source. • **9-Pin Remote** - Estimates timecode using the 9-pin RS422 cable from the deck. This format is more prone to errors and requires more preroll than RP-188. • **RP-188** - Uses SMPTE RP 188 timecode embedded in the video. *RP-188 is recommended when capturing HD video.*

Item	Description
Timecode offset	If video capture is not frame accurate, type a value in the box or use the spin control to adjust timecode.

Device tab (for Blackmagic Design devices)

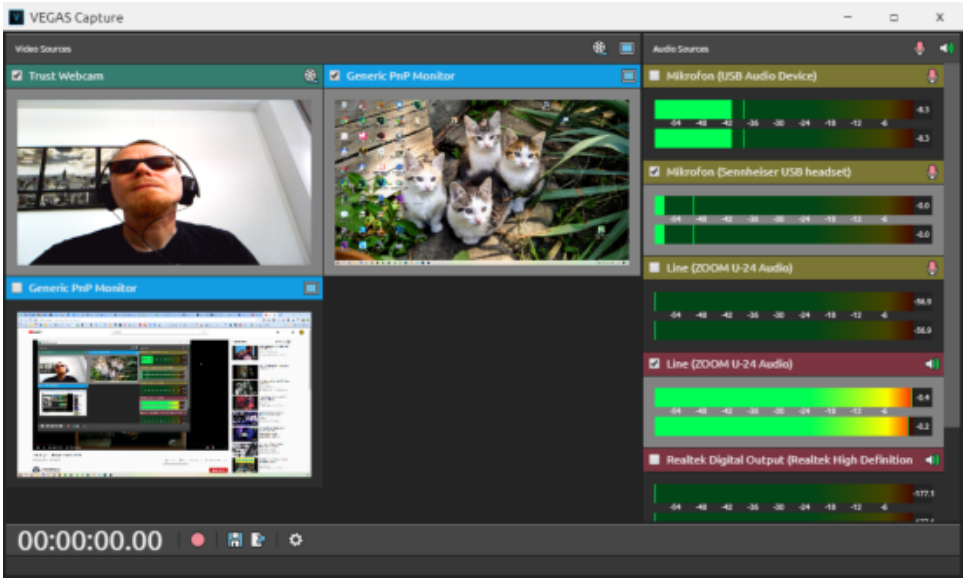
Item	Description
Device type	Choose **Blackmagic Design DeckLink**.
Device	Choose your device.
Video	Choose a setting from the drop-down list to specify the desired video format.
Audio	Choose a setting from the drop-down list to specify the desired number of channels for capturing SDI-embedded audio. *Multichannel audio capture is available only if supported by your camera or deck.*
Use 10-bit encoding	Select this check box if you want to capture 10-bit source material for increased color resolution. Source material with gradients in the background can benefit from 10-bit encoding. When you use 10-bit video in your project, choose **32-bit floating point (video levels)** from the **Pixel format** setting on the Video tab of the Project Properties tab. For more information, see "Setting project properties" on page 41 Do not select this check box if you want to capture with MXF encoding.
Timecode source	Choose a setting from the drop-down list to specify the desired timecode source. • **9-Pin Remote** - Estimates timecode using the 9-pin RS422 cable from the deck. This format is more prone to errors and requires more preroll than VITC or HANC. • **VITC** - Uses SMPTE 12M timecode embedded in the video. • **HANC** - Uses SMPTE RP-188 timecode embedded in the video.
Timecode offset	If video capture is not frame accurate, type a value in the box or use the spin control to adjust timecode. *Applies only to RS-422 timecode sources.*

Screen Capturing

To capture the video from any window on your computer, use the integrated **VEGAS Capture** program..

To open **VEGAS Screen Capture**,

- choose **File menu > VEGAS Capture** or,
- in the Project Media window, chose **Screen Capture** from the **Import Media** menu or,
- click the **VEGAS Capture** button in the Project Media window toolbar.



1. On the right side all **Video Sources** are displayed as preview windows. All connected monitors and cameras can be used as capture sources. Hide the respective category with the camera or the monitor button. Use the checkboxes in the upper left corner of the preview monitors to select the sources you actually want to capture.
2. In the same way, on the right side, choose one or more **Audio Sources**. You can capture from each audio playback and recording device. Hide and show these source types with the mic and the speaker button.
3. Click the **Record** button to start the recording. The record button turns into a stop button and every selected source is now captured.
4. To finish the recording, click the stop button.
5. If you are happy with your recording, you can either click the import button to add the recorded video and audio to your project. When inserting the media into the project, a new track is created for each video and audio source. Click the **Save** button to save the media as a VEGAS Capture project (*.vegcap file) . This is a special project file that refers to all captured audio and video data and you can load it in later VEGAS Prosessions.

Settings

Click the settings button to configure the VEGAS Capture application:

- **Theme:** Choose from three designs to customize the look of the program.
- **Language:** Select the language of the program interface.
- **Minimize to System Tray / Task Bar:** Choose, where to find the program once it's minimized.
- **Save captured media to:** Specify the folder where the captured media is stored on your hard disk.

Converting video to 24p

If you want to create a 24 fps, progressive-scan project using existing interlaced video, you're in luck: VEGAS Pro makes easy work of converting your existing footage.

If you are shooting interlaced video that you plan to convert to 24p, your camera's shutter speed will determine the quality of frame rate conversion in VEGAS Pro:

- If you're shooting NTSC or HDV 60i video, set your shutter speed to 1/60 second.
- If you're shooting PAL or HDV 50i video, set your shutter speed to 1/50 second.

These settings will provide the smoothest-looking motion possible after conversion. Faster frame rates can produce visibly choppy motion.

1. Start a new project. For more information, see "Creating a new project" on page 41
2. Set your project properties:
   a. From the File menu, choose **Properties**. The Project Properties dialog is displayed.
   b. From the **Template** drop-down list, choose **NTSC DV 24p**.
   c. Click **OK** to close the Project Properties dialog and apply your changes.
3. Add the video to the timeline. For more information, see "Adding media files to your project" on page 114
4. From the File menu, choose **Render As**.
5. Render the file using the **NTSC DV 24p (inserting 2-3-3-2 pulldown)** AVI template. This template allows for more efficient pulldown removal. For more information, see "Rendering projects (Render As)" on page 469

Extracting audio from CDs

From the File menu, choose **Extract Audio from CD** to extract tracks from a CD and open them as events in your VEGAS Pro project.

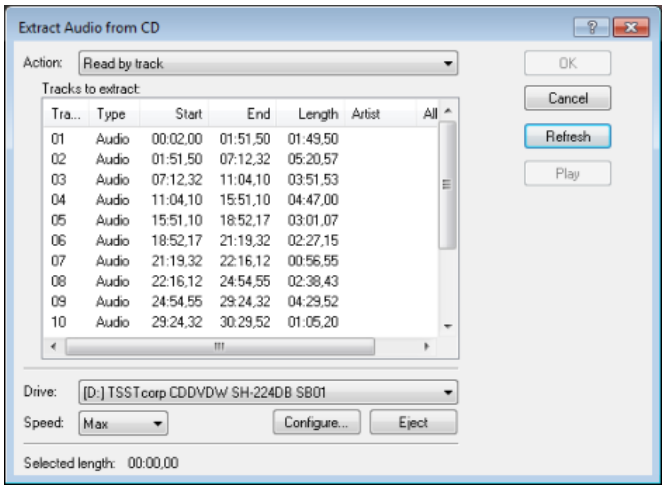


Double-click a .cda file in the Explorer window (or drag it to the timeline) to extract a CD track without opening the Extract Audio from CD dialog.



VEGAS Pro software is not intended, and should not be used for, illegal or infringing purposes, such as the illegal copying or sharing of copyrighted materials. Using VEGAS Pro for such purposes is, among other things, against United States and international copyright laws and contrary to the terms and conditions of the End User License Agreement. Such activity may be punishable by law and may also subject you to the breach remedies set forth in the End User License Agreement.

1. From the File menu, choose **Extract Audio from CD** (or click the **Extract Audio from CD** button on the Project Media window). The Extract Audio from CD dialog is displayed.



2. Choose a setting from the **Action** drop-down list to indicate how you want to extract audio:

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

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

   Click **Play** *to preview your selection. In order to preview, your CD drive's audio output must be connected to your sound card, or you can connect headphones to the front of the CD drive.*

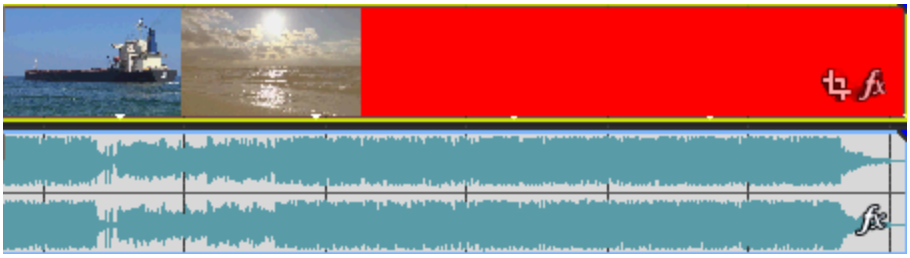
4. From the **Drive** drop-down list, choose the drive that contains the CD from which you want to extract audio.
5. From the **Speed** drop-down list, choose the rate at which you want to extract audio. If you experience gapping or glitching, decrease the speed or click **Configure** and adjust the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

   The extracted files are added to the Project Media window when extraction is complete.

Editing events on the timeline

More often than not, you probably won't want to use an entire media file as an event on a track. The VEGAS® Pro timeline makes it easy for you to manipulate and arrange events.

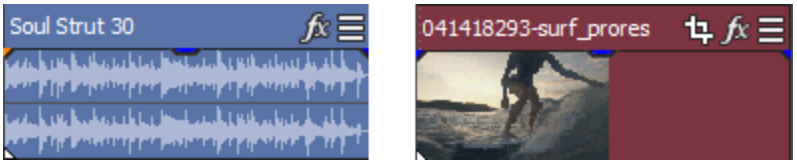
If VEGAS Pro cannot read frames in a video event, they will be displayed in red in the timeline (those frames will be black in the Video Preview window and the rendered output):



Anatomy of an Event

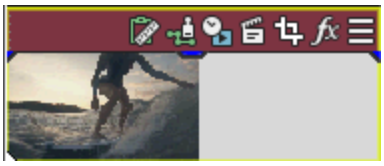
Events are containers on the timeline that contain media. Each event can contain more than one media file. Each media file in an event is referred to as a **Take**. An Event also provides access to features that enable cropping, fade-in and fade-out, opacity, gain, and other tools for controlling and manipulating events. Events are divided into two broad categories; video events and audio events. Some of the tools are specific to the type of event; audio or video.

Each event has a header that, by default, displays the event name, the Crop icon, the FX icon, and the Hamburger button which opens a cascading menu of other tools specific to the type of event.

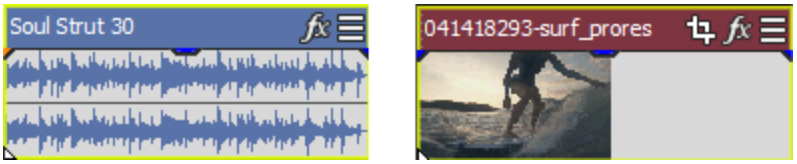


Audio and video event

Just below the Event header is the portion of an event that displays thumb nails of the video frames in a video event or a waveform display in an audio event. In the left and right corners are fade-in and fade-out handles. The handle in the top-middle of a video event controls the over-all Opacity of that event. The handle in the top-middle of an audio event controls the over-all volume of that event.


Video Event with all header buttons shown

The event color matches the color of its Track Header. When you select an event the background turns white to indicate that it is the currently selected event.



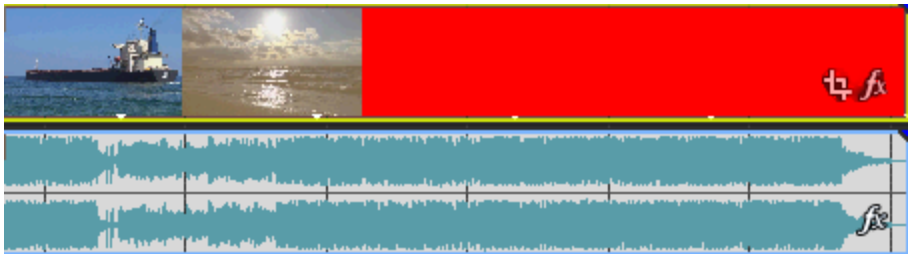
Adding media files to your project

After you've previewed files to determine which media files you want to use in your project, there are several ways you can add them to your project.

The volume for new audio tracks is determined by your default track properties. For more information, see "Setting default track properties" on page 233

Notes:

- Select the **Allow pulldown removal when opening 24p DV** check box on the General tab of the Preferences dialog if you want to remove pulldown when you open 24 fps progressive-scan DV video files. When the check box is cleared, 24p video will be read and edited as 29.97 fps interlaced video (60i). For more information, see "Preferences - General Tab" on page 529
- Select the **Import audio at project tempo** check box on the Audio tab of the Preferences dialog if you want ACID loops to be stretched to match the project tempo (specified on the Ruler tab of the Project Properties dialog) when you add them to the timeline or preview from the Explorer window. Clear the **Import at project tempo** check box if you want to ignore tempo information. For more information, see "Preferences - Audio Tab" on page 542 and "Setting project properties" on page 41
- When you add a multichannel audio file (.wav/.wav64, .avi, .mxf, ATRAC, and BWF) to your project, the audio is added across tracks. For example, if you import a four-channel WAV file, the audio will be added to four adjacent tracks. For control over which channels are used by each event, right-click a multichannel audio event, choose **Channels** from the shortcut menu, and choose a command from the submenu. For more information, see "Audio channels" on page 171
- When you add a multistream audio file to your project, you can choose which stream you want to use by right-clicking the event, choosing **Stream** from the shortcut menu, and then choosing a stream from the submenu.
- 5.1-channel audio from DVD camcorders will be downmixed to stereo when importing into a stereo project. When importing into a 5.1 surround project, audio will be added to separate tracks for the center, front, rear, and LFE channels.
- If VEGAS Pro cannot read frames in a video event, they will be displayed in red in the timeline (those frames will be black in the Video Preview window and the rendered output):



- If you want to use RAW camera files in your project, the **Microsoft Camera Codec Pack** will allow you to view RAW camera files and add them to the timeline.
- The first time you add video media to the timeline, VEGAS Pro will ask you whether you want to match your project video settings to match the first video media you add to the timeline.

  If you choose a VEGAS Pro project (.veg) file, VEGAS Pro will match the settings of the project, not the media within the project.

Using the Windows Explorer to add media and create events

If you're using the Windows Explorer to browse your computer for media, you can add a media file quickly by dragging it to the VEGAS Pro window.

The media file is added to the Project Media window, and an event is created where you drop the file. If you drop the file on an area of the timeline that does not contain a track, a new track will be created.

Using the VEGAS Pro Explorer to add media and create events

If you're using the VEGAS Pro Explorer to preview files, you can add media by performing either of the

following actions:

- Double-click a media file or VEGAS Pro project to add it to your project. The file is added to the Project Media window, and an event is created at the cursor position.
- Drag a media or project file from the VEGAS Pro Explorer to the timeline. The file is added to the Project Media window, and an event is created where you drop the file.

Tips:

- To add multiple files to the timeline, Ctrl+click (or Shift+click) to select the files and drag them to the timeline or track list.
- Drag a .veg file to the timeline to add it to the current project as a nested project. For more information, see "Nesting projects" on page 54
- Double-click a .veg file in the Explorer window to open a project.
- To add a track from an audio CD, browse to your CD drive and double-click a .cda file (or drag it to the timeline). You will be prompted to type a name for the file, and then the track will be extracted. After the track is extracted, it will be added as an event on an audio track in your project.
- If you're adding video files to the timeline, you can choose to add only the audio or video stream to your project. Right-click and drag the files to the timeline. When you drop the files, a shortcut menu is displayed. Choose **Audio Only** or **Video Only** from the shortcut menu and choose a command from the submenu to arrange the event on the timeline.



VEGAS Pro is not intended, and should not be used for, illegal or infringing purposes, such as the illegal copying or sharing of copyrighted materials. Using VEGAS Pro for such purposes is, among other things, against United States and international copyright laws and contrary to the terms and conditions of the End User License Agreement. Such activity may be punishable by law and may also subject you to the breach remedies set forth in the End User License Agreement.

Adding multiple files and creating events

If you're using the Explorer or Project Media window, you can add several media files to your project at once.

1. Select the media files or VEGAS Pro projects you want to use.
2. Right-click the selected files and drag them to the timeline. A shortcut menu is displayed.
3. Choose a command from the shortcut menu to indicate how you want to arrange the events on the timeline.

Command	Description
Add Across Time	Adds the selected media files end-to-end on the track where you drop them. *Select the* **Automatically overlap multiple selected media when added** *check box on the Editing tab of the Preferences dialog if you want to overlap events when you add them to the same track.* **Automatic Crossfades** *must be turned on to use this feature. For more information, see "Preferences - Editing Tab" on page 550 and "Automatic crossfades" on page 123* To change the amount of overlap between events, adjust the **Amount** setting in the Cut-to-overlap conversion section of the dialog.
Add Across Tracks	Adds the selected media files as events on adjacent tracks.
Add As Takes	Adds the selected media files as multiple takes of the same event. For more information about choosing takes, see "Using takes as alternate versions of events" on page 165
Video Only	If you're dragging video files to the timeline, you can choose to add only the video stream to your project. Choose **Video Only** from the shortcut menu and choose a command from the submenu to indicate how you want to arrange the events on the timeline.
Audio Only	If you're dragging video files to the timeline, you can choose to add only the audio stream to your project. Choose **Audio Only** from the shortcut menu and choose a command from the submenu to indicate how you want to arrange the events on the timeline.

If you change your mind later and want to add a missing media stream to a video/audio only event, right click on an event and chose ***Add Missing Stream for Selected Event***

4. Events are created where you drop the files (and the media files are added to the Project Media window if you're using the Explorer).

   The order of the events is determined by file that you click before dragging and the order of the files in the Explorer or Project Media window: for example, select the files **A.wav, B.wav, and C.wav**. Right-click **B.wav** and drag the files to the timeline. When the shortcut menu is displayed, choose **Add Across Time**. When you drop the files, **B.wav** will be added as the first event, followed by **A.wav** and **C.wav**.

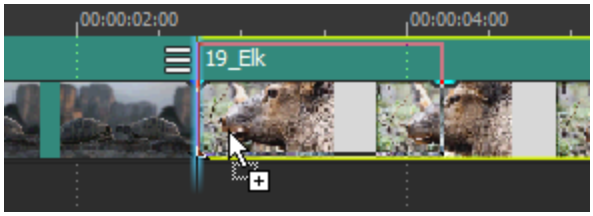
Adding media over other events (punching-in vs. inserting)

When you drop a file on a blank spot on the timeline, an event is created at that location. What happens if you drop a file on an existing event? You can either punch-in or insert an event.

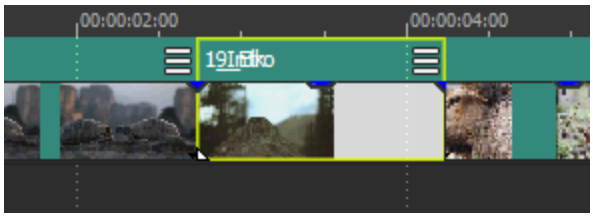
Punch-in

If you add a media file in the middle of another event, a punch-in is created: an event is created where you drop the file, and the new event simply lies on top of any existing events on the track.

1. Drag a media file from the VEGAS Pro Explorer or Project Media window to the middle of an existing event (or position the cursor and double-click a file in the VEGAS Pro Explorer or Project Media window).



2. The original event maintains its position on the timeline, but cuts to the new event where you added the new file:

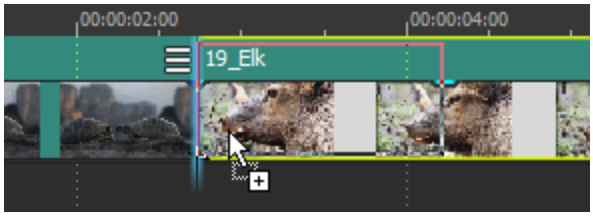


Inserting media

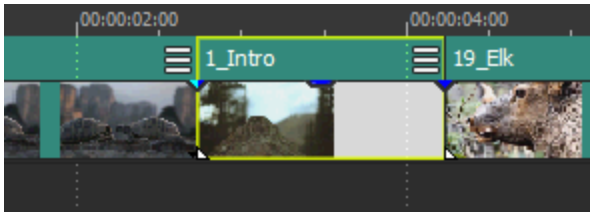
By using auto ripple, you can drop a media file in timeline and automatically move downstream events to make space for the new event. For more information, see "Post-edit ripple" on page 131

1. Select the **Auto Ripple** button .
2. Drag a media file from the VEGAS Pro Explorer or Project Media window to a position on the timeline between two events (or position the cursor and double-click a file in the VEGAS Pro Explorer or Project Media window).

   If you want to insert an event in the middle of an existing event, you can split the existing event before adding the media file. For more information, see "Splitting events" on page 132



3. When you add the file, the events to the right move to make space for the new event:



Using the Project Media window to add media without creating events

You can use the Project Media window to collect and arrange all the media you will use in your project before

creating events on the timeline.

From the File menu, choose **Import**, and then choose **Media** from the submenu (or click the **Import Media** button  in the Project Media window) to add a media file to your project without adding it to the timeline.

When you're ready to start adding events, you can drag media files from the Project Media window to the timeline.

For more information, see "Using the Project Media window" on page 68

Inserting an empty event

From the Insert menu, choose **Empty Event** to insert a blank audio or video event on a track. You can specify a duration for the empty event or accept the default time. The type of event, either audio or video, depends on the type of track you have selected.

1. Select the track where you want to insert the event.
2. Click and drag along the Marker Bar to make a time selection for the new event (or, as a more precise alternative to dragging the mouse, hold down the Shift key and press the right arrow key to select the region).
3. From the Insert menu, choose **Empty Event**. The new event is placed on the track.

Inserting time

From the Insert menu, choose **Time** to insert a specified amount of blank space into the VEGAS Pro project at the cursor position.

This feature can be used to create space in the project for new events and uses the time format of the Time Ruler. For more information, see "Time ruler" on page 524



If you want to remove time from all tracks in your project, create a time selection that encompasses the time you want to delete. Select the **Auto Ripple** *button*  *(or press Ctrl+L). Next, click the down arrow* ▾ *next to the* **Auto Ripple** *button*  *and choose* **All Tracks, Markers, and Regions**. *When you delete the time selection, the selected portion of the timeline is removed, and events to the right of the deleted section shift left to fill the space.*

1. Select the tracks where you want to insert time.

   If no events are selected, time is inserted across all tracks. If you have events selected, time will be inserted at the cursor position in the selected events.
2. Position the cursor where you want to begin.
3. From the Insert menu, choose **Time**. The Insert Time dialog box appears.
4. Specify the amount of time you want to insert and click **OK**.

Creating selections and positioning the cursor

Selecting data and positioning the cursor are the first steps in a variety of editing tasks. You can move selected events, copy them to the clipboard, delete, edit, and more.

There are different methods of selecting events depending on the type of selections you want to make and the active editing tool.For more information, see "Editing Tool" on page 15

You can also choose **Edit** > **Select** and choose a command from the submenu for access to additional selection methods.

Selecting a single event

With the Normal

 or Selection tool  active, click the event. The event is highlighted to indicate that it has been selected.

Selecting multiple adjacent events

Use this procedure to select multiple events that are located next to each other.

1. Hold the Shift key and click the first and last event that you want to select. The events, including those between the selected events, are highlighted.

   To select all of the events in the project, choose **Select** *from the Edit menu, and then choose* **Select All** *from the submenu.*

2. When you have finished selecting events, release the Shift key.

Selecting multiple nonadjacent events

Use this procedure to select multiple events that are not located next to each other.

1. Hold the Ctrl key and click the events you want to select. The events are highlighted.

   To deselect an event, simply click it again.

2. When you have finished selecting the events, release the Ctrl key.

Selecting all events

From the Edit menu, choose **Select**, and then choose **Select All** from the submenu (or press Ctrl+A) to select all tracks and events in your project.

Selecting all events to the end of a track

Right-click an event and choose **Select Events to End** from the shortcut menu. The event and all subsequent events on the same track are selected.

You can also use this command with events selected on multiple tracks.

Selecting all events after the cursor position

Choose**Select All After Cursor** from the Menu **Edit** > **Select** or from a track's context menu to select all events under and after the current cursor position. You will be asked if you would like to select the event across **All Tracks** or only on the **Selected Tracks**.

Selecting all events that refer to a specific media file

Right-click a file in the Project Media window and choose **Select Timeline Events** from the shortcut menu. The cursor moves to the first event that uses the media, the timeline scrolls to the cursor, and all events that use the selected media file in the active take are selected. For more information, see "Using takes as alternate versions of events" on page 165

Hold Ctrl or Shift while choosing **Select Timeline Events** from the shortcut menu to add the events to the current selection.

Tips:

- When multiple events are selected, press Ctrl+[or Ctrl+] to move the edge of the previous or next selected event.
- When multiple events are selected, press Ctrl+Shift+[or Ctrl+Shift+] to create a time selection from the previous or next selected event.

Selecting a range of events

1. Select the Selection tool .

   You can add or subtract events from the selection area by holding down the Ctrl key and clicking on the event.

2. Place the mouse pointer at any corner of the area that you want to select.
3. Click and hold the mouse button.
4. Drag the cursor to the opposite corner of the area you want to select.

   Click the right mouse button while holding the left mouse button switch from rectangular selection, time selection, and track selection.

5. Release the mouse button (and the Ctrl key if you are pressing it). The events are highlighted.

Selecting a time range

Click and drag along the marker bar, CD layout bar, time ruler, or a blank area of the timeline to select a time range. All events – and portions of events – within the region are highlighted.

Tips:

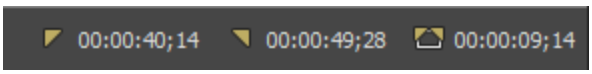
- Double-click an event and drag left or right to extend the selection to the next fade or event edge on that track.
- Dragging within an event will change the event's position on the timeline. To create time selection without moving the event, hold Ctrl+Shift while dragging.
- If the **Allow edit cursor to be dragged** check box is selected on the General tab of the Preferences dialog, dragging the edit cursor will change its position on the timeline. To create a time selection without moving the cursor, hold Ctrl+Shift while dragging.
- When multiple events are selected, press Ctrl+Shift+[or Ctrl+Shift+] to create a time selection from the previous or next selected event.

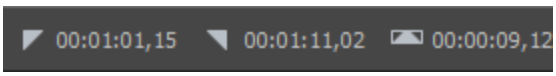
Unless an event is locked, a selected time range affects all events–or portions of events–that occur within the range.

To quickly select the full duration of the project, double-click the marker bar.

Editing the selection length

The current selection start, end, and length are displayed in the edit boxes below the timeline:





Double-click the boxes to edit them. You can enter timeline values, such as 00:00:25.381, or you can enter relative values by entering +/- and a number. For example, if the time ruler is displayed in frames, you could type +10 to add ten frames to the selection start, end, or length.

You can drag the ends of the time selection bar to adjust the selection length, or drag the middle of the bar to move the selection without changing its duration.

Selecting the start or end of an event for keyboard edge trimming

From the Edit menu, choose **Select**, and then choose **Select Event Start** or **Select Event End** from the submenu (or press [or]) to select the start or end of an event and enter keyboard edge-trimming mode. For more information, see "Adjusting an event's length" on page 142

When multiple events are selected, press Ctrl+[or Ctrl+] to move the edge of the previous or next selected event.

Positioning the cursor

To set the cursor position, click in the timeline or time ruler. The cursor moves to the position you click, and the cursor position is displayed below the timeline.



Moving events

An event's position on the timeline determines where it will be played in your project. You can use snapping to help you align events to the grid, frame boundaries, or markers. For more information, see "Enable snapping" on page 124

When the **Allow edit cursor to be dragged** *check box is selected on the General tab of the Preferences dialog, dragging the cursor changes its position on the timeline. If you want to drag an event, click a portion of the event that is not beneath the cursor before dragging. For more information, see "Preferences - General Tab" on page 529*

Dragging an event to a new position

Dragging is the simplest way to move events in your project. You can drag an event so it occurs earlier or later in your project, or you can drag it to another track.

You can also use keyboard shortcuts to move events. Press 1 or 3 on the numeric keypad to move one frame left or right, or press 4 or 6 on the numeric keypad to move one pixel left or right. For more information, see "Event selection and editing " on page 567

1. Click an event and hold the mouse button.
2. Drag the event to the position where you want it to be played.

   Notes:

   - If you drag an event so that it overlaps another event, a crossfade is inserted to transition smoothly between the two events. For more information, see "Automatic crossfades" on the next page
   - If the **Auto Ripple** button is selected, downstream events will move as you drag the event. For more information, see "Post-edit ripple" on page 131

3. Release the mouse button.

If you right-click and drag an event, a shortcut menu is displayed when you release the mouse button. You can choose **Move Here** *from the menu to move the event, or choose* **Copy Here** *to preserve the position of the original and create a copy of the event where you release the mouse.*

Moving multiple events along the timeline

1. If you want to move an event and all subsequent events on a track, right-click the event and choose **Select Events to End** or turn on **Auto Ripple** . For more information, see "Post-edit ripple" on page 131
2. Drag the events to the position where you want them to be played.

You can also use keyboard shortcuts to move events. Press 1 or 3 on the numeric keypad to move one frame left or right, or press 4 or 6 on the numeric keypad to move one pixel left or right. For more information, see "Event selection and editing " on page 567

Cutting, copying, and pasting events

In the same way you might use a word processor, you can use VEGAS Pro to cut, copy, and paste events along the timeline.

1. Click an event to select it.
2. Click the **Copy** or **Cut** button.
3. Click to position the cursor where you want to insert the event.

Clicking in the timeline will position the cursor along the timeline and select a track. Video events must be pasted to a video track, and audio events must be pasted to an audio track.

4. Click the **Paste** button .

For more information, see "Cutting, copying, and pasting events" on page 127

Automatic crossfades

From the Options menu, choose **Automatic Crossfades** if you want to automatically create crossfades when you overlap two events.

Creating a crossfade

You can easily create crossfades between audio or video events by simply dragging an event.

1. From the Options menu, choose **Automatic Crossfades** to turn on automatic crossfades.
2. Drag an event so that it overlaps another event on the same track.
   A crossfade is automatically added to transition smoothly between the two events.

Changing the fade type

You can change a crossfade to use one of many combinations of fast, slow, linear, smooth, and sharp fade curves.

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

Converting a video crossfade to a transition

1. Right-click a crossfade between two video events and choose **Transition** from the shortcut menu.
2. Choose a transition type from the submenu to convert a crossfade to a transition, or choose **Insert Other** to choose another transition type from the Plug-In Chooser.

   For more information about using transitions, see "Adding transitions" on page 293

   Drag a transition from the Transitions window to a video crossfade to quickly convert a crossfade to another transition type.

Enable snapping

From the Options menu, choose **Enable Snapping** to turn snapping on or off in the main timeline and in the Trimmer window.

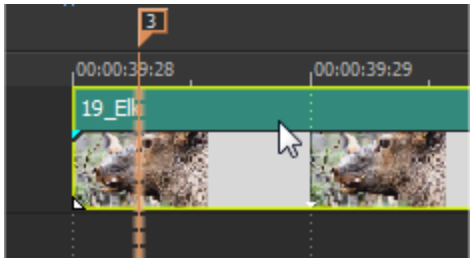
Snapping helps you align items along the timeline when you move events, trim events, or work with markers and regions.

As you drag items along the timeline or in the Trimmer window, an indicator is displayed to show snap points. When you snap to an event, the snap indicator is displayed in the appropriate track. If you snap to the cursor, a marker/region, time selection, or the grid, the snap indicator is displayed across the height of the timeline:



Tips:

- When you drag a group of selected events, the first and last event will snap to other snap points on the timeline. If the leftmost event has an event snap offset established, the offset will be used as the left snap point.
- When snapping is enabled, you can hold the Shift key to temporarily override snapping.
- When snapping is not enabled, you can hold the Shift key to temporarily enable snapping.
- You can edit snap indicator colors on the Display tab of the Preferences dialog. For more information, see "Preferences - Display Tab" on page 553
- If you drag to a snap point that does not occur on a frame boundary when **Quantize to Frames** is enabled, the snap indicator is displayed as a dashed line to indicate that the snap point will be quantized to the nearest frame boundary:



For more information, see "Quantize to frames" on the facing page

Turning snapping on or off

From the Options menu, choose **Enable Snapping** to turn snapping on or off. When snapping is enabled, events will snap to the following points:

- Other events' edges
- The cursor
- Time selection edges
- The first and last event edges (when dragging multiple events)

You can also choose to snap events to grid lines or to markers.

Snapping to the grid

When snapping is enabled, you can also choose to have elements in the timeline snap to the vertical grid lines in the timeline.

From the Options menu, choose **Snap to Grid** (or press Ctrl+F8) to toggle snapping to grid lines.

To change the spacing of the grid, choose **Grid Spacing** *from the Options menu and choose a setting from the submenu.*

Snapping to markers

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

From the Options menu, choose **Snap to Markers** (or press Shift+F8) to toggle snapping for all marker types:

- Markers
- Regions
- CD track regions
- CD index markers

- Command markers

If the **Event Media Markers** command is selected on the View menu, you can also use media markers as snap points when you click in an event or edge-trim an event. For more information, see "Using media markers and regions" on page 205

If a media file's frame rate does not match your project frame rate, you will not be able to snap to media markers (or other snap points that do not occur on a frame boundary) when **Quantize to Frames** *is selected on the Options menu. For more information, see "Quantize to frames" below*

Snapping to events on other tracks

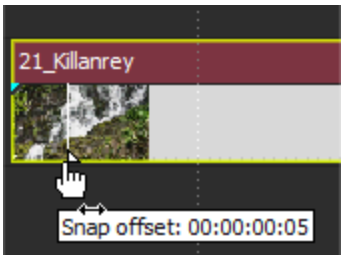
When snapping is enabled, you can also choose to have elements in the timeline snap to the ends of events on other tracks.

From the Options menu, choose **Snap to All Events** (or press Ctrl+Shift+F8) to toggle snapping to event edges across tracks.

Setting an event snap offset

Each event has a snap offset flag that you can move along the event's length to fine-tune where snapping will occur.

To adjust the flag, drag the white triangle in the lower-left corner of the event. A ToolTip displays the amount of offset.



Quantize to frames

From the Options menu, choose **Quantize to Frames** to force edits to occur on project frame boundaries. This setting is independent of grid and marker snapping.

When **Quantize to Frames** is turned on, the following actions will always occur on frame boundaries:

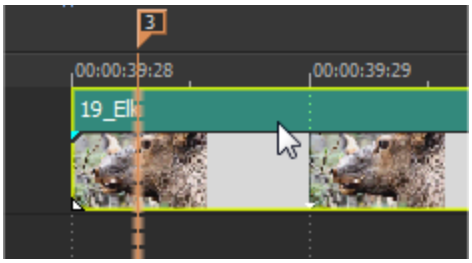
- Moving video events

  If **Quantize to Frames** is on while dragging an audio event and the selection group contains video, the movement is quantized so the first video event is quantized (instead of the audio event).

  When performing audio-only edits, quantization will occur only if **Quantize to Frames** is turned on and the **Do not quantize to frames for audio-only edits** check box on the Preferences > Editing tab is not selected.

- Positioning the cursor
- Making selections
- Placing markers and regions

If you drag to a snap point that does not occur on a frame boundary when **Quantize to Frames** is enabled, the snap indicator is displayed as a dashed line to indicate that the snap point will be quantized to the nearest frame boundary. For more information, see "Enable snapping" on page 124



Edits that do not occur on frame boundaries can produce an undesirable visual result. For example, if you split two events and move them together to create a cut, splits that are not at frame boundaries can produce a short dissolve in your rendered video.

Cutting, copying, and pasting events

Just like a word processor for audio and video, VEGAS Pro will allow you to cut events, copy events, and paste them into new places.

When the **Cut, copy, and delete grouped events** *check box on the Editing tab of the Preferences dialog is selected, cutting, copying, or deleting an event will affect all events in the same group. If you need to edit a single event, you can choose* **Ignore Event Grouping** *from the Options menu to temporarily ignore grouping. For more information, see "Preferences - Editing Tab" on page 550*

Cutting events

Select the events you want to remove and click the **Cut** button (or press Ctrl+X). The selected events are removed from the track and placed on the clipboard.

From the Edit menu, choose **Group***, and choose* **Cut All** *from the submenu. The selected events and any events that are grouped with the selected events are cut to the clipboard.*

If you want to shuffle existing events to fill the space left by cut events when using a time selection, use post-edit ripple mode.For more information, see "Post-edit ripple" on page 131

Cutting a time selection

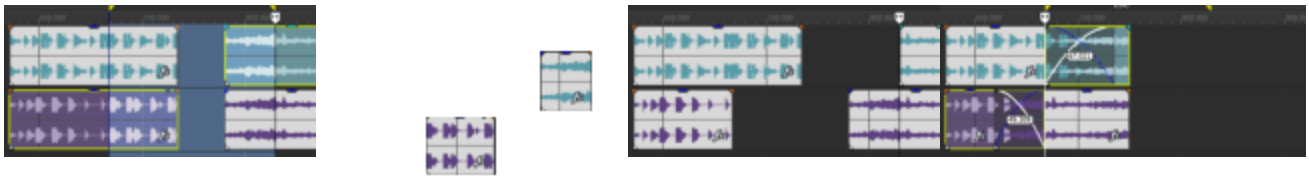
If you cut a time selection, events across all tracks are removed from the timeline and placed on the clipboard. Events that extend beyond the time selection are split at each end of the time selection:



Time selection	Clipboard	Events after cut	Events after cut (ripple mode)

Cutting selected events within a time selection

If you cut selected events within a time selection, the selected events are removed from the timeline and placed on the clipboard. Selected events that extend beyond the time selection are split at each end of the time selection:



Time/event selection	Clipboard	Events after cut	Events after cut (ripple mode)

Copying events

Select the events you want and click the **Copy** button  or choose **Edit** > **Copy** (or press Ctrl+C). This selected events are copied to the clipboard. You may now paste the events anywhere in the project.

Tips:

- Hold Ctrl while dragging to create copies of selected events.
- From the Edit menu, choose **Group**, and choose **Copy All** from the submenu. The selected events and any events that are grouped with the selected events are copied to the clipboard.

Copying a time selection

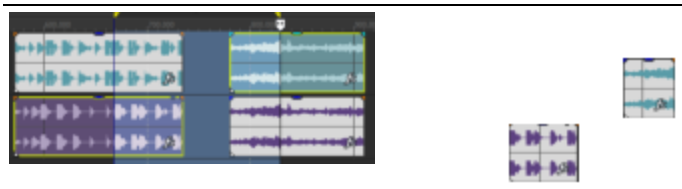
If you copy a time selection, the portions of events that are within the selection (across all tracks) are placed on the clipboard:



Time selection	Clipboard

Copying selected events within a time selection

If you copy selected events within a time selection, the portions of selected events that are within the time selection are placed on the clipboard:



Time/event selection	Clipboard

Pasting events

Position the cursor and click the **Paste** button  or choose **Edit** > **Paste** (or press Ctrl+V). Events from the clipboard are inserted at the cursor position.

Pasted events will sit on top of other events in the track if they overlap. To make space for pasted events, you can use **Paste Insert** or use post-edit ripple mode. For more information, see "Post-edit ripple" on page 131

Pasting the contents of the clipboard multiple times

From the Edit menu, choose **Paste Repeat** (or press Ctrl+B) to insert events from the clipboard multiple times at the current cursor position. You may also specify the time increments for which you want the events to be spaced.

1. Copy events to the clipboard.
2. Position your cursor where you want to begin pasting the events.
3. From the Edit menu, choose **Paste Repeat**. The Paste Repeat dialog box appears.
4. In the **Number of times to paste** box, enter the number of times you want to paste the event.
5. Select your options and specify the settings if applicable:
   - **End to End** - Pastes the events one after another with no space between.
   - **Even Spacing** - Pastes the events with the time increments specified in the **Paste every** controls between the starting points of the pasted events.

     If the **Paste every** setting is shorter than the clipboard contents, the pasted events will overlap.

Pasting insert events

To insert the contents of the clipboard at the current cursor position and force existing events to move in time to accommodate the pasted events, choose **Paste Insert** from the Edit menu (or press Ctrl+Shift+V).

If the cursor is in the middle of an event, the event will be split at the cursor position when the new events are pasted.

Deleting events

Click the **Delete** button  on the editing toolbar (or choose **Edit** > **Delete**) to remove selected events or tracks without copying them to the clipboard.

If you try to delete a track that contains events, a warning message will appear that you are about to delete these too, giving you the option to cancel this action.

Tips:

- When the **Cut, copy, and delete grouped events** check box on the Editing tab of the Preferences dialog is selected, cutting, copying, or deleting an event will affect all events in the same group. If you need to delete a single event, you can choose **Ignore Event Grouping** from the Options menu to temporarily ignore grouping. For more information, see "Preferences - Editing Tab" on page 550
- If you want to remove time from all tracks in your project, create a time selection that encompasses the time you want to delete. Select the **Auto Ripple** button  (or press Ctrl+L). Next, click the down arrow next to the **Auto Ripple** button  and choose **All Tracks, Markers, and Regions**. When you delete the time selection, the selected portion of the timeline is removed, and events to the right of the deleted section shift left to fill the space.

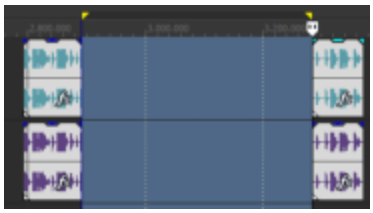
Deleting all events in a time selection

If you want to automatically move events to fill the space left by deleted events when using a time selection, use post-edit ripple mode. For more information, see "Post-edit ripple" on the next page

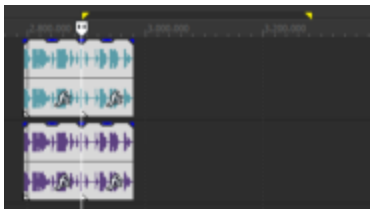
1. Create a time selection.
2. Press Ctrl+Shift+A to deselect all selected events.
3. Click the **Delete** button on the editing toolbar (or choose **Edit** > **Delete**). Events across all tracks are removed from the timeline. Events that extend beyond the time selection are split at each end of the time selection:



Time selection



Events after delete



Events after delete (ripple mode)

Deleting selected events

1. Select the events you want to delete.
2. Click the **Delete** button on the editing toolbar (or choose **Edit** > **Delete**).
   If you delete selected events within a time selection, the selected events are removed from the timeline. Selected events that extend beyond the time selection are split at each end of the time selection:



Time/event selection



Events after delete



Events after delete (ripple mode)

From the Edit menu, choose **Group**, *and choose* **Delete All** *from the submenu. The selected events and any events that are grouped with the selected events are deleted.*

Trimming events

Click the **Trim** button on the editing toolbar to remove all data from the events except the selected data. This command has no effect if there is no selected data.

1. Drag the cursor to make a timeline selection (or hold down the Shift key and use the arrow keys to make the selection).
2. Click the **Trim** button on the editing toolbar. All data outside of the selection is deleted. Events that are not selected will not be trimmed.

   Tips:

   - Click the **Trim Start** button (or press Alt+[) to trim the start of the event to the cursor position.
   - Click the **Trim End** button (or press Alt+]) to trim the end of the event to the cursor position.

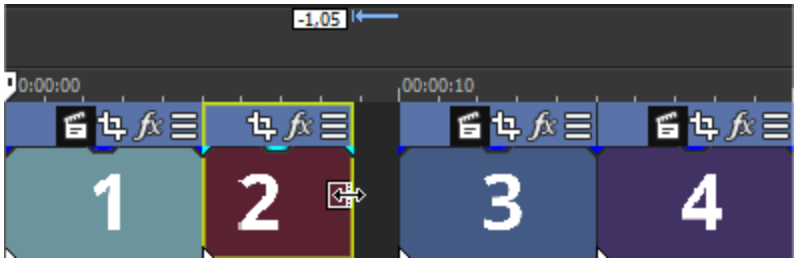
Post-edit ripple

You can ripple the contents of the timeline following an edit after performing the following tasks:

- Adjusting an event's length by trimming, slip-trimming, sliding, or time stretching.
- Moving events.
- Cutting events.
- Pasting events.
- Deleting events.

Applying a post-edit ripple manually

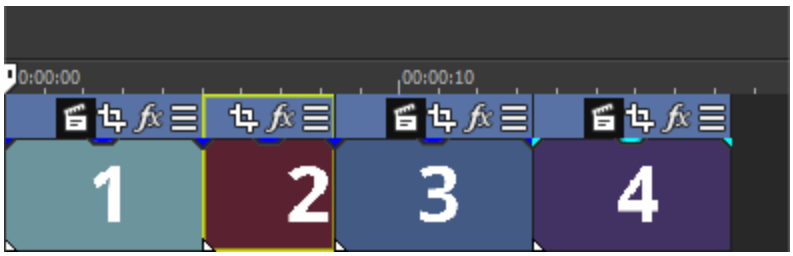
1. Perform one of edits listed above. In the following example, the second event is being trimmed, and the arrow above the timeline indicates where the post-edit ripple will occur and the direction the affected events will move.



2. From the Edit menu, choose **Post Edit Ripple**, and choose a command from the submenu:

Item	Description
Affected Tracks	Ripples events, keyframes, and envelopes on tracks where you performed the edit.
Affected Tracks, Bus Tracks, Markers, and Regions	Ripples events, keyframes, and envelopes on tracks where you performed the edit. This command also ripples the following: • Markers • Regions • CD track and index markers • Command markers • Keyframes and envelopes on audio or video bus tracks
All Tracks, Markers, and Regions	Ripples events, keyframes, and envelopes on all tracks in your project. This command also ripples the following: • Markers • Regions • CD track and index markers • Command markers • Keyframes and envelopes on audio or video bus tracks

The contents of the timeline are rippled after the edit according to the option you choose. In the following example, the post-edit ripple has closed the space between the second and third events.



Press F after an edit to ripple the affected tracks, press Ctrl+F to also ripple markers, keyframes, and envelopes. To ripple everything after an edit, press Ctrl+Shift+F.

Applying a post-edit ripples automatically

1. Select the **Auto Ripple** button (or press Ctrl+L).
2. Click the down arrow next to the **Auto Ripple** button and choose a ripple type.
3. Perform one of edits listed above. In the following example, the second event is being trimmed, and the arrow above the timeline indicates where the post-edit ripple will occur and the direction the affected events move.
4. The contents of the timeline are rippled after the edit according to the option you choose. In the following example, the post-edit ripple has closed the space between the second and third events.

Splitting events

Click the **Split** button on the editing toolbar (or choose **Edit** > **Split**) to split one or more selected events at the current cursor position.

Splitting an event allows you to adjust a small part of an event or break a single event into multiple sections that you can edit independently. For example, you may want to apply an effect to a section of an event and then return the event to its original setting.

1. Position the cursor where you want to split the events, or select a range of time.
2. Select the events you want to split.
3. Click the **Split** button on the editing toolbar (or choose **Edit** > **Split**):
   - If no events are selected, the events located at the current cursor position will be split throughout all of the tracks.
   - If you create a time selection, events are split at each end of the time selection throughout all of the tracks.
   - If you select events within a time selection, the selected events are split at each end of the time selection.
   - Hold Ctrl+Alt+Shift while clicking an event to split it. Hold Ctrl+Alt+Shift and drag an event to split it at the point you click and trim the event in the direction you drag.

Smart Splitting Events

Sometimes you want to cut out parts of a longer video recording, say an interview, shot from a fixed camera position. Because the speaker's head has moved in the cut out part but the rest of the picture stays unchanged, you would get a so-called "jump cut" where the head jumps into the new position.

To conceal those cuts you can use the Smart Split command:

1. Select the event.
2. Make a time selection over the part that you want to be removed.
3. Choose **Smart Split** from the **Edit** menu, press Alt +S or click the Smart Split button from the "The Transport and Editing Toolbar" on page 23
4. The selected time is removed from the event, the second event is moved over the first one for the short time span of five frames and a **Warp Flow** transition is applied. The two events are grouped.

   The Warp Flow transition uses sophisticated optical flow technology to add new intermediary frames that smoothly morph the last frame of the first event into the first frame of the second event.

This works best with no camera movement and no movement in the background of the video.

Healing Events

If you accidentally split an event in two, it is possible to heal this split.

1. Select the two items: Click the first event, then hold the Ctrl key and click the second event.
2. Right click one of the events end select **Heal**
3. The events are combined into one again.

You can even heal a split when the events were moved and/or trimmed in the meantime according to the following rules:

- The events have to be on the same track.
- The resulting event starts with the start frame of the first event and ends with the end frame of the second one, no matter where the first one ends and the second one starts (i.e. how big the gap between the two is).
- If the **Heal** command option is grayed out (that means, healing is not possible): Make sure the two events refer to the same media file and the order of the events matches the position in the media the events refer to.

Closing gaps

You can quickly close the gaps between selected events.

1. Select two or more events on a track.
2. Chose Menu **Edit** or right-click on an empty space in the track or on one of the selected events and choose **Close gaps** from the menu or context menu.
3. The second and all following selected events are moved towards the first one so they will border at each order closing the gaps between them.

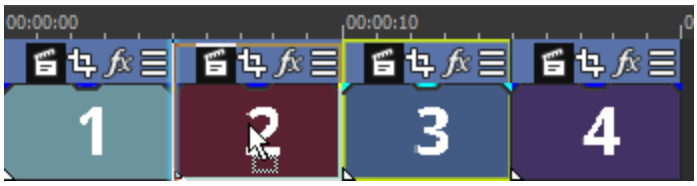
If no event is selected when performing this command all gaps on the track will be closed.

Shuffling events

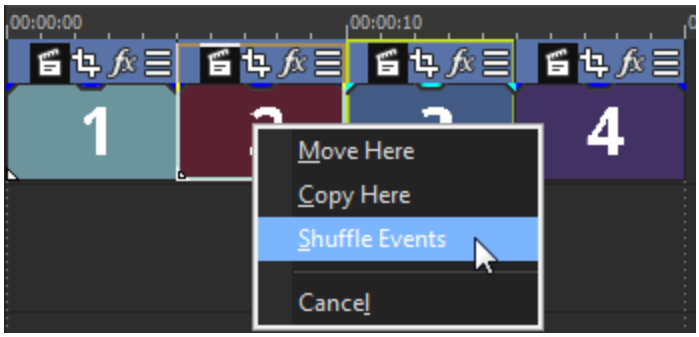
Much like ripple editing, shuffling events allows you to change the order of a sequence of events with a single operation.

Ripple edit mode does not need to be active to shuffle events. For more information, see "Post-edit ripple" on page 131

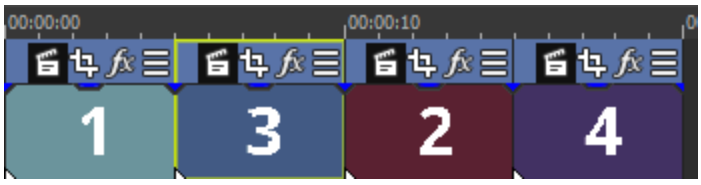
1. Right-click and drag an event to a new location on the timeline.
   In this example, we'll drag event 3 between events 1 and 2.



2. From the shortcut menu, choose **Shuffle Events**.



After the shuffle, event 3 appears between events 1 and 2:



You can also use the Shuffle tool to shuffle events.

1. Select the Shuffle tool.
   - Click the down arrow next to the Normal tool and select **Shuffle Tool**.
   - Choose **Edit** > **Editing Tool** >**Shuffle Tool**.
2. Drag an event to a new location on the timeline.

For more information, see "Editing Tool" on page 15

Using the Trimmer

Choose **View** > **Window** > **Trimmer** to toggle the display of the Trimmer window. The Trimmer window allows you to select portions of a piece of media that can be placed into events on tracks.

You can also create subclips in the Trimmer window. Subclips expand on the notion of media file markers and regions: just as you might save markers or regions in a media file to indicate an area of interest, you could create a subclip to mark a portion of a media file. A subclip is available in the Project Media window and can be created as a reversed clip so you can create events that play backward on the timeline.

When a media file is placed in the Trimmer window, any regions or markers that were previously stored in the media file are displayed in the Trimmer.

Tips:

- If you open a multichannel audio file in the Trimmer, you can choose which channels you want to display in the Trimmer window: right-click the waveform display, choose **Channels** from the shortcut menu, and then choose a command from the submenu.
- If you open a multistream audio file in the Trimmer, you can choose which stream you want to display in the Trimmer window: right-click the waveform display, choose **Stream** from the shortcut menu, and then choose a stream from the submenu.
- If you want to edit in the Trimmer window without updating the Video Preview window, right-click the media file in the Trimmer Window and clear the **Show Video in Preview Window** command.
- The ruler, scrollbar, and zoom controls may not be visible if there is not enough space to display them. Drag the horizontal splitter between the video monitor and the Trimmer timeline to adjust the height of the timeline.
- When the scrollbar is hidden, you cannot zoom in or out on the waveform.

Trimmer Transport Tool Bar

By default the Trimmer Transport tool bar shows the Play, Pause, Stop, Add to timeline from cursor, Fit to Fill, and Hamburger buttons.



To access additional buttons click the hamburger button and click the button you wish to access. To add a button to the Transport Toolbar click the Hamburger button, click **Edit Visible Button Set**, check the box next to the button to you would like to add, and click **OK**. The button will now be visible each time you open the application. To remove a button from the Toolbar click the Hamburger button, click **Edit Visible Button Set**, uncheck the box next to the button to you would like to remove, and click **OK**

Opening a media file in the Trimmer

Drag a file from the Windows Explorer, VEGAS Pro Explorer, or Project Media window to the Trimmer window. This method is sometimes more convenient than placing the entire media file on a track and then editing the event.

Tips:

- You can automatically load a file into the Trimmer window by selecting the **Double-click on media file loads into Trimmer instead of tracks** check box on the General tab in the Preferences dialog. When this check box is selected, no events are created when you double-click a media file in the VEGAS Pro Explorer, or Project Media window. Instead, the Trimmer is displayed to allow you to choose the portion of the file you want to use. For more information, see "Preferences - General Tab" on page 529
- If you want to open the original media file that was used to create a subclip in the Trimmer, right-click a subclip in the Project Media window and choose **Open Parent Media in Trimmer** from the shortcut menu.

Opening an event in the Trimmer

Right-click the event and choose **Open in Trimmer** from the shortcut menu.

If you want to open the original media file that was used to create a subclip in the Trimmer, right-click an event and choose **Open Parent Media in Trimmer** from the shortcut menu.

The entire media file—not just the contents of the current event—will be opened in the Trimmer.

Choosing Trimmer preview options

When you're editing in the Trimmer, you can choose to display video in the Video Preview window or in a video monitor within the Trimmer.

- If you want to display the Trimmer cursor position in the Video Preview window, right-click the media file in the Trimmer window and verify **Show Video Monitor** is not selected and then right-click the media file in the Trimmer window and select **Show Video in Preview Window**.

  When you click to position the cursor in the Trimmer window, the frame at the cursor position will be displayed in the Video Preview window, and the transport controls in the Trimmer window will play the current file in the Video Preview window.
- If you want to display a dedicated video monitor in the Trimmer window, right-click the media file in the Trimmer window and select **Show Video Monitor**. When the video monitor is on, you can -click the media file in the Trimmer window and select **Show Video Frames** to show or hide video frames in the Trimmer timeline.
- If you want to display the Trimmer cursor position on an external monitor, select the **Trimmer on External Monitor** button  .

  If external monitor is enabled for the Trimmer and the Video Preview window, focus will determine which source is sent to the external monitor: click in the Trimmer window to send its video to your external monitor; click the timeline or track list to send its video to your external monitor.

If **Show Video Frames** *is selected, press Ctrl+Shift+Up to give more space to the video and Ctrl+Shift+Down to give more space to the audio. You can also right-click the audio or video timeline and choose* **Video Height Larger**, **Audio Height Larger**, *or* **Video and Audio Equal Height** *from the shortcut menu.*

Choosing multichannel/multistream audio options

When you're working with multichannel or multistream audio in the Trimmer, you can choose whether you want to add multichannel/multistream audio to the timeline when creating events.

Right-click the audio waveform in the Trimmer and select **Use All Streams and Channels** to allow VEGAS Pro to determine which audio streams and channels to use:

- When using surround AC3 or Windows Media, the stereo downmix stream will be used when adding media to a stereo project. When adding media to a 5.1 surround project, the surround stream will be used.
- In other cases, all streams and all channels will be added to the timeline.

When **Use All Streams and Channels** is not selected, only the stream and channels displayed in the Trimmer will be added to the timeline.

When the **Import stereo as dual mono** *check box is selected on the General tab of the Preferences dialog, two-channel audio files will be added to the timeline as separate mono audio events on separate tracks. For more information, see* *"Preferences - General Tab" on page 529*

The audio events are grouped, and tracks that are created by adding media will be panned hard left and hard right. You can right-click the waveform in the Trimmer, choose **Channels**, and then choose a command from the submenu to choose which channel is used for that event.

Moving frame by frame in the Trimmer window

As you navigate through a video file in the Trimmer, the exact frame that the cursor is over in time is displayed as in a thumbnail image under the cursor. When using the left and right arrow keys, this allows you to edit with frame accuracy.

You can also click the **Previous Frame** and **Next Frame** buttons to navigate frames in the Trimmer window.

Click and hold the **Previous Frame** *and* **Next Frame** *buttons to move the cursor multiple frames.*

Using hover scrub to navigate a clip

When **Enable Hover Scrub** is selected in the Trimmer shortcut menu, you can hover your mouse over the Trimmer video monitor to preview a specific part of the clip. When you start dragging, you start a selection (see next section).

Hover Scrub is enabled by default. Right-click the Trimmer window and choose **Enable Hover Scrub** *to turn hover scrub off or on again. When hover scrub is off, you can still scrub the clip by dragging the cursor in the Trimmer timeline.*

Selecting data

Perform any of the following actions to select data in the Trimmer window:

- Use the transport controls to play your media file. Press I or [to mark the beginning of the selection, and press O or] to mark the end of your selection.
- Drag in the Trimmer timeline or in the Video portion to select a range of data. When you drag from left to right you set set the In Point first and drag to the Out Point, when you drag from right to left the first click sets the Out Point and you drag to the In Point.
- A double click on the Trimmer window resets the In and Out Points to the beginning and end of the clip.
- If you know the timecode of the beginning and end of your selection, double-click the boxes at the bottom of the Trimmer window and type timecode values.

To select only the audio or video portion of the media, right-click and choose **Select Audio Only** *or* **Select Video Only** *from the shortcut menu, or you can press Tab or Shift+Tab to cycle the selection among audio only, video only, or audio and video.*

If **Show Video Frames** *is selected in the Trimmer shortcut menu, press Ctrl+Shift+Up to give more space to the video and Ctrl+Shift+Down to give more space to the audio. You can also right-click the audio or video timeline and choose* **Video Height Larger**, **Audio Height Larger**, *or* **Video and Audio Equal Height** *from the shortcut menu.*

Adding media to the timeline

When the **Import stereo as dual mono** *check box is selected on the General tab of the Preferences dialog, two-channel audio files will be added to the timeline as separate mono audio events on separate tracks. For more information, see* *"Preferences - General Tab" on page 529*

The audio events are grouped, and tracks that are created by adding media will be panned hard left and hard right. You can right-click the waveform in the Trimmer, choose **Channels**, and then choose a command from the submenu to choose which channel is used for that event.

Dragging a selection to the timeline

1. Open a media file in the Trimmer.
2. Select the portion of the file that you want to use.
3. Drag the selection to the desired track. The selection becomes a new event on the track. If the media file includes both audio and video, each is placed on a separate track.

   Because media selection is also performed by dragging it is important that you start dragging vertically to not accidentally destroy your selection.

Three-point editing

1. Open a media file in the Trimmer.
2. Mark the in and out points in your media file to create a selection:
   a. Click the **Play** button in the Trimmer to start playback, or click to position the cursor in the Trimmer timeline.
   b. Press [or I to mark the beginning of the selection.
   c. Press] or O to mark the end of the selection.

      You can also select two points in the timeline and a single point in the Trimmer to perform three-point editing. In this mode, ripple editing is not applied.
3. Position the cursor in the timeline where you want to add the event.
4. Click the **Add to Timeline from Cursor** button to insert the selection after the cursor position in the currently selected track, or click the **Add to Timeline up to Cursor** button to insert the selection before the cursor.

Four-point editing (using a Trimmer selection to fill a timeline selection)

1. Open a media file in the Trimmer.
2. Select the portion of the file that you want to use.
3. Select the portion of the timeline where you want to use the Trimmer selection.
4. Click the **Fit to Fill** button . The Trimmer selection is time-compressed or stretched to fill the timeline selection.

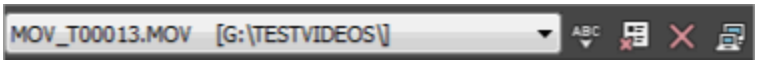
Overwrite timeline events with the Trimmer selection

The standard behavior of the Trimmer is to perform punch-in edits on the timeline: when you add media to the timeline, the events created by the Trimmer are laid over existing events on the timeline. You can delete or move the events you create with the Trimmer without changing the underlying events.

If you want to replace the contents of the timeline when creating events from the Trimmer, select the **Enable Timeline Overwrite** button . When **Enable Timeline Overwrite** is selected, ripple editing is not available.

Using the Trimmer History list

The drop-down box at the top of the Trimmer lists files and events that have been opened in the Trimmer.



To open a recently used file, choose its file name from the Trimmer History drop-down list.

To sort the list, click the **Sort Trimmer History** button . The files in the drop-down list are sorted in alphabetical order. To sort in reverse alphabetical order, hold the Ctrl key while clicking on the **Sort Trimmer History** button.

To clear the list, click the **Clear Trimmer History** button . All files in the history drop-down list are removed.

To remove a single file from the list, click the **Remove Current Media from Trimmer History** button . The media file is removed from the Trimmer History drop-down list and the Trimmer window is blank.

Using markers and regions in the Trimmer

Adding markers or regions

1. Position the cursor or make a selection in the Trimmer window.
2. Press M (or click **Insert Marker**) to place a marker or R (or click **Insert Region**) to place a region. Trimmer markers and regions function identically to timeline markers and regions.

Saving Trimmer markers and regions

Click the **Save Markers/Regions** button . All markers and regions in the Trimmer are saved back into the file.

If you want to automatically save markers and regions to the file, select the **Automatically save Trimmer markers and regions with media file** check box on the General tab of the Preferences dialog. For more information, see "Preferences - General Tab" on page 529

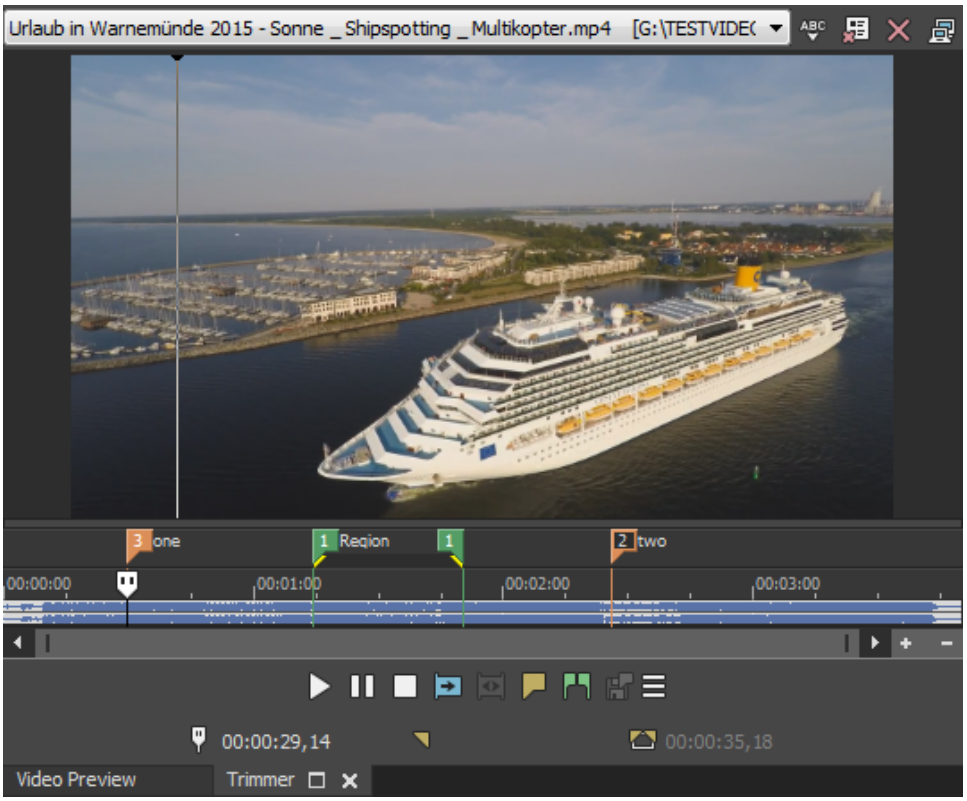
Notes:

- You cannot save markers and regions to a read-only file or to file types that VEGAS Pro cannot render. If markers and regions cannot be saved, the **Save Markers/Regions** button is unavailable.
- If the selected file type cannot save markers internally, VEGAS Pro will save the metadata to an external file with an .sfl extension (using the same base name as your media file).

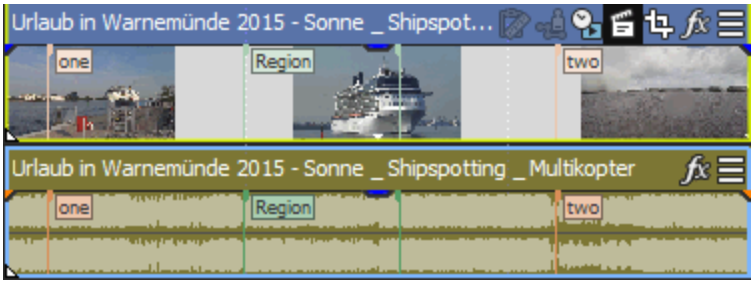
Viewing media markers and regions in events

From the View menu, choose **Event Media Markers** to toggle the display markers (including XDCAM essence marks) and regions that are saved in a media file. These markers are displayed in the timeline in events that refer to the media file.

Media markers and regions cannot be edited within the event. However, when you edit the markers in markers and regions in the Trimmer window or in an external audio editor, the event will reflect your changes.



Media markers/regions visible in Trimmer window



Media markers/regions displayed in event

Tips:

- From the View menu, choose **Event Media Markers**, and then choose **Show Marker Labels** from the submenu to toggle the display of marker labels in events.
- When media markers are displayed, you can use them as snap points for positioning the cursor and for edge-trimming if **Snap to Markers** is selected on the Options menu. If a media file's frame rate does not match your project frame rate, frame quantization will occur after the snap if **Quantize to Frames** is selected on the Options menu. For more information, see "Enable snapping" on page 124 and "Quantize to frames" on page 126

Opening audio in an external audio editor

Right-click the audio waveform and choose **Open in Audio Editor** to start your selected audio editor and open the audio event or audio portion of the file.

To change the default sound editor, click the **Browse** button next to the **Preferred audio editor** box on the Audio tab of the Preferences dialog.

Using subclips

Creating a subclip

1. Create a selection in the Trimmer window.
2. Click the **Create Subclip** button  . The Create Subclip dialog is displayed.

   When an event has been trimmed or split so it plays only a portion of an event, you can also right-click the event in the timeline and choose **Create Subclip** *from the shortcut menu to create a subclip using that portion of the media file.*

3. In the **Name** box, type the name you want to use to identify the subclip in the Project Media window. By default, the file name is used with a subclip number appended.
4. Select the **Reverse** check box if you want the subclip to be played backward when you add it to your project.
5. Click **OK** to create the subclip. You can then create events from subclip via the Project Media window.

Selecting a subclip in its parent media

1. Right-click a subclip in the Project Media window and choose **Open in Trimmer** from the shortcut menu.
2. Right-click the Trimmer window and choose **Select Parent Media** from the shortcut menu. The subclip's original media file is opened in the Trimmer, and the portion of the media that represents the subclip is selected.

If you want to open the original media file that was used to create the subclip in the Trimmer, right-click an event on the timeline (or a subclip in the Project Media window) and choose **Open Parent Media in Trimmer** *from the shortcut menu.*

Copying the current frame to the clipboard

Right-click the Trimmer window and choose **Copy Snapshot to Clipboard** from the shortcut menu to copy the current frame to the clipboard.

Saving the current frame as a file

Right-click the Trimmer window and choose **Save Snapshot to File** from the shortcut menu to save the current frame as an image file.

The Save Snapshot to File dialog is displayed to allow you to choose the format and location where you want to save the file. The file is automatically added to the Project Media window.

Opening files in the Trimmer by default

You can automatically load files into the Trimmer window by selecting the **Double-click on media file loads into Trimmer instead of tracks** check box on the General tab in the Preferences dialog. For more information, see "Preferences - General Tab" on page 529

When this check box is selected, no events are created when you double-click a media file in the VEGAS Pro Explorer or Project Media window. Instead, the Trimmer is displayed to allow you to choose the portion of the file you want to use.

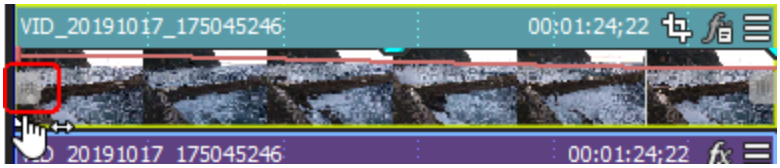
Adjusting an event's length

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

Trimming the start or end of an event with your mouse

With the Normal tool selected, drag either end of an event.

To make it easier to grab the edges of the event, handles are displayed as soon as you move the mouse over them.



You can deactivate the display of these handles by selecting the corresponding entry in the Hamburger menu of the event.

The event edge will snap to grid lines or markers if **Enable Snapping** is selected or will snap to frame boundaries if **Quantize to Frames** is selected; you can hold the Shift key while dragging to temporarily override the current snapping setting. For more information, see "Enable snapping" on page 124 and "Quantize to frames" on page 126

Hold Shift while dragging the event edge to ignore event grouping for fast J and L cuts.

If you drag the end of the event past the end of the media file, the event will repeat if the **Loop** *event switch is turned on; if the switch is turned off, silence is drawn. For more information, see "Applying switches to events" on page 169*

Trimming an event to the cursor position

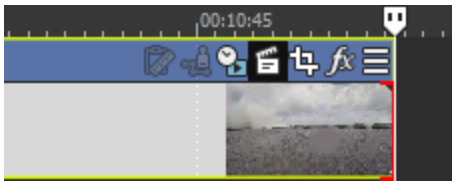
1. Select the Normal tool.
2. Select the event you want to trim.
3. Position the cursor at the point where you want the event to start or end.

4. Trim the start or end of the event:
   - Click the **Trim Start** button (or press Alt+[) to trim the start of the event to the cursor position.
   - Click the **Trim End** button (or press Alt+]) to trim the end of the event to the cursor position.

Using keyboard shortcuts to edge trim events

With this method, you can quickly jump through your project and adjust cuts until they're perfectly synchronized. If you have an external multimedia controller, it's even easier. For more information, see "Using a multimedia controller" on page 517

1. If you want downstream events to ripple as you trim, click the **Auto Ripple** button to turn on Auto Ripple mode. For more information, see "Post-edit ripple" on page 131
2. Select the event you want to trim.
3. Press [or] (or 7 or 9 on the numeric keypad) to move the cursor to the event edge you want to trim. [or 7 selects the beginning of an event or moves to the previous event edge.] or 9 selects the end of the event or moves to the next event edge. A red bracket is displayed to indicate which event edge will be trimmed.



4. Use the 1, 3 and 4, 6 keys on the numeric keypad to trim the current event edge:
   - Press 1 to trim one video frame left, or press 3 to trim one video frame right (or hold Ctrl+Shift+Alt while rolling the mouse wheel).
   - Press 4 to trim one screen pixel left, or press 6 to trim one pixel right (or hold Ctrl+Shift while rolling the mouse wheel). Depending on the current zoom level, the trim duration will vary.
   - Hold Ctrl while pressing 1 to time compress one frame left, or press 3 to time stretch one frame right.
   - Hold Ctrl while pressing 4 to time compress one pixel left, or press 6 to time stretch one pixel right.
   - Hold Alt while pressing 1 to slip trim (the media moves with the event edge) one frame left, or press 3 to slip trim one frame right.
   - Hold Alt while pressing 4 to slip trim one pixel left, or press 6 to slip trim one pixel right.
   - Hold Ctrl+Alt while pressing 1 to slide a crossfade or transition one frame left, or press 3 to slide one frame right (adjacent trim).
   - Hold Ctrl+Alt while pressing 4 to slide a crossfade or transition one pixel left, or press 6 to slide one pixel right (adjacent trim).

   Pressing 5 on the numeric keypad exits edge-trimming mode. If you are not in edge-trimming mode, press 1, 3, 4, and 6 on the numeric keypad to nudge events on the timeline by frame (1 and 3) or by pixel (4 and 6).

   Hold Shift while dragging the event edge to ignore event grouping for fast J and L cuts.
5. Repeat steps 3 and 4 as necessary.

Trimming adjacent events

Use the Slide tool or h old Ctrl+Alt while dragging the event edge between two events. The mouse pointer is displayed as a an . The edges of the selected event and the adjacent event are trimmed simultaneously in the direction you drag.

Hold Ctrl+Alt+Shift while dragging the event edge between two events to ignore event grouping for fast J and L cuts. If you are using the Slide tool, hold Shift to ignore event grouping.

Trimming all but the selected portion of an event

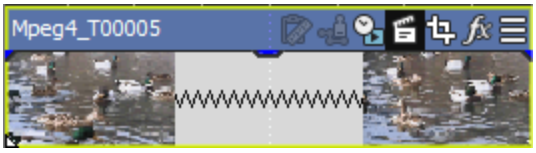
1. Drag to make a timeline selection (or hold down the Shift key and use the arrow keys to make the selection).
2. Click the **Trim** button (or press Ctrl+T) to delete all data outside of the selection. For more information, see "Trimming events" on page 130

Time-stretching an event

The **Resample and stretch quality** *setting on the Audio tab of the Project Properties dialog determines the quality of processing when time-stretching audio events. For more information, see "Setting project properties" on page 41*

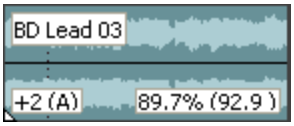
To change the duration of an event without changing its contents, use the Time Stretch/Compress tool or hold Ctrl while dragging the right or left edge of an event. The mouse pointer is displayed as a . You can use the **Time stretch/pitch shift** controls in the Event Properties dialog to specify whether the pitch of an audio event will be preserved while stretching. For more information, see "Editing event properties" on page 173

As you drag the edge of a video event, a zigzag line is displayed between video frames to show you that the event has been stretched:



For more information about the Time Stretch/Compress tool, see "Editing Tool" on page 15

If **Active Take Information** is selected from the View menu, audio events will display a percentage in the lower-right corner of the event to indicate the playback rate after stretching. If the media has a known tempo, the effective playback tempo (after stretching) is listed in parentheses after the stretch amount.



You can also use the ***Slow Motion*** *plug-in for a high quality slow motion effect!*

Slip-trimming an event

Use the Slip tool or hold Alt while dragging the right or left edge of an event. The slip-trim cursor is displayed.

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

Tips:

- Use the Slip tool or hold Shift or hold Alt+Shift while dragging any portion of an event to slip-trim the right edge. The left edge of the event will remain fixed on the timeline, and the media is slipped past the left edge of the event. This slip mode is useful when you want to slip an event without changing its last frame.
- Use the Split Trim tool or hold Ctrl+Alt+Shift and drag an event to split it at the point you click and trim the event in the direction you drag (eraser mode). For more information, see "Slipping and sliding events" on page 147

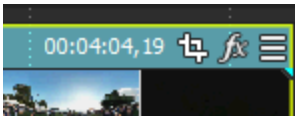
  Holding the Shift key temporarily overrides snapping if it is enabled. Release the Shift key while dragging to snap the event to available snap points.

  For more information about the Split Trim tool, see "Editing Tool" on page 15
- If you want to slip all of an event's takes when slipping media, choose **Slip All Takes** from the Options menu. For more information, see "Using takes as alternate versions of events" on page 165

For more information about the Slip tool, see "Editing Tool" on page 15

Event Length Display

You can display the length of an event in the event header.



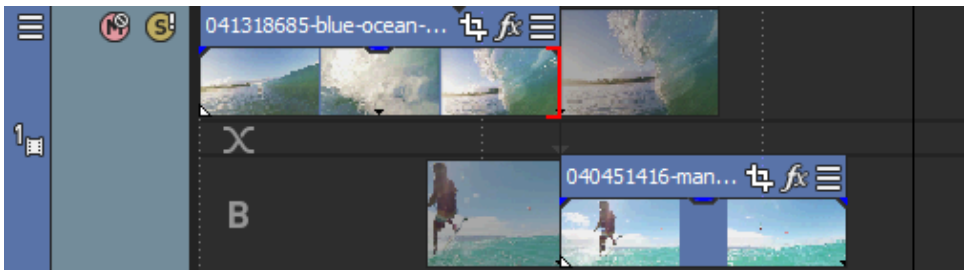
Use the **Event Length** option in the event Hamburger menu . To add a Event Length button to the event header, click the Hamburger menu button, choose **Edit Visible Button Set** from the list, click the Event Length checkbox and click **OK**.

Expanded edit mode

Expanded edit mode takes the best of edge-trimming and A/B-roll editing to provide a fast, accurate method of trimming events.

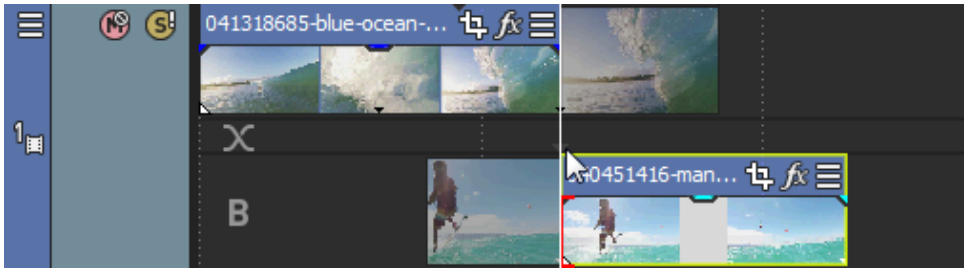
1. Select the event you want to edit.
2. Perform any of the following actions to enter expanded edit mode:
   - Choose **Edit** > **Select** > **Enter Expanded Edit Mode**.
   - Press 5 on the numeric keypad.
   - Double-click the event edge.

   In expanded edit mode, a red bracket is displayed to indicate which event edge will be trimmed, and the track is displayed in an A/B roll: events before the edit point are displayed in the A roll and subsequent events are displayed on the B roll. Additional frames available for editing are shown on the other side of the edit point:

   The Video Preview window displays a split-screen preview so you can monitor frames on both sides of the edit point.

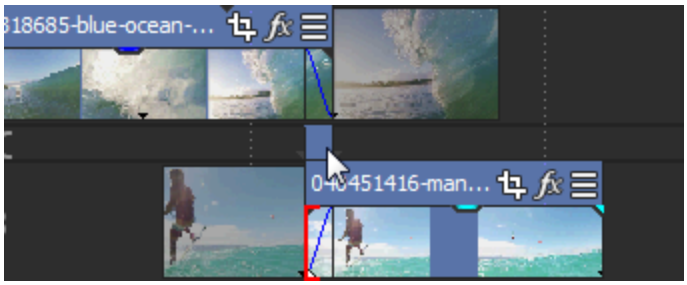
3. Drag event edges of the edit point or use the 1, 3 and 4, 6 keys on the numeric keypad to trim the current event edge:



   - Drag the transition/crossfade between two events – or drag the cut arrow between the track layers – to perform an adjacent trim. Red brackets are drawn on both event edges to indicate that both events are being trimmed. You can also hold Ctrl+Alt while dragging an event edge to perform an adjacent trim.
   - Press 1 to trim one video frame left, or press 3 to trim one video frame right (or hold Ctrl+Shift+Alt while rolling the mouse wheel).
   - Press 4 to trim one screen pixel left, or press 6 to trim one pixel right (or hold Ctrl+Shift while rolling the mouse wheel). Depending on the current zoom level, the trim duration will vary.
   - Hold Ctrl while pressing 1 to time compress one frame left, or press 3 to time stretch one frame right.
   - Hold Ctrl while pressing 4 to time compress one pixel left, or press 6 to time stretch one pixel right.
   - Hold Alt while pressing 1 to slip trim (the media moves with the event edge) one frame left, or press 3 to slip trim one frame right.
   - Hold Alt while pressing 4 to slip trim one pixel left, or press 6 to slip trim one pixel right.
   - Hold Ctrl+Alt while pressing 1 to slide a crossfade or transition one frame left, or press 3 to slide one frame right (adjacent trim).
   - Hold Ctrl+Alt while pressing 4 to slide a crossfade or transition one pixel left, or press 6 to slide one pixel right (adjacent trim).

   Pressing 5 on the numeric keypad exits expanded edit mode. If you are not in expanded edit mode, press 1, 3, 4, and 6 on the numeric keypad to nudge events on the timeline by frame (1 and 3) or by pixel (4 and 6).

4. You can select the next point you want to edit using either of the following methods:
   - Click another event edge on the timeline.
   - Click the indicator between the A and B roll:



   - Press [or] (or 7 or 9 on the numeric keypad) to move the cursor to the event edge you want to trim.
5. Repeat steps 3 and 4 as needed.

6. To exit expanded edit mode and return to the previous window layout; perform any of the following actions:
   - Choose **Edit** > **Select** > **Exit Expanded Edit Mode**.
   - Press 5 on the numeric keypad.
   - Double-click the event edge.
   - Press Esc.

   For more information, see "Saving and recalling window layouts" on page 527

Slipping and sliding events

To help you picture what happens when you slip and slide events, think of an event as a window to a media file. The window can display the entire media file or a small section. When the window displays only a portion of the media file, you can move either the window or the underlying media to adjust the media that is played by an event:

- When you slip an event, your event maintains its place on the timeline, but the media file moves in the direction you drag.
- When you slide an event, the media file maintains its place on the timeline, but the event moves in the direction you drag.

If you want to slip all of an event's takes when slipping media, make sure **Slip All Takes** *is selected in the Options menu. For more information, see "Using takes as alternate versions of events" on page 165*

Shifting the contents of (slipping) an event

Use the Slip tool or hold Alt while dragging an event. The slip cursor is displayed.

As you drag the event, the contents of the event shift, but the event will not move. You can use this technique when you want to maintain an event's length and position, but have the event play a different section of the source media file.

For more information about the Slip tool, see "Editing Tool" on page 15

Slip-trimming an event

Use the Slip tool or hold Alt while dragging the right or left edge of an event. The slip-trim cursor is displayed.

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

Tips:

- Use the Slip tool and hold Shift or hold Alt+Shift while dragging any portion of an event to slip-trim the right edge. The left edge of the event will remain fixed on the timeline, and the media is slipped past the left edge of the event. This slip mode is useful when you want to slip an event without changing its last frame.
- Use the Split Trim tool or hold Ctrl+Alt+Shift and drag an event to split it at the point you click and trim the event in the direction you drag (eraser mode).

  Holding the Shift key temporarily overrides snapping if it is enabled. Release the Shift key while dragging to snap the event to available snap points.

  For more information about the Split Trim tool, see "Editing Tool" on page 15
- If you want to slip all of an event's takes when slipping media, choose **Slip All Takes** from the Options menu. For more information, see "Using takes as alternate versions of events" on page 165

For more information about the Slip tool, see "Editing Tool" on page 15

Sliding an event

Use the Slide tool or hold Ctrl+Alt while dragging an event. The slide cursor is displayed.

As you drag, the relative position of the media remains fixed on the track, and the event position changes. You can use this technique when you want to maintain an event's length, but have the event play a different section of the source media file at a different point in your project.

For more information about the Slide tool, see "Editing Tool" on page 15

Sliding a crossfade or transition

Use the Slide tool or hold Ctrl+Alt while dragging the overlapping area between two events. The slide cursor is displayed.

As you drag, the relative position of the media remains fixed on the track, and crossfade position changes, effectively trimming the edge of the event in the direction you drag. You can use this technique when you want to maintain the length of two combined events, but want the transition to occur earlier or later.

For more information about the Slide tool, see "Editing Tool" on page 15

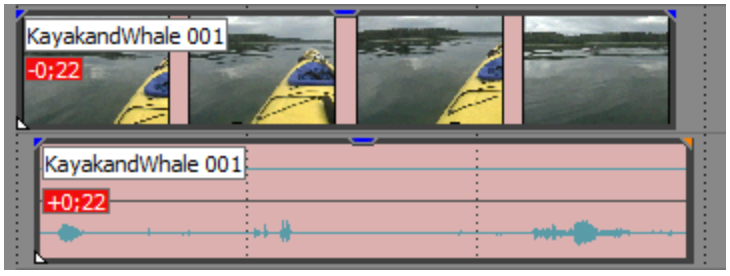
Repairing audio/video synchronization offsets

When audio and video events (or events from multichannel audio files) are not aligned, VEGAS Pro will highlight the events in the timeline so you can see synchronization problems at a glance.

The software determines whether events are synchronized by comparing grouped and overlapping events:

- An event in a group is compared to other events in the same group (of the opposite media type) that were created from the same media, and the events with the most overlap are used to calculate synchronization. If no events overlap, the closest events are used to calculate synchronization.
- An event that is not in a group is compared to events (of the opposite media type) that were created from the same media, and the events with the most overlap are used to calculate synchronization. If no events overlap, no synchronization offset is displayed.

  In the following example, the overlapping audio and video events were both created from KayakandWhale 001.avi and will be compared to determine synchronization.



The amount of offset is displayed when **Active Take Information** *is selected from the View menu. Very small offsets that are below the resolution of the timeline may be displayed as 0.00. Set the project time format to samples to see the offset amount. For more information, see "Time ruler" on page 524*

To restore synchronization, right-click the audio or video event you want to synchronize, choose **Synchronize** from the shortcut menu, and then choose a command from the submenu:

Item	Description
By Moving	Moves the event you clicked so it is synchronized to its

Item	Description
	corresponding audio or video event. In the sample events above, the audio event would move to the left if you right-clicked it and chose **Synchronize** > **By Moving**. If you right-clicked the video event and chose **Synchronize** > **By Moving**, it would move to the right.
By Slipping	Slips the contents of the event you clicked so the audio and video are synchronized. The events do not move, but the contents of the event you right-click are shifted forward or backward to restore synchronization. For more information about slipping, see "Slipping and sliding events" on page 147

Add missing streams

If you had loaded a video file with audio streams via the **Video Only** or **Audio Only** option (see "Adding media files to your project" on page 114 for more information) or if you deleted one of the two media events referring to a video file (by ungrouping it first or with **Edit > Group > Remove from**) you can quickly recreate the media event for the missing audio or video stream that is stored in the media file.

1. Right-click the event and choose **Add Missing Stream for Selected Event**.
2. A new track is created directly below (audio stream) or above (video stream) the clicked event containing an event of the same length and start time with the corresponding media stream. The two events are grouped

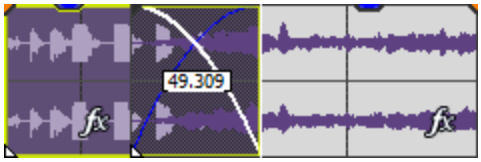
Event envelopes

You can apply envelopes to audio and video events to change settings over time:

- Audio event envelopes allow you to control an event's fade-in, fade-out, and overall level.
- Video event envelopes allow you to control an event's fade-in, fade-out, opacity, and velocity.

An envelope is specific to the track upon which it is applied. Event-specific envelopes will be calculated after the track fader.

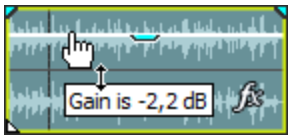
Select **Event Fade Lengths** from the View menu if you want to display fade lengths in selected events:



Adjusting an audio event's volume

1. Hover over the top of an audio event.

2. When you see the envelope cursor ( ), drag the volume line to the desired level. As you drag the line, the event's gain is displayed in dB.



Tips:

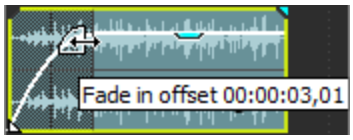
- Hold Ctrl (or hold the right mouse button) while dragging the sustain portion of the envelope to adjust the value in fine increments.
- When you have multiple events selected, the gain of all selected events is adjusted simultaneously.

Fading an audio event in or out

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

Fades between overlapping events cannot be adjusted when automatic crossfades are enabled. For more information, see "Automatic crossfades" on page 123

2. Click the corner of the event and drag to create a fade.



To remove a fade, drag the end of the fade curve back to the edge of the event.

When you have multiple events selected, the fade of all selected events is adjusted simultaneously.

Adjusting a video event's opacity

Opacity envelopes adjust the transparency of an event, allowing it to fade in over a background. This background can be another video event or a background color.

For more information about compositing, see "Compositing and masks" on page 349

1. Hover over the top of a video event.
2. When you see the envelope cursor ( ), drag the opacity line to the desired level. As you drag the line, the event's opacity is displayed as a percentage. As opacity decreases, the event becomes more transparent.



Tips:

- Hold Ctrl (or hold the right mouse button) while dragging to adjust the envelope in fine increments.
- When you have multiple events selected, the opacity of all selected events is adjusted simultaneously.

Fading a video event in or out

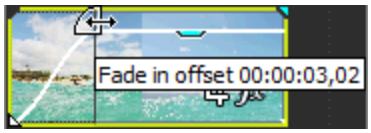
You can adjust the opacity at the beginning and end of a video event to fade in or out over a background. This background can be another video event or a background color.

For more information about compositing, see "Compositing and masks" on page 349

1. Hover over upper-left or upper-right corner of a video event until the cursor is displayed as a .

   Fades between overlapping events cannot be adjusted when automatic crossfades are enabled. For more information, see "Automatic crossfades" on page 123

2. Click the corner of the event and drag to create a fade.

   To remove a fade, drag the end of the fade curve back to the edge of the event.

   When you have multiple events selected, the fade of all selected events is adjusted simultaneously.

Adjusting a video event's velocity

Velocity envelopes are used to change the speed of a video event over time. For example, you could use a velocity envelope to play a clip in slow motion.

Each video event in your project has a specific duration that is not changed by velocity envelopes. Therefore, if you decrease the speed of a ten-second video event by 50%, only five seconds of video will be shown. On the other hand, if the speed is increased 200%, the ten seconds of video will play in only five seconds. The remaining five seconds of the event will be filled either with a freeze of the last frame or with ten additional seconds of video content from the media file.

1. Right-click a video event, choose **Insert/Remove Envelope** from the shortcut menu, and then choose **Velocity** from the submenu. A velocity envelope is drawn on the event.
2. Drag the envelope up to increase the playback speed of the event, or drag down to decrease its speed.

   Tips:

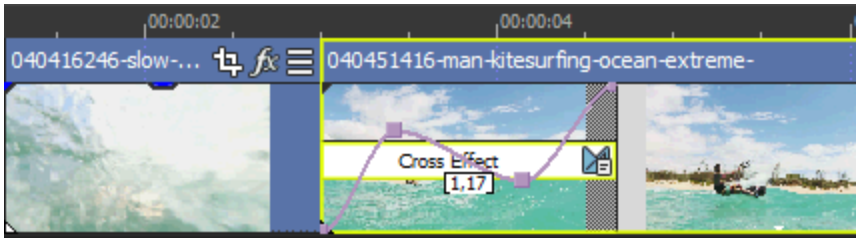
   - Right-click an envelope point and choose a command from the shortcut menu to choose from velocity presets from 100% reverse-speed playback to 0% playback (a freeze-frame effect) up to 300% (triple-speed) playback.
   - Setting a velocity envelope to a negative value will cause the event to play in reverse. Video events can only be reversed if there is media to reverse: an event cannot be reversed past the beginning of a media file. An event that has been reversed will play backward until it gets to the first frame and will then hold that frame for the duration of the event.

Adding a transition progress envelope

Normally, a transition progresses from 0 to 100% in a linear fashion over the length of the transition. A transition progress envelope gives you complete control over a transition: you can hold, reverse, and repeat individual transitions.

1. Select a transition.
2. From the Insert menu, choose **Video Envelopes**, and then choose **Transition Progress** from the submenu. An envelope is added to your transition.
3. Add points and adjust the fade curves as desired. For more information, see "Adjusting envelopes" on page 244

   In the following example, the transition starts, progresses to 50%, reverses direction, and then finishes.



Changing the fade curve type

1. Hover over the edge of a fade until the cursor is displayed as a , or hover over an envelope segment.
2. Right-click to display the **Fade Types** shortcut menu, and choose a fade type to set the speed of the fade.

Adding a Freeze Frame at Cursor Position

Sometimes you might want a video to stop momentarily, e.g. for inserting a title or a special transition. To stop the motion quickly, use the **Freeze Frame at Cursor** command.

1. Place the cursor where you want the freeze frame to occur.
2. Right click the video event and choose **Insert/Remove Envelope | Freeze Frame at Cursor**.

A **velocity curve** is added at the cursor position and the velocity is set to 0 which results in a still frame that is kept until the end of the video event.

The command is also available from the event's **hamburger menu**, so if you use this feature often, you can add a button on the event's header so you can create you freeze frames with one click. . For more information on using the hamburger button and menu, see "Track List" on page 18

Hint:
You can add a freeze frame to multiple events accros multipe tracks simulteanously:

1. Place the cursor where you want the freeze frame to happen in all the events
2. Ctrl+click each event to select multiple events.
3. Right-click anyone of the selected events and choose **Insert/Remove Envelope | Freeze Frame at Cursor**.

Panning and cropping video events

Use Crop if you want to cut out portions of an image. There are two different methods for cropping an event. Use the **Crop OFX plug-in**, found in the Video FX window, or use the internal **Pan/Crop tool** accessed by clicking the Crop icon in the event header.

The main benefits of using the **Crop OFX plug-in** are the ease of use provided by the Video Preview interact and it can used where ever you can apply OFX effects, - media, event, track, project.

Crop using the Crop OFX Plug-in

You can apply the Crop OFX plug-in at all the same places you can apply any OFX Plug-in; Media level, Project, Track or Event. To take advantage of the Preview Window interacts it is best applied at the Track or Event level. In this example, we'll add it to a specific event.

1. With at least one event on the timeline, open the Video FX window
2. Expand the OFX folder
3. Choose **Crop**
4. Drag and drop the default preset on the event. You now see the Video Event FX window as well as the interacts in the Video Preview window.
   a. The interact controls include four crop handles; Left, Top, Right, Bottom. Once you drag one of these handles, the handle opposite it becomes the anchor point. e.g., if you drag the right handle the left handle becomes the anchor point. The anchor point has a black dot in the middle of the handle icon.
5. To crop off a portion of the image, click and drag a crop handle toward the center. e.g., to crop off the left side of the image, drag the left crop handle toward the center.
6. To crop using the Video FX window:
   a. Click the Anchor Point dropdown arrow and choose an anchor point.
   b. Use the **X Crop** or **Y Crop** slider or enter a specific value in the **X** or **Y** text box to set the crop.
7. To change the location of the cropped area using the Video Preview interact, click and drag the selection area to a new position.
8. To change the Location using the Video FX window, type a new value into the **Location** text box. Or, click the arrow next to Location in the Video FX window to expand the **Location** field and click and drag the location control.
9. To adjust the Angle using the Video Preview window, click and drag the circle inside the selection area.
10. To adjust the Angle using the Video FX window, enter a value in the angle text box, or drag the Angle slider.
11. To adjust Opacity, enter a number in the **Opacity** text box in the Video FX window or drag the **Opacity** slider.

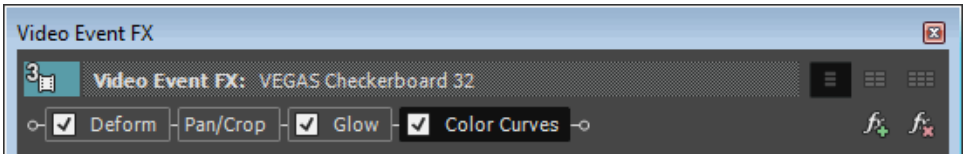
If you want to create an animated crop, use the keyframe controller at the bottom of the Video Event FX window to establish distinct settings throughout the duration of the event. To access the keyframe controller click the animate button associated with the paramater you want to animate. For more information, see "Keyframe animation" on page 268. Because the parameters are so dependent on each other it is important to have animation turned on for ALL the parameters before you start to animate a crop.

Crop using the Pan/Crop tool

Use the **Pan/Crop tool** to crop, zoom, rotate, or pan the selected video event. You can also use panning and cropping to add motion to video events created with still images.

You can also use the Pan/Crop tool to create masks using Bézier curves.

To prevent unwanted blurring, you can choose whether effects are applied to the event before or after any event panning and cropping by arranging the **Pan/Crop** *button in the plug-in chain at the top of the Video Event FX window.*

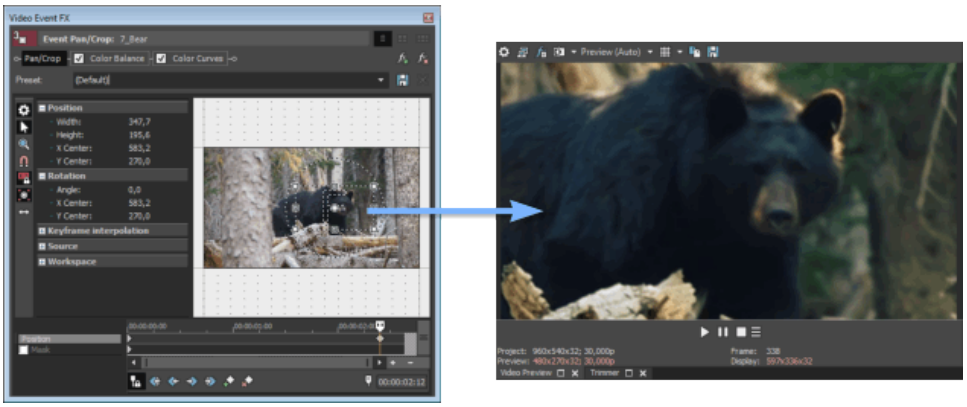


Here, the Deform plug-in is applied before the pan/crop and the Glow and Color Curves plug-ins are applied after the pan/crop.

Cropping or zooming a video event

Cropping is the process of removing the outside edges from an image or video without resizing it.

When you use a single setting for the duration of an event, you are cropping the contents of the event. When you add keyframes to change the extent of cropping through the duration of the event, you can create an animated zoom effect.



1. From the Tools menu, choose **Video**, and choose **Video Event Pan/Crop** (or click the **Pan/Crop** button on the video event).

   The Pan/Crop plug-in is displayed in the Video Event FX window.
2. Adjust the selection area to change the viewable portion of the event.
   - To resize the selection box, drag the handles located around the perimeter of the box. To type specific dimensions for the selection box, expand the **Position** heading on the left side of the window and type new values in the **Width** and **Height** boxes.

     Select the **Lock Aspect Ratio** button if you want the selection box to retain its aspect ratio during resizing. When the button is not selected, the height and width can be resized independently.

     Select the **Size About Center** button if you want the selection box to retain its center point when you resize the box by dragging its edges. When the button is not selected, the opposite side of the selection box will remain anchored when you drag the edges to resize it.
   - To reposition the selection box, click in the middle of the selection area and drag to a new position. To type a specific location, expand the **Position** heading on the left side of the window and type new values in the **X Center** and **Y Center** boxes.

     When **Move Freely** is selected, you can move the selection box along the X or Y axis. When **Move in X Only** is selected, you can only move the selection box horizontally. When **Move in Y Only** is selected, you can only move the selection box vertically.
   - To zoom in on the selection so the selection fills the output frame, expand the **Source** heading on the left side of the window and choose **Yes** from the **Stretch to fill frame** drop-down list. When **No** is selected, the media retains its original size, and the area outside the selection box is cropped.

   Right-click the workspace to display a shortcut menu that displays commands to restore, center, or flip the selection box. You can also force the box to match the source media's aspect ratio or your project's output aspect ratio. Matching the output aspect ratio can prevent black bars from appearing when you use source media (such as photographs) that does not match your project's aspect ratio.
3. The cropping or zooming occurs instantly and the results are updated in the Video Preview window.

4. If you want to create an animated crop or zoom, use the keyframe controller at the bottom of the Video Event FX window to establish distinct zoom settings throughout the duration of the event.

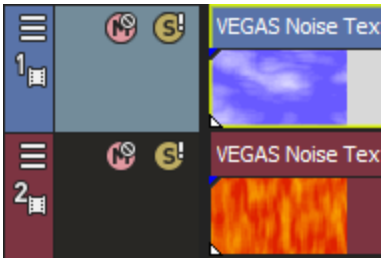
   During playback, intermediate frames are interpolated to create smooth motion. Expand the **Keyframe interpolation** heading on the left side of the window and drag the **Smoothness** slider to adjust the interpolation. For more information, see "Keyframe animation" on page 268

Use the **Default Pan/Crop smoothness** *control on the External Control & Automation tab of the Preferences dialog to set the default Smoothness value for new keyframes.*

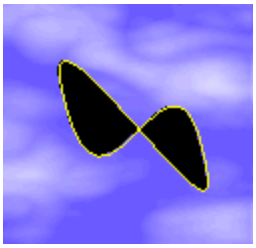
Creating a Bézier mask

Select the **Mask** check box in the keyframe controller at the bottom of the Video Event FX window and use the controls in the **Path** heading on the left side of the Pan/Crop plug-in to create masks using Bézier curves.

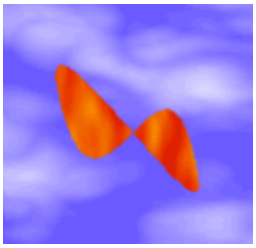
Each event can contain multiple Bézier masks.



Video Tracks



Bézier Mask



Video Output

Double-click the mask shape in the workspace to edit its properties. For more information, see "Editing a mask" on page 157

Creating a rectangular or oval mask

Use the **Rectangle or Square Mask Creation Tool** or **Oval or Circle Mask Creation Tool** on the left side of the Video Event FX window to quickly create new masks. Each event can contain multiple masks.

1. From the Tools menu, choose **Video**, and choose **Video Event Pan/Crop** (or click the **Pan/Crop** button on the video event). The Pan/Crop plug-in is displayed in the Video Event FX window.
2. Select the **Mask** check box in the keyframe controller at the bottom of the Video Event FX window.
3. Click the **Rectangle or Square Mask Creation Tool** or **Oval or Circle Mask Creation Tool** on the left side of the Video Event FX window.
4. Click and drag in the workspace to create a mask.
   - Hold Shift while dragging to constrain the mask to a square or circular shape.
   - Hold Ctrl while dragging to scale the mask shape from its center.
   - When creating an oval or circular mask, hold the left or right Alt key to create a half-oval (or half-circle) mask.
   - When creating a rectangle or square mask, hold Alt to create a mask with rounded corners.
5. Double-click the mask shape in the workspace to edit its properties. For more information, see "Editing a mask" on the next page

Masking event effects

You can use the **Apply to FX** control on the left side of the Video Event FX window to mask video event effects.

1. Apply an effect to your video event. For example, if you wanted to blur a subject's face, you could use the Pixelate plug-in.

   For more information, see "Adding video effects" on page 287
2. Create a mask around the portion of the event where you want the effect applied.

   For more information, see "Creating a Bézier mask" on the previous page or "Creating a rectangular or oval mask" on the previous page
3. Select the **Mask** check box in the keyframe controller at the bottom of the Video Event FX window and expand the **Mask** heading on the left side of the window.

4. Choose **Yes** from the **Apply to FX** menu.
   When you choose **Yes**, the video event effects will be applied only to the mask area:



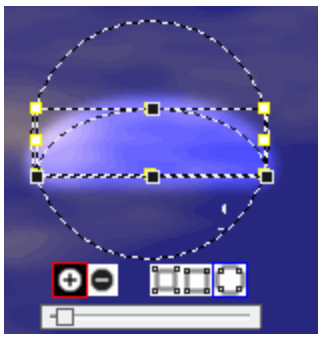
When you choose **No**, the mask is applied to the frame:



Editing a mask

After you create a Bézier, rectangular, or circular mask, you can use the tools in the workspace to edit the mask

1. Double-click the mask shape in the workspace to edit its properties:



2. Click the **Positive Mask** or **Negative Mask** button to choose whether you want to mask the area inside or outside the mask shape.

   You can also choose **Positive** *or* **Negative** *from the* **Mode** *drop-down list in the* **Path** *heading on the left side of the Pan/Crop plug-in.*

3. If you want to feather the edge of the mask shape, select the **Feather Inside** , **Feather Both** , or **Feather Outside** button and drag the slider below the mask shape to adjust the feather amount.

   You can also use the **Feather type** *and* **Feather (%)** *controls in the* **Path** *heading on the left side of the Pan/Crop plug-in.*

4. To move a mask, double-click the path to select it, and then drag it within the workspace.
   - You can also hold Alt+Shift while clicking a mask to select or deselect it.
   - You can also use the **Position** controls on the left side of the Pan/Crop plug-in to move selected masks.
   - To scale or rotate a selected mask, use the drag handles around the shape. Hold Ctrl or Shift to constrain movement.
   - Hold Shift while rotating a mask to constrain rotation to 15-degree increments.
   - To flip selected masks, right-click the mask and choose **Flip Horizontal** or **Flip Vertical** from the shortcut menu.
   - To duplicate a mask, right-click the mask and choose **Duplicate** from the shortcut menu (or hold Ctrl while dragging a selected mask to a new position).

Rotating a video event

1. From the Tools menu, choose **Video**, and choose **Video Event Pan/Crop** (or click the **Pan/Crop** button on the video event).

   The Pan/Crop plug-in is displayed in the Video Event FX window.
2. Adjust the selection area to crop the event. (If you rotate the entire frame, the background behind the video event will show through.)
3. Drag the corner of the selection box to rotate the event. Your cursor is displayed as a .

   To type a specific rotation angle, expand the **Rotation** heading on the left side of the window and type a new value in the **Angle** box.



4. If you want to rotate your video around a center point other than the center of the selection box, drag the point at the center of the selection point.

   To type a specific center point, expand the **Rotation** heading and type new values in the **X Center** and **Y Center** boxes.

   As you rotate your event, the video will rotate about this center.

   The rotation occurs instantly and the results are updated in the Video Preview window.
5. If you want to use multiple rotation settings, use the keyframe controller at the bottom of the Video Event FX window to establish distinct settings throughout the duration of the event.

   During playback, intermediate frames are interpolated to create smooth motion. Expand the **Keyframe interpolation** heading on the left side of the window and drag the **Smoothness** slider to adjust the interpolation. For more information, see "Keyframe animation" on page 268

   Use the **Default Pan/Crop smoothness** *control on the Editing tab of the Preferences dialog to set the default Smoothness value for new keyframes.*

Panning a video event

You can use event panning to focus on the action of a video event, or you can simulate motion using a still image.

Another use for panning is Pan-and-Scan, which is a technique commonly used when film is converted for television. Movie screens and film are usually wider (~2.35:1) than television (~1.33:1). When you transfer the film to video, you can use panning to crop your video frame and move the crop area to follow the action or subject.

1. From the Tools menu, choose **Video**, and choose **Video Event Pan/Crop** (or click the **Pan/Crop** button on the video event).

   The Pan/Crop plug-in is displayed in the Video Event FX window.
2. Adjust the selection area to crop the event. (If you pan the entire frame, the background behind the video event will show through.)
3. To resize the selection box, drag the handles located around the perimeter of the box. To type specific dimensions for the selection box, expand the **Position** heading on the left side of the window and type new values in the **Width** and **Height** boxes.

   Select the **Lock Aspect Ratio** button if you want the selection box to retain its aspect ratio during resizing. When the button is not selected, the height and width can be resized independently.

   Select the **Size About Center** button if you want the selection box to retain its center point when you resize the box by dragging its edges. When the button is not selected, the opposite side of the selection box will remain anchored when you drag the edges to resize it.
4. To reposition the selection box, click in the middle of the selection area and drag to a new position. To type a specific location, expand the **Position** heading on the left side of the window and type new values in the **X Center** and **Y Center** boxes.

   When **Move Freely** is selected, you can move the selection box along the X or Y axis. When **Move in X Only** is selected, you can only move the selection box horizontally. When **Move in Y Only** is selected, you can only move the selection box vertically.

5. To zoom in on the selection so the selection fills the output frame, expand the **Source** heading on the left side of the window and choose **Yes** from the **Stretch to fill frame** drop-down list. When **No** is selected, the media retains its original size, and the area outside the selection box is cropped.

   Right-click the workspace to display a shortcut menu that displays commands to restore, center, or flip the selection box. You can also force the box to match the source media's aspect ratio or your project's output aspect ratio. Matching the output aspect ratio can prevent black bars from appearing when you use source media (such as photographs) that does not match your project's aspect ratio.

6. Expand the **Source** heading on the left side of the window and choose **Yes** from the **Stretch to fill frame** drop-down list.
7. Drag the selection box to set the viewable portion the event. Your cursor is displayed as a ✣.
8. Use the keyframe controller at the bottom of the Video Event FX window to establish distinct settings throughout the duration of the event. The path of the panning is drawn in the Video Event FX window.

   During playback, intermediate frames are interpolated to create smooth motion. Expand the **Keyframe interpolation** heading on the left side of the window and drag the **Smoothness** slider to adjust the interpolation. For more information, see "Keyframe animation" on page 268

   Use the **Default Pan/Crop smoothness** *control on the Editing tab of the Preferences dialog to set the default Smoothness value for new keyframes.*

Editing keyframe interpolation

If you have two or more keyframes, you can expand the **Keyframe interpolation** heading and edit the **Smoothness** setting to adjust the smoothness of the motion.

Smoothness adjusts spatial interpolation: how motion occurs within the frame. A **Smoothness** setting of 0 produces linear motion from one keyframe to the next. Increasing the setting produces a curved path.

If you want to adjust temporal interpolation how motion occurs over time change a keyframe type by right-clicking a keyframe and choosing a new interpolation curve type (linear, fast, slow, smooth, sharp, or hold).

During playback, intermediate frames are interpolated to create smooth motion. For more information, see "Keyframe animation" on page 268

Use the **Default Pan/Crop smoothness** *control on the Editing tab of the Preferences dialog to set the default Smoothness value for new keyframes.*

Editing source media aspect ratio and stretching

Use the controls in the **Source** heading on the left side of the Pan/Crop plug-in to indicate how your video will be stretched or cropped.

Item	Description
Maintain aspect ratio	Choose **Yes** from the drop-down list (or select the  button) to prevent distortion of the source media file. When you choose **No**, the source media's ratio of height to width is not preserved when video is stretched in the output frame.
Stretch to fill frame	Choose **Yes** from the drop-down list if you want the media in the selection box to fill the output frame. When you choose **No**, the media retains its original size, and the area outside the selection box is cropped.

Editing workspace display settings

Use the controls in the **Workspace** heading on the left side of the Pan/Crop plug-in to change the display.

Item	Description
Zoom	To change the magnification of the video in the workspace, select the **Zoom** box and type a new setting, or select the box and click the button to display a slider that you can use to adjust the magnification level.
X offset	To pan the display left or right, select the **X offset** box and type a new setting, or select the box and click the button to display a slider that you can use to adjust the offset. Negative values move the video to the left, positive values move to the right, and 0 represents the horizontal center of the workspace.
Y offset	To pan the display up or down, select the **Y offset** box and type a new setting, or select the box and click the button to display a slider that you can use to adjust the offset. Negative values move the video up, positive values move the video down, and 0 represents the vertical center of the workspace.
Grid spacing	Select the **Grid spacing** box and type a new setting or select the box and click the button to display a slider that you can use to adjust the number of divisions displayed in the workspace.

You can also change the **X offset** *and* **Y offset** *values by hovering over the workspace until the pointer is displayed as a* *and dragging the workspace to pan in any direction.*

Editing the selection box

Use the controls in the **Edit** heading on the left side of the Pan/Crop plug-in to edit the selection box in the window.

Item	Description
Snap to grid	Choose **Yes** from the drop-down list if you want to snap the edges of the selection box to the workspace grid when you drag to resize or move the box. When you choose **No**, you can move and resize the selection box freely.
Lock aspect	Choose **Yes** from the drop-down list if you want the selection box to retain its aspect ratio during resizing. When you choose **No**, the height and width can be resized independently.
Scale about center	Choose **Yes** from the drop-down list if you want the selection box to retain its center point when you resize the box by dragging its edges. When you choose **No**, the opposite side of the selection box will remain anchored when you drag the edges to resize it.

Item	Description
Allow movement	**Horizontal**: You can move the selection box only horizontally in the workspace. **Vertical**: You can move the selection box only vertically in the workspace. **Unconstrained**: You can move the selection box horizontally or vertically in the workspace.

You can also right-click in the Pan/Crop plug-in to display a shortcut menu that will allow you to quickly adjust the selection box:

Item	Description
Restore	Returns the crop area to full frame.
Center	Moves the crop area to the center of the frame.
Flip Horizontal	Flips the event left to right and backwards.
Flip Vertical	Flips the event top to bottom and backwards.
Match Output Aspect	Sets the x,y ratio to match your project properties.
Match Source Aspect	Sets the x,y value to match the properties of your source media.

Saving or recalling a keyframe preset

Keyframe presets save the settings of the selected keyframe row at the cursor position.

Presets for the Position and Mask keyframe rows are saved separately: presets you create in the Position row will not be available in the Mask row.

Saving a preset

1. Adjust your Position or Mask settings as desired to create a keyframe.
2. Type a name in the **Preset** box.
3. Click the **Save Preset** button  .

Recalling a preset

1. Click in the Position or Mask keyframe row to select a row and position the cursor where you want to apply the preset.
2. Choose a setting from the **Preset** drop-down list.

   If no keyframe exists at the cursor position, one is created using the settings from the preset. If a keyframe exists at the cursor position, the keyframe's settings are replaced with the settings from the preset.

Deleting a preset

Click the **Delete Preset** button  to delete the current preset.

Stabilizing Video Clips

Video stabilization smooths out undesired picture movements by negating inadvertent movements in the image. This produces unusable edges in the footage that are cropped off automatically by zooming into the picture. The result: A more stable picture at a nearly imperceptibly increased zoom level.

1. You can use the video stabilization either as a Media FX or as an Event FX.
   - When using as a Media FX:
     In the **Project Media** window, select the video you want to stabilize.

     If you're using only a portion of a longer media file, you can use the Trimmer window to create a sub-clip that contains only the portion of the media that is used in your project. Stabilizing a sub-clip requires less processing than stabilizing a full media file. For more information, see "Using the Trimmer" on page 135

     From the Tools menu, choose **Video**, and then choose **Media FX** (or right-click a media file in the Project Media window and choose **Media FX** from the shortcut menu). The Plug-In Chooser is displayed.

     You can access the Media FX also via the Hamburger menu of a video event, where you also can add a button for it in the event header. The Media FX button in the header also functions as an indicator, whether a Media FX is applied ( ) or not ( ).
   - When using as an Event FX: Click the Event FX button at the event. The Plug-In Chooser is displayed.
2. In the Plug-In Chooser, select the **Video Stabilization** plug-in and click the **Add** button. The Media FX dialog displays the **Video Stabilization** plug-in.

Video stabilization can work in three different complexity levels. Switch between these levels with the **User view** drop-down list. In the initial **Basic** view there are few controls and most everything works automatically. If you don't get the results you want in Basic mode, click the Reset button and switch to either Professional or Expert mode to try again..

Here we proceed to explain the controls that are revealed when you chose the **Professional** mode. The **Expert** view has even more controls which are covered at the end of this section.

1. In the **Parameters** section:
   - Choose either **Fast** or **Accurate** mode from the drop-down menu to specify whether you want faster or more accurate analysis.
   - With **Motion Compensation** you chose which kind of motion in the video is taken into account when analyzing the motion compensation.
2. Click **Analyze Motion** to start the analysis. The process will take some time depending upon the chosen mode, the length of the file, and other factors. When the analysis is complete, the stabilization is automatically applied to your media.

   You cannot change the method of the analysis without doing the analysis again. For this, click **Clear Motion Data** *to discard the motion analysis, make your changes and run the analysis again.*

3. Start the playback of the clip and check the result of the stabilization. Perform any necessary adjustments in the **Stabilization options** and **Borders section** parameters.

   There are two different modes of stabilization available, **Smooth motion** and **Freeze motion**

   Smoothing The camera movement always consists of many small, fast, and unintentional movements and shaking, along with any intentional movements like pans, zooms or travel that must be kept. Smoothing is the parameter that helps to define how much "unsteadiness" should be kept in a scene, the higher that factor is, the more the movements are smoothed.

   Freeze motion In the Freeze motion mode it is assumed that there was no intended camera movement at all in the scene. Select one frame of the video with the **Reference Frame Number** slider that defines the reference view that should be kept. All other frames before and after this frame will be transformed according to the detected motion to keep this view.

   Borders: When the picture is moved in one direction to compensate for an unintended camera movement black borders will appear at the opposite edge. To avoid this, the picture is zoomed by a certain amount that is set by the **Additional Zoom** factor. An optimal value for **Additional Zoom** is calculated when the **Auto Zoom** box is checked, but you can freely change this value to keep as much image information as possible. You can further fine tune this with the **Additional Rotation** and **Additional Translation** parameters. Keep in mind that these parameters are automatable, so you can apply these corrections only where they are necessary.

   Edge Filling: For the cases where borders cannot be avoided, you can define how these borders are filled to make the zoom as unnoticeable as possible:

   - **Transparent:** Results in black borders (or video from the track below showing through).
   - **Mirror padding:** The video content is mirrored at the edge.
   - **Repeat:** The video content is repeated from the opposite edge of the video.
   - **Clamp to edge:** The last usable pixel is repeated.

    *You can also automate the Edge Filling mode.*

Motion Blur: In addition to stabilizing the video, you can add motion blur to it. Motion blur occurs when a camera was moved quickly like in a fast pan shot. Because this "error" is so familiar, pan shots from modern cameras that don't have motion blur, such as those in mobile phones, look unnatural to us.

Activate **Add Motion Blur** to create artificial motion blur from the detected camera movement. You can adjust how quickly the motion blur starts on a pan with the **Threshold**, which specifies how far (i. e. how many pixels) the camera has to be moved from one frame to the next for motion blurring to start.

Event FX or Media FX?

Event	Media
Only the section of the media file referred by the event is analyzed.	The motion analysis is done over the whole media file and can take a long time
Changing the event's start and/or time in the media file makes the analysis invalid and it has to be repeated.	The motion analysis covers the whole file so event editing is possible after applying stabilization.
Point visualization options are available in Expert Mode.	Point visualization in Expert mode is not available

Additional controls of the Expert mode

In Expert mode you get additional controls to fine tune the analysis accuracy with internal parameters of the analysis algorithm. When you switch between the **Accurate** and **Fast** methods you see that they are in fact just preset combinations of these parameters and thus many more combinations are possible to find the best working one for your specific footage.

Smoothing Parameters animation: Expert mode provides additional Smoothing control parameters. Animate buttons  for each of the different components of detected motion enable you to activate or de-activate each motion component separately over time to even better separate intended from unintended motion.

Visualization: Click **Show Points** to see points of interest (feature points) and their tracking vectors over the next frames. The track length of the vector indicates the number of frames a feature point could be tracked though the video. To hide points with a shorter track length increase the **Minimum track length** value, so you see only points with a longer track length that are more likely the correctly tracked ones.

The feature point visualization has some restrictions:

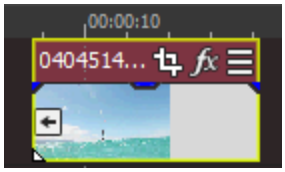
- It works only when Video Stabilization is applied as an Event FX
- The point data are not stored in the project file, so feature points are only available after the analysis until the end of the session. If you want to see them later in a saved project, you have to clear and re-analyze the motion data.
- There's no real-time update of the point visualization during video playback, but you can seek on the timeline to see the points in a different part of the video.

Reversing an event

Reversed events are perfect for backward guitar solos, creating the illusion of turning back time, or whatever else you can dream up. The event plays backward on the timeline without affecting the source media.

1. Right-click an audio or video event in the timeline.
2. Choose **Reverse** from the shortcut menu. The event is reversed on the timeline, and a subclip is created in the Project Media list for the reversed event. For more information about subclips, see "Using the Trimmer" on page 135

   An arrow is displayed on the event to indicate that it has been reversed:



Using takes as alternate versions of events

You can use takes to associate multiple media files with an event.

For example, if you create multiple versions of a voiceover event or multiple camera angles of a video event, you can maintain all the takes in your project. By specifying which take should be used before playback or rendering, you can maintain several drafts of your project in a single project file.

For information about using takes for multicamera editing, please see "Editing multicamera video" on page 185

Tips:

- When you open a copy of an event in a sound editor, VEGAS Pro automatically creates a copy of the event and saves it as a take within the event. For more information, see "Opening a copy of an event in an audio editor" on page 173
- If you want to slip all of an event's takes when slipping media, make sure **Slip All Takes** is selected in the Options menu. For more information, see "Slipping and sliding events" on page 147

Creating an event with multiple takes

1. In the Project Media or Explorer window, hold Ctrl or Shift while clicking the media files you want to use as takes.
2. Right-click and drag the media files to the location on the timeline. A shortcut menu is displayed when you release the mouse button.
3. From the shortcut menu, choose **Add as Takes**.

   A single event is created, but you can choose which of the media files you want the event to play by choosing the active take for the event.

Adding a take to an event

1. Right-click and drag the media file from the Project Media or Explorer window to an event on the timeline. A shortcut menu is displayed when you release the mouse button.
2. From the shortcut menu, choose **Add as Takes**.

   The media file is added to the event as the active take, and the original media file remains in your project as a take.

Choosing the active take in an event

1. Right-click the event that contains the takes.
2. From the shortcut menu, choose **Take**, and select **Choose Active** from the submenu. The Take Chooser dialog box appears.
3. Click the take you want to use and click **OK**.

   Click the **Play** and **Stop** buttons in the Take Chooser dialog box to preview takes.

Deleting the active take in an event

From the Edit menu, choose **Take**, and choose **Delete Active** from the submenu.

Deleting a take from an event

1. Right-click the event that contains the take.
2. From the shortcut menu, choose **Take**, and choose **Delete** from the submenu. The Take Chooser dialog box appears.
3. Click the take you want to delete and click **OK**.

Switching between takes

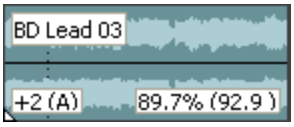
1. Right-click the event that contains the takes.

2. From the shortcut menu, choose **Take**, and choose either **Next Take** or **Previous Take** from the submenu.

Press T or Shift+T to choose the next or previous take for the selected event.

Displaying take information in events

From the View menu, choose **Active Take Information** to display the current take information on events in the timeline.



Pitch shifted audio events will display the amount of pitch shift in the bottom-left corner of the event. If the media has a known root note, the new root is displayed in parentheses.

Stretched audio events will display a percentage in the lower-right corner of the event to indicate the stretched playback rate. If the media has a known tempo, the effective playback tempo (after stretching) is listed in parentheses after the stretch amount.

Audio and video events that are not synchronized will be highlighted in the timeline, and the amount of offset will be displayed. Very small offsets that are below the resolution of the timeline may be displayed as 0.00. Set the project time format to samples to see the offset amount.

For more information, see "Repairing audio/video synchronization offsets" on page 148 and "Time ruler" on page 524

Grouping events

After you've arranged your events so they're just where you want them, you can create groups to lock the events together. Once grouped, you may apply editing tasks to the entire group of events.

When the **Cut, copy, and delete grouped events** *check box on the Editing tab of the Preferences dialog is selected, cutting, copying, or deleting an event will affect all events in the same group. For more information, see "Preferences - Editing Tab" on page 550*

Creating a group of events

1. Select the events you want to group together.
2. From the Edit menu, choose **Group**, and choose **Create New** from the submenu (or press G).

When you add media to the timeline, the events for the audio and video stream are grouped automatically.

Adding an event to an existing group

1. Right-click an event in the existing group, choose **Group** from the shortcut menu, and choose **Select All** from the submenu to select all of the members of the group.
2. Press Ctrl and click the event to be added to the group.
3. Right-click the event, choose **Group** from the shortcut menu, and choose **Create New** from the submenu.

Events can only be in one group at a time. Adding an event to an existing group essentially clears the old group and creates a new one that includes all of the selected events.

Removing an event from a group

Right-click the event you want to remove, choose **Group** from the shortcut menu, and choose **Remove From** from the submenu. The event is removed from the group.

Clearing a group

You can ungroup all events by clearing the entire group. Clearing a group does not remove events from your project.

Right-click one of the members of the group, choose **Group**, and choose **Clear** from the submenu.

Temporarily ignoring grouping

Select the **Ignore Event Grouping** button (or press Ctrl+Shift+U) to override event groups without removing the groups.

To move a single object of a group without moving the other group members:

1. Click and hold the right mouse button.
2. Click the left mouse button and drag the object to the new position.
3. Release both mouse buttons.

This works only with the Normal Edit Tool.

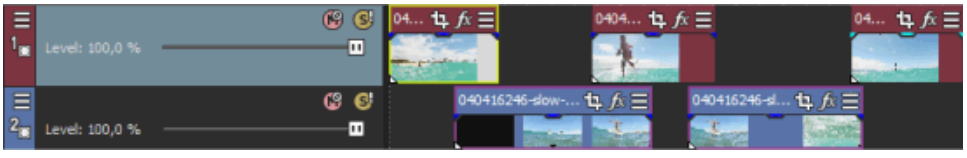
Cutting, copying, or deleting grouped events

1. Select the events you want to cut or delete.
2. From the Edit menu, choose **Group**, and choose **Cut All**, **Copy All**, or **Delete All** from the submenu. The selected events and any events that are grouped with the selected events are deleted or copied/cut to the clipboard.

Using sync links

Sync links are like one-way event groups. A linked event stays synchronized with the event to which it is linked, but not the other way around. Linked events do not contribute to the affected tracks for ripple editing. Sync links are useful for keeping additional audio mix and video compositing elements in sync with the main events in your project.

Linked events are displayed shorter and vertically aligned with the synchronized event. When you select an event that has linked events, the linked events are outlined in purple.



In this example, the events on track 2 are linked with the event on track 1.

When you move the event on track 1, the events on track 2 will stay in sync.

You can move the linked events on track 2 without affecting the location of the event on track 1.

Creating a sync link

1. Select the events you want to link.
2. Right-click the event that should be the synchronized event and choose **Create Sync Link with Selected Events** from the shortcut menu.

Removing a sync link

1. Select the events in the sync link.

   To quickly select all events in a sync link, right-click one event in the sync link, choose **Sync Link** *from the shortcut menu, and then choose* **Select All** *from the submenu.*

2. Right-click the event that should be the sync event and choose **Remove Sync Link from Selected Events** from the shortcut menu.

Unlinking an event in a sync link

1. Select the event you want to unlink from a sync link.
2. Right-click the event, choose **Sync Link** from the shortcut menu, and then choose **Unlink** from the submenu.

Selecting all events in a sync link

1. Select one event in the sync link.
2. Right-click the event, choose **Sync Link** from the shortcut menu, and then choose **Select All** from the submenu.

Applying switches to events

Event switches determine the behavior of events on the timeline.

From the Edit menu, choose **Switches** and choose a command from the submenu to toggle event switches on or off.

You can also adjust event switches in the Event Properties dialog. For more information, see "Editing event properties" on page 173

1. Select the event(s). For more information, see "Creating selections and positioning the cursor" on page 119
2. From the Edit menu, choose **Switches** (or right-click an event and choose **Switches** from the shortcut menu).
3. Select the type of switch you want to apply to the event:

Switch	Description
Mute	Excludes the selected event from playback. Muted events are darkened on the timeline to indicate their muted state. In the following example, the middle events are muted:

Switch	Description
	
Lock	Locks an event so that it cannot be moved or edited. *Click the* **Lock** *button* *on the editing toolbar to quickly lock and unlock a selected event on the timeline.*
Loop	Enabling the **Loop** switch on an event will allow you to drag the right edge of the event out and have it repeat the file over and over rather than inserting silence.
Invert Phase (audio only)	Reverses the phase of the sound data. Although inverting data does not make an audible difference in a single file, it can prevent phase cancellation when mixing or crossfading audio signals.
Normalize (audio only)	Maximizes an audio event's volume without clipping. If you want to recalculate the normalization value for the selected event, click the **Recalculate** button on the Event Properties dialog to determine the normalization value for the selected event. If you trim or extend a normalized event, you will want to recalculate the normalization to account for the different audio levels that may have been exposed.
Maintain Aspect Ratio (video only)	Prevents aspect ratio distortion (stretching of video frames) when the length-to-width ratio between the source media and project's frame size are not the same.
Reduce Interlace Flicker (video only)	This switch can be useful in cases where the source material didn't originate as video and contains extremely high spatial or temporal frequencies. When you watch the rendered (interlaced) output on video of this sort of media, you may see flickering or crawling edges if this switch is not applied Enable this switch when using imported images that were not created using a video camera (such as photographs) or when using generated media or text. For more information, see "Adding generated media to your project" on page 297 and "Creating text and titles" on page 299
Resample (video only)	Select a radio button to determine how video frames will be resampled when the frame rate of a media file is lower than the project's frame rate. This can occur either when the event has a velocity envelope or when the frame rate of the original media is different than the **Frame rate** setting on the Video tab of the Project Properties dialog. With resampling, the intervening frames are interpolated from the source frames, much like a crossfade effect between the original frames. This may solve some interlacing problems and other

Switch	Description
	jittery output problems. • **Use project resample mode** Resampling occurs only when an event's calculated frame rate does not match the project frame rate and the project frame rate is 24 fps or greater. The calculated frame rate takes into account any changes made to event speed with velocity envelope, playback rate, and undersample rate. • **Force resample** The event is always resampled, regardless of its frame rate or the output frame rate. • **Disable resample** No resampling will occur. *The event resample setting will override the project* **Resample mode** *setting. For more information, see* *"Setting project properties" on page 41*

Audio streams

When you add a multistream audio file to your project, you can choose which stream you want to use in the event.

1. Select an audio event and choose **Stream** from the Edit menu (or right-click an event and choose **Stream** from the shortcut menu). A submenu is displayed.
2. Choose a command from the submenu to choose the stream you want to use.

Audio channels

VEGAS Pro allows you to perform audio channel conversion nondestructively. You can mix channels, convert to mono, swap channels in a stereo file, or choose the channel that you want to use in a multichannel file.

1. Select an audio event and choose **Channels** from the Edit menu (or right-click an event and choose **Channels** from the shortcut menu). A submenu is displayed.
2. Choose a command from the submenu to specify how to treat the channels in your file.

   For events that use multichannel audio:

Item	Description
Channel x	Treats the event as a mono file using the audio from the channel you choose.
Channels x/y	Treats the event as a stereo file using the audio from the channels you choose.

   For events that use stereo audio:

Item	Description
Both	Treats the event as a normal stereo file.
Left Only	Creates a mono event using only the left channel of your media file.
Right Only	Creates a mono event using only the right channel of your media file.
Combine	Creates a mono event by mixing the channels of your media file. After mixing the channels, the amplitude is divided by two to prevent clipping.
Swap	Exchanges the right and left channels in a stereo file.

Opening events in an audio editor

The VEGAS Pro timeline is a nondestructive editing environment, which means that the original source files remain unchanged by any editing done in the software. Edits that modify the actual source media file (destructive edits) may be performed in a separate application such as Sound Forge software from MAGIX.

From the Tools menu, choose **Audio**, and choose **Open in [editor name]** from the submenu to start your sound-editing application and modify the selected audio event using the editor specified on the Audio tab in the Preferences dialog.

1. Select the event you want to edit.

   You can select multiple events to open each event in a separate window in the sound editor.
2. From the Tools menu, choose **Audio**, and choose **Open in [editor name]**. The editing application is opened with the event's media.
3. Edit and save the file.

   After you have edited and saved the file, VEGAS Pro automatically detects the updated file and updates the event in the project. However, if you change the media file's name or location (by using Save As), you must import the edited (new) file into your project. For more information, see "Adding media files to your project" on page 114

Notes:

- Audio events from nested projects cannot be edited in a sound editor. For more information, see "Nesting projects" on page 54
- When you first install VEGAS Pro, it searches for Sound Forge software. If the software is detected, it is automatically assigned as your sound editor. However, if you do not have Sound Forge software, you may specify the location of your preferred audio editor on the Audio Tab in the Preferences dialog.

You may also edit a file that has been placed in the Trimmer window by right-clicking the Trimmer window and choosing **Open in Audio Editor** *from the shortcut menu.*

Opening a copy of an event in an audio editor

The VEGAS Pro timeline is a nondestructive editing environment, which means that the original source files remain unchanged by any editing done in the software. Edits that modify the actual source media file (destructive edits) may be performed in a separate application such as Sound Forge software from MAGIX.

From the Tools menu, choose **Audio**, and choose **Open Copy in [editor name]** from the submenu to start your sound-editing application and modify the a copy of the selected audio event using the editor specified on the Audio tab in the Preferences dialog. For more information, see "Preferences - Audio Tab" on page 542

1. Select the event you want to edit.

   You can select multiple events to open each event in a separate window in the sound editor.
2. From the Tools menu, choose **Audio**, and choose **Open Copy in [editor name]**. The editing application is opened with a copy of the event's media.
3. Edit and save the file.

   After editing the sound file and saving, the new file is set as the active take for the event. The new file is added to the Project Media window with a take name appended to the original file name. For more information, see "Using takes as alternate versions of events" on page 165

Notes:

- Audio events from nested projects cannot be edited in a sound editor.
- When you first install VEGAS Pro, it searches for MAGIX Sound Forge software. If the software is detected, it is automatically assigned as your sound editor. However, if you do not have Sound Forge software, you can specify the location of your preferred audio editor on the Audio tab in the Preferences dialog.

Editing event properties

Right-click an event and choose **Properties** from the shortcut menu to use the Event Properties dialog to modify an event.

Editing the name of the active take

If you have recorded multiple takes, you can edit the take names in the Event Properties dialog.

1. Right-click the event and choose **Properties** from the shortcut menu.
2. On the Audio Event tab, enter or edit the take name in the **Active take name** box.
3. Click **OK**.

Changing event switches

1. Right-click the event and choose **Properties** from the shortcut menu.
2. On the Audio or Video Event tab, select the switches you want to use.

   For more information, see "Applying switches to events" on page 169
3. Click **OK**.

Time-stretching or pitch-shifting an audio event

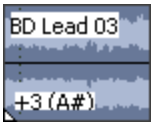
The **Resample and stretch quality** *setting on the Audio tab of the Project Properties dialog determines the quality of processing when time-stretching audio events. For more information, see* *"Setting project properties" on page 41*

Editing from the timeline

1. Select an event.
2. Use the = and - keys on your keyboard (not the numeric keypad) to adjust pitch:

Key	Result
=	Raise pitch one semitone.
Ctrl+=	Raise pitch one cent.
Shift+=	Raise pitch one octave.
Ctrl+Shift+=	Reset pitch.
-	Lower pitch one semitone.
Ctrl+-	Lower pitch one cent.
Shift+-	Lower pitch one octave.
Ctrl+Shift+-	Reset pitch.

If **Active Take Information** is selected from the View menu, the event's pitch shift is displayed in the bottom-left corner of the event. If the media has a known root note, the new root is displayed in parentheses.



Editing in the Event Properties dialog

1. Right-click the event and choose **Properties** from the shortcut menu.
2. On the Audio Event tab, choose a setting from the **Method** drop-down list.

Setting	Description
None	Turns off time stretching and pitch shifting.
élastique	The élastique method uses technology from zplane.development, and provides enhanced real-time time stretching and pitch-shifting capabilities. The élastique method also allows you to preserve and shift a clip's formants, which are the characteristic resonant frequencies of a sound. a. Choose a setting from the **Stretch attributes** drop-down list to choose the stretching method best suited to your media: • **Pro** – Provides the highest quality stretching but requires more RAM usage and CPU power. • **Efficient** – Uses fewer resources while still producing great time-stretching quality for polyphonic audio. • **Soloist (Monophonic)** or **Soloist (Speech)** – Provide good quality for monophonic audio with little effect on system resources. b. Type the desired event length in the **New length** box. The event's original length is displayed for reference in the **Original length** box. c. Type the desired pitch shift (in semitones) in the **Pitch change** box. If you want to change the event length without changing pitch, type 0 in the box. If you want the pitch to be determined by the new event tempo, select the **Lock to stretch** box. For example, doubling an event's tempo will raise its pitch by one octave. d. If the élastique Pro mode is selected in the **Stretch attributes** drop-down list, you can type a value in the **Formant shift** box to adjust the event's formants. This option is only available when the **Preserve formants** check box is selected. Formant shifting can be used to deepen the tone of a vocal performance without changing the pitch. The formant shift amount represents the number of semitones to shift the timbre in addition to the offset required to compensate for any pitch shifting. For example, a setting of 0.000 applies formant correction with no additional shifting, while a setting of -7.000 will apply formant correction and deepen a sound by 7 semitones.
Classic	Allows you to time stretch the audio by specifying a new event length. You can specify a pitch shift amount or lock the pitch to the time stretching. a. Type the desired event length in the **New length** box.

Setting	Description
	b. Type the desired pitch shift (in semitones) in the **Pitch change** box. If you want to change the event length without changing pitch, type 0 in the box. If you want the pitch to be determined by the amount of time stretching, select the **Lock to stretch** box. For example, doubling an event's length will raise its pitch by one octave. c. Choose a setting from the **Stretch Attributes** drop-down list to specify how you want to divide and crossfade the file to prevent artifacts. Depending on your source material, you may need to experiment with different crossfade types.

Changing the playback rate of or undersample a video event

1. Right-click the event and choose **Properties** from the shortcut menu.
2. On the Video Event tab, adjust the **Playback rate** and **Undersample rate** controls.

Setting	Description
Playback rate	Enter a value in the box to set the rate of playback. For example, a setting of 1 will play at normal speed, while 0.5 will play at half speed. Each video event in your project has a specific duration that is not changed by adjusting the playback rate. If you decrease the speed of a ten-second video event by 50%, only five seconds of video will be shown. On the other hand, if the speed is increased 200%, the ten seconds of video will play in only five seconds. The remaining five seconds of the event will be filled either with a freeze of the last frame or with ten additional seconds of video content from the media file (if the source media is longer than the event).
Conform to Project Frame Rate	Click to adjust the playback rate of a high-frame-rate clip to play using the project frame rate. For more information, see "Working with high-frame-rate (HFR) clips" on page 83
Undersample rate	Enter a value in the box to simulate a lower frame rate. For example, if you enter 0.5 in the box, the event will play at half its original frame rate, and each frame will be held twice as long as in the original media file, creating a strobe effect.

3. Click the **OK** button.

Editing information about the media file

1. Right-click the event and choose **Properties** from the shortcut menu.
2. Click the **Media** tab.
3. Edit the settings as needed. For more information, see "Viewing or changing media file properties" on page 94
4. Click the **OK** button.

Viewing media file properties

1. Right-click the event and choose **Properties** from the shortcut menu.
2. Click the **General** tab.
   The General tab displays information about the event's source media file, streams, metadata, and the plug-in used to read the file.
3. Click the **OK** button.

Copying and pasting or selectively pasting event attributes

Copying and pasting event attributes allows you to apply properties from one event to other events. You can copy and paste all the attributes of one event into another or you can choose which attributes to paste. The following attributes can be copied and pasted:

- Event switches
- Audio event pitch shift
- Video event playback rate and undersample rate
- Video event effects and effect keyframes
- Video event pan/crop settings
- Video event velocity envelopes
- Pre and post transitions

1. Select the event from which you want to copy attributes.
2. From the Edit menu, choose **Copy**.
3. Select the event where you want to apply the copied attributes.
4. From the Edit menu, choose **Paste Event Attributes**.
5. To select particular attributes to paste, rather than all of them, from the Edit menu choose **Selectively Paste Event Attributes**
   The Selectively Paste Event Attributes box opens. Check the box of any attribute you want to paste and click **OK**

Copy, Paste, and Selectively Paste Event Attributes commands are also available from the context menu and video event Hamburger button.

Using the Edit Details Window

Choose **View** > **Window** > **Edit Details** to toggle the display of the Edit Details window.

The Edit Details window displays a database for all of the media in your project. It shows information about how files in the project are being used and allows you to modify many of those properties. You may sort, add or change information, rearrange columns, and edit items in the project.

This window provides an alternate method for working with events, audio CD track lists, commands, markers, and regions.

Viewing Edit Details

1. Choose **View** > **Window** > **Edit Details** to display the Edit Details window.

2. From the **Show** drop-down list, choose the project information you want to see.

Item	Description
Audio CD Track List	Displays the information for each CD track and index marker that you've inserted in your project. Use this view for arranging a disc-at-once (Red Book) CD. For more information, see "Disc-at-once (DAO or Red Book) CD Burning" on page 454
Commands	Displays the settings for each metadata command that you've inserted in your project. For more information, see "Inserting command markers" on page 206
Events	Displays the information for each event on the timeline.
Markers	Displays the information for each marker that you've inserted in your project. For more information, see "Inserting markers" on page 203
Regions	Displays the information for each region that you've inserted in your project. For more information, see "Inserting regions" on page 204
Selected Events	Displays the information for each selected event on the timeline.

3. Use the column headings to arrange and sort the information in the window:
4. Drag the heading columns to rearrange the column order.
5. Click a column heading to sort in ascending or descending order.

   *The time-based columns (***Start***,* **End***,* **Length***,* **Take Start***,* **Timecode In***, and* **Timecode Out***) display time in your project's ruler format. You can set this format on the Ruler tab of the Project Properties dialog. For more information, see "Setting project properties" on page 41*

6. Double-click a table cell to edit it, or right-click to display a shortcut menu.

Customizing the appearance of the window

1. Arrange and sort the information in the Edit Details window:
   - Drag the heading columns to rearrange the column order.
   - Click a column heading to sort in ascending or descending order.
   - Drag a heading off the Edit Details window to remove it from the view.
2. Enter a name in the **Preset** box and click the **Save** button  . The current view (including sort order) is saved.
3. To recall the view later, choose its name from the **Preset** drop-down list.

Removing red eye from still images

We've all been there–you have the perfect picture for your movie, but the subject's eyes are glowing a bright red. That might be okay for a sci-fi epic, but not for your movie. No worries. With VEGAS Pro, you can remove red eyes and make your subjects look human again.

1. Right-click a still image on the timeline (or in the Project Media window) and choose **Red Eye Reduction** from the shortcut menu.
2. Click the center of the red eye and drag to create a selection around the red portion of the eye.

   Click the  or  buttons to change the magnification of the image, or roll the mouse wheel forward or backward to zoom around the cursor position.

3. Drag to position the selection box over the portion of the eye you want to correct.
   Drag the borders of the selection box to adjust its size. VEGAS Pro automatically adjusts the portion of the image in the selection box to remove red eye.

   Right-click a selection box and choose **Delete** *from the shortcut menu to remove it.*

4. Readjust the selection box as needed, and repeat this procedure for each red eye in the image.

   If an image is used multiple times in your project, removing the red eyes once will affect all instances of the image.

Undoing and redoing edit operations

Undo and redo give you the freedom to experiment with your project. Edit to your heart's content. If you change your mind, you can always undo your changes. If you change your mind again, you can redo the undone edits (whew!).

For example, if you accidentally deleted a track, simply choose **Undo** to restore the track.

You can perform an unlimited number of undos, so you can restore the project to any state since the last **Save** *command.*

Undoing the last action performed

From the Edit menu, choose **Undo** or click the **Undo** button  .

Undoing a series of actions

1. Click the arrow next to **Undo** button  . A list of the most recent actions that you can undo is displayed.
2. Select the action you want to undo. If the action does not appear in the list, use the scroll bar to scroll through the list. The selected action and all actions above it are reversed.

Reversing the last Undo performed

From the Edit menu, choose **Redo**, or click the **Redo** button  .

If you later decide that you did not want to reverse an undo, click the **Undo** *button*  .

Reversing a series of Undo actions

When you reverse an Undo, you also reverse all Undo actions above it in the list.

1. Click the arrow next to **Redo** button  . A list of the most recent actions that you can redo is displayed.
2. Select the action you want to redo. If the action does not appear in the list, use the scroll bar to scroll through the list. The selected action and all actions above it are redone.

Undoing all edits

From the Edit menu, choose **Undo All** to reverse all edits in the undo history.

You can view the edit history by clicking the arrow next to **Undo** button .

Clearing the edit history

From the Edit menu, choose **Clear Edit History** to clear all of the entries in the Undo/Redo History list for the current project.

The edit history is also cleared when you close your project.

You will not be able undo or redo any previous changes after clearing the history.

Rebuild audio peaks

From the View menu, choose **Rebuild Audio Peaks** to rebuild peak files (.sfk) for all audio events in your project.

Zooming and magnification

Use the controls in the lower-right corner of the timeline to change the magnification level of your project.

Tips:

- Double-clicking the **Zoom Tool** button in the corner of the timeline adjusts the horizontal and vertical magnification so that as much of the project is displayed as possible.
- Roll the mouse wheel forward or back to zoom out or in quickly.

Zoom in to track height

- Click the **Zoom In Track Height** button to increase the track height zoom level to show more event detail.
- Click the **Zoom Out Track Height** button to decrease the track height zoom level to show more tracks.
- Click and drag the area between the buttons to increase or decrease track height zoom level.



Press Ctrl+Shift+Up/Down Arrow to increase or decrease the height of all tracks.

Zoom in to an event

- Click the **Zoom In Time** button to increase the horizontal zoom level to show more event detail.
- Click the **Zoom Out Time** button to decrease the horizontal zoom level to show more of the timeline.

- Click and drag the area between the buttons to zoom in or out on the timeline.



You can also use the Up/Down Arrow keys to zoom:

- Press the Up/Down Arrow keys to zoom in horizontally in small increments.
- Press Ctrl+Up/Down Arrow to zoom in large increments. If a time selection exists, Ctrl+Up/Down Arrow will zoom to the selection.

Zoom in to a selection

Click the **Zoom Tool** button in the corner of the timeline to temporarily change the cursor into the Zoom tool. Select an area of the timeline that you want to magnify, and the cursor will revert to the previously active tool.



Press Ctrl+Up/Down Arrow to zoom to the selection.

Multicamera editing

VEGAS® Pro makes it easy to work with video from multiple cameras right from the timeline. You can capture and edit video for a single scene from multiple cameras or for a single scene shot multiple times from one camera. Multicamera work is generally completed in five steps.

Shooting multicamera video

When shooting multicamera video, there are a few key components to consider before getting started:

- If possible, use the same make and model of camera and the same settings. Otherwise, you may need to do significant color correction in order to match the look between cameras.
- If possible, provide a single timecode source to all cameras.

  With synchronized timecode, VEGAS Pro can lay out multicamera media in perfect synchronization. Otherwise, you'll need to manually adjust the alignment between clips. For more information, see "Synchronizing video in multicamera projects" below

  Unsynchronized timecode between two cameras—even of the same type—drifts as much as one second per hour. Likewise, date/time stamps also drift and can only be used for approximate layout. If you only need two cameras on your shoot, be aware that some Sony cameras (e.g. HVR-V1) can synchronize timecode (using a feature called “TC Link”) over IEEE-1394.
- Set the date and time in each camera. The closer these are, the better the approximate layout will be. Even if you’re using a master timecode source, you should set the date/time as a backup.
- Before or after each scene, record a synchronization point. It is preferable to use a video slate board for this purpose, but you can also employ a loud and visible hand clap. You can also use a flash from a still camera, but you must disable any red-eye reduction, as this can cause multiple flashes. A fast camera flash combined with a fast shutter speed can be problematic as well.

  Regardless of the synchronization method you choose, it must be visible by all cameras.
- If you forget to record a synchronization point, you'll have to align the clips using another reference point, such as something consistent in the audio or video. Be aware that in distant shots, the audio captured by the camera’s microphone will be delayed from the video (1 frame for every 11.5 meters).
- At least one of the cameras should be recording the audio you’ll use for the final edit. Alternatively, if you’re using dual-system sound, you can record audio on another device altogether. If you are shooting a musical performance, you might even be using the studio-recorded audio track. If you record audio on multiple cameras, you'll be able to switch between it along with the video if you choose.

Capturing multicamera video

You can use the Vegas Video Capture application included with VEGAS Pro to capture recordings from each camera in your multicamera shoot just as you would normally.

However, when you capture multicamera video, it is especially important to give each tape (or disc) a unique name; VEGAS Pro uses this information to create a track for each camera. Before you begin the capture process, enable scene detection in the capture application so each segment is captured as a separate clip. For more information, see "Capturing video" on page 104

Synchronizing video in multicamera projects

In order to effectively edit multicamera footage within VEGAS Pro, you must have your video clips synchronized. The best place to do this is the timeline, using the same VEGAS Pro editing tools as you would for any video project.

Laying out clips using timecode or data/time stamps

1. Start a new project or open an existing project to which you want to add the multicamera video.
2. From the Options menu, choose **Quantize to Frames** if it is not already selected. For more information, see "Quantize to frames" on page 126
3. From the Options menu, choose **Ignore Event Grouping** to turn it off.
4. Select your clips in the Project Media window.
5. Add your clips to the timeline:
   - For clips with synchronized timecode, choose **Multicamera** from the Tools menu, and then choose **Lay Out Tracks Using Media Timecode** from the submenu.
   - For clips without synchronized timecode, choose **Multicamera** from the Tools menu, and then choose **Lay Out Tracks Using Media Date/Time Stamp** from the submenu.

The result is a pair of tracks for each camera, with events aligned based on the timecode or date/time stamp of each clip. If your scenes were captured with synchronized timecode, your clips should be in perfect alignment. Otherwise, you'll need to adjust the alignment to synchronize the clips. The goal is to align the clips in time so the synchronization points you recorded occur at the same timeline position for all clips.

Adjusting alignment using audio

If you can assume that all cameras involved have recorded the same audio, you can also use these audio tracks to synchronize the events.

1. Select all events.
2. Choose Menu **Tools** > **Multicamera** > **Synchronize Audio to Align Events**
3. The events below the topmost one are moved forward or backward so that they are synchronized.

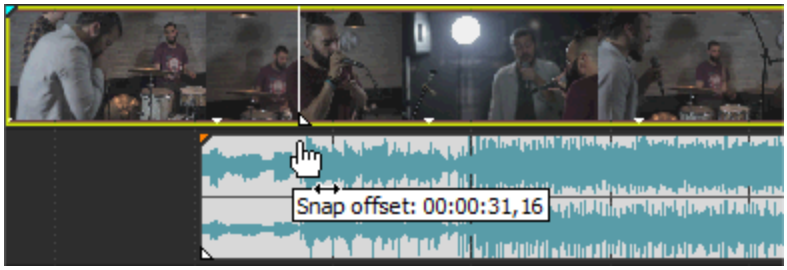
   In this process the whole audio data is analyzed to find similarities so this can take a while with longer recordings.

Adjusting alignment using video

You can also align your events using the video.

These steps require snapping to be enabled, so if you have not already done so, turn snapping on by clicking the **Enable Snapping** *button . For more information, see "Enable snapping" on page 124*

1. Solo the video track.
2. Position the cursor at the synchronization point and drag the event's snap offset so it snaps to the cursor.



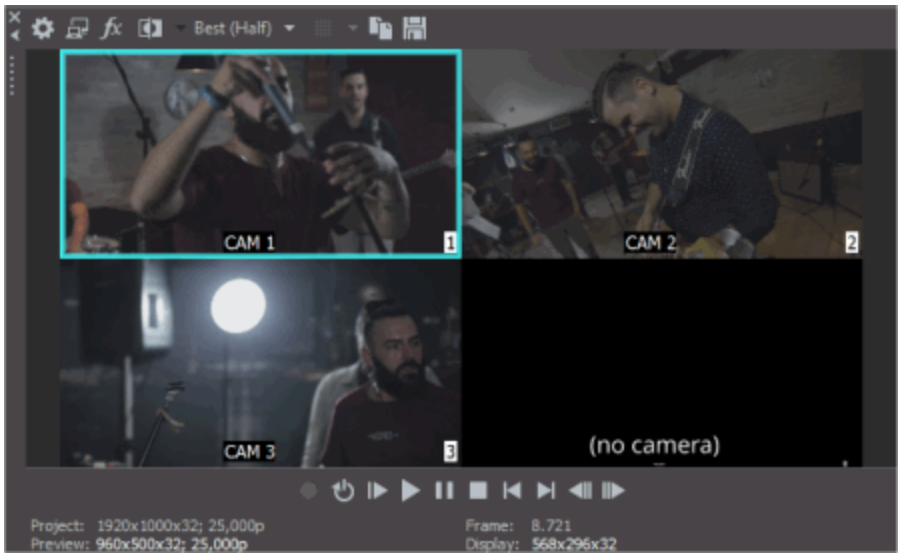
3. Repeat these steps for each clip.
4. Drag the cursor to a snap point, and then snap the other clips to the cursor.

Creating multicamera events

VEGAS Pro uses takes for multicamera editing. For more information, see "Using takes as alternate versions of events" on page 165 While the multicamera editing feature can be used with any multitake video event, VEGAS Pro makes it easy to build multitake events for multicamera editing.

1. When VEGAS Pro creates multitake events from your camera tracks, the take order will match the track order. As a result, it's a good idea to first reorder your tracks if you have a particular order you prefer (wide shot, medium shots, handheld).
2. Once all of your cameras are laid out across tracks, synchronized, and ordered to your satisfaction, select the tracks from which you want to create a multicamera track (or press Ctrl+A to select all tracks). For more information about synchronizing your video, see "Synchronizing video in multicamera projects" on page 183
3. From the Tools menu, choose **Multicamera**, and choose **Create Multicamera Track** from the submenu. VEGAS Pro builds a set of tracks containing a series of events, with takes representing each of the cameras.

   A new event is created for each time a camera was started and stopped, as well as empty "(no camera)" takes for video events where cameras were missing.



   If you have envelopes, effects, or motion applied to the original camera tracks, these will be lost during this operation.

4. You're now ready to start editing your multicamera video. For more information, see "Editing multicamera video" below

Editing multicamera video

Once you have synchronized multitake events, you can use multicamera editing mode to choose takes and switch cameras. This can be done while VEGAS Pro is paused for cuts at precise points (such as certain timecodes or beat markers), or it can be done live during playback. Playback continues even when a take is chosen.

When multicamera editing mode is active, video envelopes, effects, and motion are bypassed in the Video Preview window to preserve your playback frame rate.

Enabling multicamera editing mode

To edit multicamera video in VEGAS Pro, you must enable multicamera editing mode. From the Tools menu, choose **Multicamera**, and choose **Enable Multicamera Editing** from the submenu.

Previewing multiple takes

In multicamera editing mode, the Video Preview window switches into multicamera mode, with a multicamera tiled view showing the contents of all takes simultaneously. The active take is highlighted with a colored border.



Notes:

- VEGAS Pro can preview many takes at once in multicamera mode, but your computer performance will limit the playback frame rate.
- If you have multiple video tracks and/or overlapping video events, the topmost multitake event is displayed in the Video Preview window. Single-take events, such as title overlays, are ignored. When there are multiple video tracks, the topmost event is the one on the topmost track. When there are overlapping events on the same track, the topmost event is the one to the right.

Toggling the display of camera/take name and number information in the Video Preview window

The camera and take name and number information display in the Video Preview window by default. You can toggle the display of this information from the Video tab of the Preferences window. For more information, see "Preferences - Video Tab" on page 533

You can also toggle the display of take names on events in the timeline. From the View menu, choose **Active Take Information**.

1. From the Options menu, choose **Preferences**, and then click the Video tab.
2. To turn off display of take name information, clear the **Display take names** check box. To turn off display of take number information, clear the **Display take numbers** check box.

Setting the active take indicator color

You can select the color that highlights the active take in the Video Preview window.

1. From the Options menu, choose **Preferences**, and then click the Video tab.
2. Click the **Active take indicator** color swatch to display a color picker, where you can choose any color using the RGBA or HSLA controls. Click the button to switch between RGB and HSL color modes, or click the eyedropper to sample a color from your screen.

Previewing the full frame on an external monitor

You can choose to preview the full frame on an external monitor while in multicamera mode. This allows you to see the final output without leaving multicamera mode.

From the Tools menu, choose **Multicamera**, and then choose **Show Full Frame in External Monitor** to toggle this option on or off.

Choosing takes

There are several methods you can use for choosing takes, such as pressing number keys or by clicking the takes in the Video Preview window. When you choose a take, VEGAS Pro switches the active take for the multicamera event.

Holding the Ctrl key while choosing a take will create a crossfade instead of a cut, with the alignment and duration determined by the **Cut-to-overlap conversion** *settings from the Editing tab of the Preferences dialog. For more information, see* *"Preferences - Editing Tab" on page 550*

In the Video Preview window, camera changes are displayed as the active take indicator moving across takes. When multicamera mode is off, you'll see camera changes in the video output.

To change takes, VEGAS Pro splits the event at the call point and switches the active take.

Empty takes [those marked with "(no camera)"] cannot be chosen.



Recutting sections

You can change the take used for an entire time selection. When possible, events using the same take are merged. If a take is not available for part of the time selection, those events are unchanged.

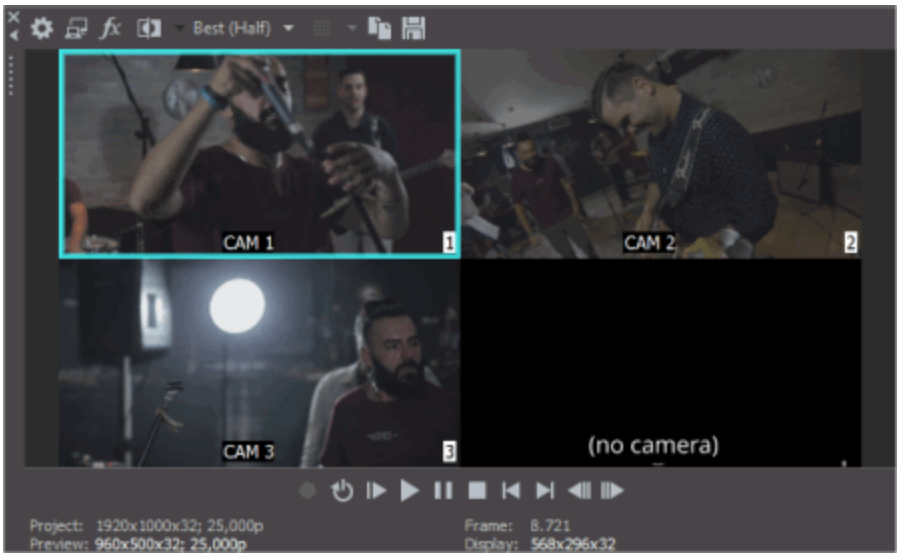
There are several methods you can use for choosing takes, such as pressing number keys or by clicking the takes in the Video Preview window. When you choose a take, VEGAS Pro switches the active take for the multicamera event.

Holding the Ctrl key while choosing a take will create a crossfade instead of a cut, with the alignment and duration determined by the **Cut-to-overlap conversion** *settings from the Editing tab of the Preferences dialog. For more information, see* *"Preferences - Editing Tab" on page 550*

In the Video Preview window, camera changes are displayed as the active take indicator moving across takes. When multicamera mode is off, you'll see camera changes in the video output.

To change takes, VEGAS Pro splits the event at the call point and switches the active take.

Empty takes [those marked with "(no camera)"] cannot be chosen.



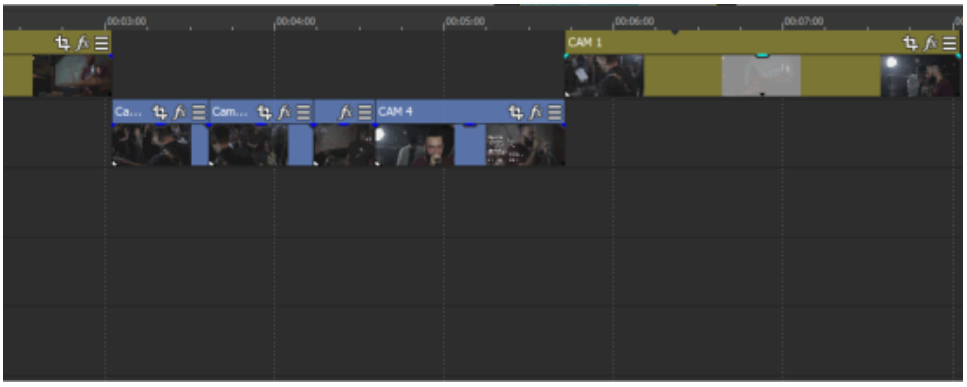
Expanding a multicamera track to multiple tracks

VEGAS Pro can expand a multicamera track to multiple component tracks.

1. Select a multicamera track in the track list.
2. From the **Tools** menu, choose **Multicamera**, and then choose **Expand to Multiple Tracks** from the submenu.
3. You are prompted to either keep unused takes as muted events or delete them. If you keep unused takes as muted events, you can recreate your multicamera track later. Click **Yes** to keep unused takes or **No** to delete them.



Expanded multicamera track with unused takes kept as muted events.



Expanded multicamera track with deleted unused takes .

Resetting camera changes

To reset a range of time to use a single take (perhaps in order to redo the take choosing), select a range of events in the timeline and right-click one event. From the shortcut menu, choose **Take**, and then choose the take to use for all selected events.

Turning off multicamera editing mode

From the Tools menu, choose **Multicamera**, and choose **Enable Multicamera Editing** from the submenu to turn off multicamera editing mode once you have completed your multicamera editing.

In normal editing mode, the output displays only the active take for each event. If necessary, use traditional VEGAS Pro editing tools to refine the edit. You can re-enable the multicamera editing mode and do further take choosing at any time.

Stereoscopic 3D editing

You can use VEGAS® Pro to edit stereoscopic 3D (S3D) projects without any add-ons or additional tools.

Editing a stereoscopic 3D project is just like editing a standard VEGAS Pro project and requires minimal adjustment to your workflow:

1. Start a new project and set your project properties to choose a stereoscopic 3D mode.
2. Set up your Video Preview window and external monitor (optional).
3. Add media to the timeline.
4. Synchronize and pair events on the timeline (when working with separate left and right video streams) or set stereoscopic 3D media properties if necessary.
5. Align the left- and right-eye views and adjust video depth.
6. Render your project.

Setting up your stereoscopic 3D project

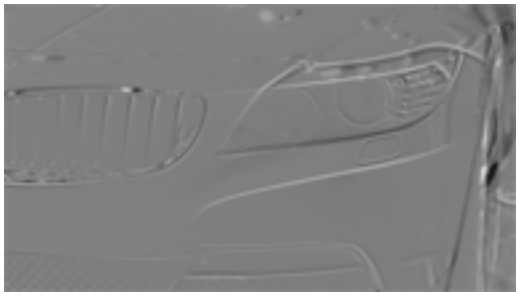
The Video tab in the Project Properties dialog allows you to configure options for working in 3D. For more information, see "Setting project properties" on page 41

By default, the project's **Stereoscopic 3D mode** , **Swap Left/Right**, and crosstalk cancellation settings will also be used when previewing and rendering your project, but you can override the project settings if necessary.

1. From the File menu, choose **Properties**. The Project Properties dialog is displayed.
2. Choose a setting from the **Stereoscopic 3D mode** drop-down list.

Setting	Description
Off	Choose this setting when creating a 2D project.
Side by side (half)	Choose this setting when your project will contain left- and right-eye views in a single frame. Left- and right-eye views are displayed as half of the available horizontal resolution. In this example, the left-eye image is tinted blue, and the right-eye image is tinted red: 
Side by side (full)	Choose this setting when your project will contain left- and right-eye views in a single frame. Left- and right-eye views are displayed using the full horizontal resolution. In this example, the left-eye image is tinted blue, and the right-eye image is tinted red: 
Top/bottom (half)	Choose this setting when your project will contain left- and right-eye views stacked in a single frame. Left- and right-eye views are displayed as half of the available vertical resolution. In this example, the left-eye image is tinted blue, and the right-eye image is tinted red: 
Top/bottom (full)	Choose this setting when your project will contain left- and right-eye views stacked in a single frame. Left- and right-eye views are displayed using the full vertical resolution. In this example, the left-eye image is tinted blue, and the right-eye image is tinted

Setting	Description
	red: 
Anaglyphic (red/cyan) **Anaglyphic (amber/blue)** **Anaglyphic (green/magenta)**	Left- and right-eye views use color filters to allow anaglyphic glasses to separate the left- and right-eye views. 
Line alternate	Choose this setting when your project will be displayed on a line-alternate 3D monitor. Left- and right-eye views are interlaced using half of the available vertical resolution. In this example, the left-eye image is tinted blue, and the right-eye image is tinted red: 
Checkerboard	Choose this setting when your project will be displayed on a DLP-based 3D monitor. Left- and right-eye views are tiled using half of the available horizontal and vertical resolution.

Setting	Description
	In this example, the left-eye image is tinted blue, and the right-eye image is tinted red: 
Left only **Right only**	Choose the **Left only** or **Right only** setting for editing on a 2D monitor or if you're creating separate output files for the left- and right-eye outputs. In this example, the left-eye image is tinted blue, and the right-eye image is tinted red: 
Blend	Choose this setting to blend the left- and right-eye images. This setting is useful when adjusting events. 
Difference	Choose this setting when performing vertical adjustments to minimize vertical disparity. 

3. Select the **Swap Left/Right** check box if you need to switch the left- and right-eye pictures. This setting is useful if you're using a line-alternate display that displays the right eye on top, if you're using magenta/green anaglyphic glasses, or to create cross-eye free-view 3D.
4. Drag the **Crosstalk cancellation** slider if you experience image bleed-through. For example, if you see right-eye images in your left eye, you can adjust the **Crosstalk cancellation** slider to compensate.

   When your project's **Stereoscopic 3D mode** is set to **Side by side**, **Top/bottom**, **Line alternate**, or **Checkerboard** mode, crosstalk cancellation is active only when the **Full-resolution rendering quality** drop-down list is set to **Good** or **Best.** When using anaglyphic modes, crosstalk cancellation is active for any quality level.
5. Select the **Include cancellation in renders and print to tape** check box if you want to use the **Crosstalk cancellation** setting in your final rendered output. Clear the check box if you want to use crosstalk cancellation for previewing only.

Setting up stereoscopic 3D previews

You can use the Video tab in the Preferences dialog to choose the stereoscopic 3D format that will be used to view your 3D project in the Video Preview window. For example, you could choose **Anaglyphic (red/cyan)** from the **Stereoscopic 3D mode** drop-down list to preview your project using anaglyphic 3D glasses. For more information, see "Preferences - Video Tab" on page 533

If you want to preview your project on a 3D television or monitor, you can use the Preview Device tab in the Preferences dialog to configure a 3D display for previewing your project.

- If you're using an NVIDIA graphics card that supports 3D Vision technology and a 3D Vision monitor, choose the **Windows Graphics Card** setting from the **Device** drop-down list in the Preview Device tab and choose **Left and Right** from the **Stereoscopic 3D mode** drop-down list.
- If you're using an NVIDIA graphics card that supports 3D Vision technology and a 3D-capable HDTV, choose the **Windows Graphics Card** setting from the **Device** drop-down list in the Preview Device tab and use the **Stereoscopic 3D mode** drop-down list to choose the method your monitor uses to display stereoscopic 3D content – typically **Side by side (half)** or **Line Alternate**. Be sure to set the 3D mode in your television's setup menu and the VEGAS Pro Preview Device tab.
- If you're using a 3D television connected to your computer via a IEEE 1394 (FireWire) connection, choose the **OHCI Compliant IEEE 1394/DV** setting from the **Device** drop-down list in the Preview Device tab and use the **Stereoscopic 3D mode** drop-down list to choose the method your television uses to display stereoscopic 3D content.

During playback, select the **Video Preview on External Monitor** button  in the Video Preview window to enable your 3D display. You can turn off external preview by pressing Alt+Shift+4 or by clicking the secondary display and pressing Esc.

For more information about setting up your specific hardware, see "Preferences - Preview Device Tab" on page 536.

Synchronizing stereoscopic 3D events

When shooting stereoscopic 3D using a pair of cameras, it is important to record a synchronizing event. Some users clap or snap their fingers in front of the cameras; others use a flash from a still camera, a pet-training clicker, or a professional slate.

Tips:

- If you're working with multistream 3D files or files that contain both images in each frame, you don't need to align events. When you add multistream media to a stereoscopic 3D project, the first stream will be used and paired with the next stream.

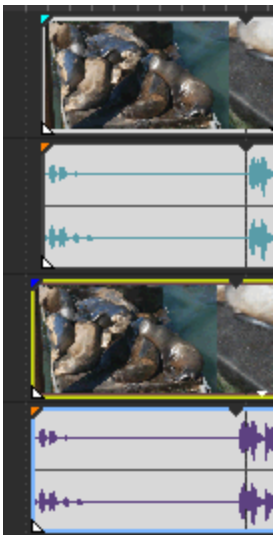
  If you need to change the mode for a media file or swap the left/right images, you can use the Media tab of the Media Properties dialog.For more information, see "Viewing or changing media file properties" on page 94
- If you have two files that have synchronized timecode – such as video shot on a 3D camera that creates separate left- and right-eye clips – you don't need to align the audio and video. Just select the clips in the Project Media window and choose **Pair as Stereoscopic 3D Subclip** from the shortcut menu. For more information, see "Pairing two media files as a stereoscopic 3D subclip" on page 72

  The first stream will be used and paired with the next stream. If you need to change the mode for a media file or swap the left/right images, you can use the Media tab of the Media Properties dialog.
- If you want to add stereoscopic 3D depth to tracks using 3D compositing, you can use the **Stereoscopic 3D Camera** controls on the Track Motion dialog. For more information, see "3D compositing" on page 353

Supported multistream formats:

- Dual-stream AVI or QuickTime files
- 3D AVC files created by 3D Bloggie HD cameras
- MPO (multiple picture object) 3D still images
- CineForm Neo3D 5.1 or later (a CineForm product or the free GoPro Studio is required to read Cineform Neo3D files)
- Two separate files with names ending in _L and _R. When the left file is added to the project, VEGAS Pro automatically adds the right file as well and creates a stereoscopic 3D subclip.
- Two separate files with pairing metadata from the Sony PMW-TD300 camera
- Two separate files from the Sony PMW-F3 camera using 3D Link
- Two separate files paired as described in this topic

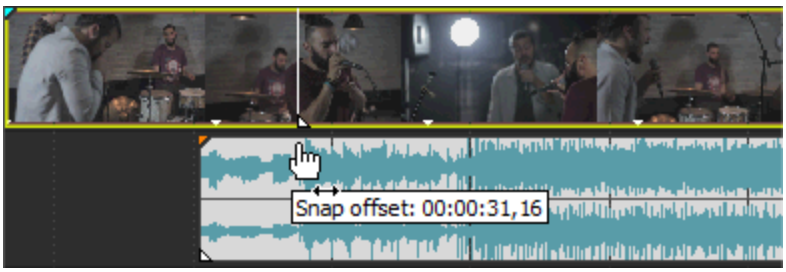
1. Add your media to the timeline using **Add Across Tracks** mode so the video for the left and right eyes is on separate tracks. In the following example, the left-eye track is above the right-eye track.
2. Use one of the following methods to align the audio and video so the video output is synchronized.
   - If you used a slate or a loud clap for your synchronization point, you can align the events to within a frame of each other using the audio waveforms:
     a. Roughly align the audio waveforms by dragging events in the timeline.
     b. Use the Zoom controls at the bottom-right corner of the timeline to zoom in on the waveform. For more information, see "Zooming and magnification" on page 181
     c. Verify **Quantize to Frames** is enabled because you want video frames to be aligned even if the audio is slightly out of alignment.
     d. Drag a track's border to make the tracks taller and view large waveforms.
     e. Use Shift+Up Arrow to magnify the waveforms if necessary.
     f. Click the event you want to move and press 1 or 3 on the numeric keypad to nudge the event by frames to the left or right.



   - Synchronizing a video event:

These steps require snapping to be enabled, so if you have not already done so, turn snapping on by clicking the **Enable Snapping** *button .For more information, see "Enable snapping" on page 124*

     a. Solo the video track.
     b. Position the cursor at the synchronization point and drag the event's snap offset so it snaps to the cursor.



     c. Repeat steps a and b for each clip.

d. Drag the cursor to a snap point, and then snap the other clips to the cursor.

If the cameras were not genlocked together (shooting at the same cadence) you may find one to be up to half a frame ahead of the other. Unless your scene has lots of fast motion, this is acceptable; just be sure to get them as close as possible on the timeline.

3. Verify alignment:
   a. Drag the **Level** slider on the top track to set its opacity to 50%.
   b. Find a portion of the video with good movement and verify the motion is the same in both clips and that one clip does not lead the other.

   If the cameras were not genlocked together (shooting at the same cadence), you may find that one clip is up to half a frame ahead of the other. Unless your scene has fast motion, this is acceptable.
4. Select both video events, right-click one of the events, and choose **Pair as Stereoscopic 3D Subclip**.

   One video event is deleted from the timeline, the active take for the event is set to the new multistream subclip, and a new multistream clip is added to the Project Media window. If you view the clip properties for the new subclip, you'll see that the **Stereoscopic 3D Mode** is set to **Pair with next stream**.
5. Delete the audio and video tracks you created in step 1.

   After synchronizing the events, you will have a paired stereoscopic subclip in the Project Media window. You can drag these clips to the timeline as stereoscopic 3D media.

Tips:

- You can also select tracks to pair stereoscopic subclips. Select both tracks, right-click one of the tracks, and choose **Pair as Stereoscopic 3D Subclips**. Overlapping events on the tracks are paired as stereoscopic subclips. If there is an empty track remaining, it is deleted.
- If your camera rig used mirrors or inverted cameras and produced flipped or rotated images that were not corrected in camera, you can correct the clip with the Stereoscopic 3D Adjust plug-in. For more information, see "Aligning left- and right-eye views and adjusting depth" below

Aligning left- and right-eye views and adjusting depth

It is very important that stereoscopic 3D video have differences between the views only in horizontal displacement. Any vertical or rotational misalignment will detract from the viewing experience and may even cause viewer discomfort. Also, it is important to limit the amount and direction of horizontal offset to create comfortable depth.

For example, when shooting with parallel-axis cameras, all of the action is usually in front of the screen, and you need to use horizontal image translation to push most of it behind the screen.

Use the 3D glasses in combination with viewing the output without the glasses to create good alignment and depth settings. You usually want all of the action behind the screen plane, only crossing the screen plane for dramatic or special effect. However, make sure never to create divergence, where the left-eye picture would appear more than 2.5 inches to the left of the right-eye picture on the largest screen where your movie will be shown.

For example, if the largest screen to be used is 16:9 with a 106-inch diagonal, the width is 87% of the diagonal, or about 92 inches. With 1920x1080 content, 2.5 inches is only 52 pixels, so make sure your distant objects are never more than 52 pixels apart.

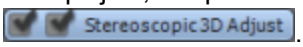
You can use the Stereoscopic 3D Adjust plug-in to adjust horizontal offset, vertical offset, keystoning, and rotation. This plug-in can be applied at the media level, event level, track level, or video output. For more information, see "Adding video effects" on page 287

You can use the plug-in's controls as follows:

Item	Description
Horizontal Offset	Drag the slider to adjust the horizontal alignment of the left- and right-eye views to set the perceived position of the video relative to screen depth.

Item	Description
Vertical Offset	If left- and right-eye views are not aligned vertically, drag the slider to correct the offset.
Zoom	If left- and right-eye views are not zoomed identically, drag the slider to correct the offset.
Keystone	Drag the slider to correct for image keystoning. Image keystoning occurs when the left- and right-eye cameras are not parallel.
Rotation	Drag the slider to correct for camera tilt in the left- and right-eye views.
Auto Correct	Click to analyze left- and right-eye views and automatically calculate values for **Vertical Offset**, **Zoom**, **Keystone**, and **Rotation**.
Flip Horizontal	Choose a setting from the drop-down list to flip the image for inverted cameras.
Flip Vertical	Choose a setting from the drop-down list to flip the image for mirror rigs or inverted cameras.
Automatic Crop	Select this check box if you want to automatically crop the left- and right-eye views during adjustment to prevent black borders created by the plug-in's adjustments.
Crop	When the **Automatic Crop** check box is cleared, you can drag this slider to adjust image cropping.
Floating windows	Drag the **Left** or **Right** sliders as needed to correct for screen-edge violations. If your stereoscopic 3D project contains objects that cross the screen edge and appear in front of the screen, users will see conflicting depth cues: the 3D effect tells the user's eyes that an object should appear in front of the screen, but the edge of the screen contradicts the screen depth. For example, in the following example, dragging the **Left** slider masks the left edge of the frame to prevent the kayak from crossing the edge of the screen. 

Tips:

- 3D depth adjustment is a complex process and is out of the scope of this document. For more information, please review a reference such as *3D Movie Making: Stereoscopic Digital Cinema from Script to Screen* by Bernard Mendiburu.
- When you're working with a stereoscopic 3D project, a separate check box is displayed in the Video FX window for the left- and right-eye video: 

. By limiting an effect to the left or right eye only, you can use multiple instances of a plug-in with different settings for each eye.

Rendering a stereoscopic 3D project

When you render your project, the **Stereoscopic 3D mode** setting from the Video tab in the Project Properties dialog is used by default.

If you want to use a different rendering format (to deliver separate left- and right-eye masters, for example, or to create multiple versions of your project), you can change the rendering mode.

Supported 3D rendering formats:

- Video in a frame-compatible format. Set your project's **Stereoscopic 3D mode** to **Side by side (half)**, **Top/bottom (half)**, or **Line alternate** and render using a standard file format template.
- CineForm Neo3D (requires CineForm NeoHD, Neo4k, or Neo3D 5.1 or later). You can create a custom QuickTime or AVI render template that uses CineForm as your video format. Rendering with this template will create a Neo3D file that can be used by any application that supports the CineForm stereoscopic 3D format.
- Two separate files. You can create two custom templates and use the Project tab in the Custom Settings dialog to set the **Stereoscopic 3D mode** for one template to **Left Only** and the other to **Right Only**. You can then render the files separately or use **Tools > Scripting > Batch Render** to render the left- and right-eye files.
- Rendering using the Sony AVC/MVC plug-in with one of the following templates creates two files when you render your stereoscopic 3D video:
  - MVC 1280x720-60p, 25 Mbps video stream
  - MVC 1280x720-50p, 25 Mbps video stream
  - MVC 1920x1080-24p, 25 Mbps video stream

  The base stream is a full-resolution 2D AVC video, and the dependent stream is an MVC video that contains video data for the other eye.
- Rendering using a custom Sony AVC/MVC template with the following settings will create a single AVC/H.264 file with SEI frame packing arrangement metadata to indicate stereoscopic 3D playback:
  - **Video format**: **AVC**
  - **Stereoscopic 3D mode**: **Side by side (half)**

1. From the File menu, choose **Render As** to display the Render As dialog.
2. Use the **Folder** boxto choose where you want to save your file:
   a. The **Folder** box displays the path to the folder where your file will be saved. Click the down arrow to choose a recently used folder, or click the **Browse** button to specify a new folder.
   b. Type a name in the **Name** box, or click the **Browse** button and select a file in the browse window to replace an existing file.
3. Use the **Format** box to choose the type of file you want to create.

   The **Formats** box displays the file types and formats you can use to render your file. Once you have selected a format the **Templates** box will list all of the available templates for that format.
4. Click the **Customize Template** button to create a new template.
5. In the Custom Settings dialog, click the Project tab.

6. From the **Stereoscopic 3D mode** drop-down list, choose the setting that you want to use for rendering your project.

   Choose **Use project settings** if you want to use the setting from the Video tab in the Project Properties dialog, or choose another mode if you want to override the project setting when rendering.

   When you use **Tools** > **Burn Disc** > **Blu-ray Disc** in a stereoscopic 3D project, VEGAS Pro will create a Blu-ray 3D™ Disc. For more information, see "Burning a Blu-ray Disc from the timeline" on page 459

   If your project is destined for professional Blu-ray 3D™ Disc replication, VEGAS Pro can prepare content in full HD per-eye format by rendering two separate files (see **Left only** and **Right only** below), which can be read by an MVC encoder such as the Dualstream 3D encoder and authored using a tool such as Blu-print.

Setting	Description
Use project settings	Uses the setting from the Video tab in the Project Properties dialog.
Side by side (half)	Choose this setting when your rendered video will contain left- and right-eye views in a single frame. Left- and right-eye views are displayed as half of the available horizontal resolution. **YouTube 3D** YouTube 3D uses frame-compatible video, so you can create a custom render template using a format that is compatible with YouTube, such as XDCAM EX, Windows Media Video, or MainConcept MPEG-2. For the custom template, set the stereoscopic 3D mode to **Side by side (half)** and select the **Swap Left/Right** check box since YouTube 3D defaults to this layout. When you upload your video to YouTube, add **yt3d:enable=LR** as a tag to enable 3D viewing. Also add **yt3d:aspect=16:9** (or **yt3d:aspect=4:3**) to set the viewing frame aspect ratio.
Side by side (full)	Choose this setting when your rendered video will contain left- and right-eye views in a single frame. Left- and right-eye views are displayed using the full horizontal resolution.
Top/bottom (half)	Choose this setting when your rendered video will contain left- and right-eye views stacked in a single frame. Left- and right-eye views are displayed as half of the available vertical resolution.
Top/bottom (full)	Choose this setting when your rendered video will contain left- and right-eye views stacked in a single frame. Left- and right-eye views are displayed using the full vertical resolution.
Anaglyphic (red/cyan) **Anaglyphic (amber/blue)** **Anaglyphic (green/magenta**	Left- and right-eye views use color filters to allow anaglyphic glasses to separate the left- and right-eye views.
Line alternate	Choose this setting when your rendered video will be displayed

Setting	Description
	on a line-alternate 3D monitor. Left- and right-eye views are interlaced using half of the available vertical resolution.
Checkerboard	Choose this setting when your rendered video will be displayed on a DLP-based 3D monitor. Left- and right-eye views are tiled using half of the available horizontal and vertical resolution.
Left only **Right only**	Choose the **Left only** or **Right only** setting if you're creating separate renders for the left- and right-eye outputs. These settings are useful when your output format requires separately rendered files for the left and right eyes.  *You can use the Batch Render script to automate the process. Create two custom rendering templates: for one template, set the stereoscopic 3D mode to* **Left only** *and set the other template's stereoscopic 3D mode to* **Right only**. *Then choose* **Tools > Scripting > Batch Render**, *select your format and select the check box for your two templates, set the destination folder and file name, and click* **OK**. *VEGAS Pro will render each file with the name of the template appended to the file name.*
Blend	Choose this setting to blend the left- and right-eye images. This setting is useful when adjusting events.
Difference	Choose this setting when performing vertical adjustments to minimize vertical disparity.

7. Select the **Swap Left/Right** check box if you need to switch the left- and right-eye pictures. This setting is useful if you're using a line-alternate display that displays the right eye on top, if you're using magenta/green anaglyphic glasses, or to create cross-eye free-view 3D.
8. Drag the **Crosstalk cancellation** slider if you experience image bleed-through. For example, if you see right-eye images in your left eye, you can adjust the **Crosstalk cancellation** slider to compensate.

   When your project's **Stereoscopic 3D mode** is set to **Side by side**, **Top/bottom**, **Line alternate**, or **Checkerboard** mode, crosstalk cancellation is active only when the **Full-resolution rendering quality** drop-down list is set to **Good** or **Best**. When using anaglyphic modes, crosstalk cancellation is active for any quality level.
9. Save your template for future use:
   a. Type a name in the **Template** box to identify your rendering template.
   b. Click the **Save Template** button  .
   c. Click **OK** to return to the Render As dialog.
10. Click **Render** to render your project using your new template.

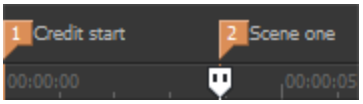
Using markers, regions, and commands

Markers and regions serve as reference points along the VEGAS® Pro timeline and help arrange events on the timeline. You can use markers for annotations, to insert metadata commands, or to mark track and index entries for a disc-at-once CD project.

Inserting markers

Click the **Insert Marker** button on the editing toolbar or choose **Insert** > **Marker** to add a marker at the cursor position. Markers can be used to indicate points of interest in projects or to make notes in the project.

If you choose to save markers in your rendered MPEG-2 file, DVD Architect™ will read those markers as chapter markers. Ensure the **Render I-frames at markers** check box is selected before rendering (in the Render As dialog, choose **MainConcept MPEG-2** from the **Template** box, and then click the **Custom** button. In the Custom Template dialog, select the Video tab and select the **Render I-frames at markers** check box).



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

Inserting a marker

1. Position the cursor where you want to add a marker.
2. Click the **Insert Marker** button on the editing toolbar or c hoose **Insert** > **Marker**. A marker will be added at the cursor position and an edit box is displayed.
3. Type a name for the marker in the edit box and press Enter.

You can also insert markers during playback by pressing the M key.

Naming or renaming a marker

Right-click the marker tag and choose **Rename** from the shortcut menu. Type the name of the marker in the edit box and press Enter when you're finished.

–or–

Double-click to the right of the marker and type a name in the edit box.

Moving a marker

Drag the marker tag to a new location.

Hold Shift while dragging to temporarily override the current snapping setting.

Deleting a marker

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

Deleting all markers and regions from your project

Right-click a blank area of the Marker Bar, choose **Markers/Regions**, and choose **Delete All** from the submenu. All markers and regions in the project are removed.

Deleting all markers within the selected area

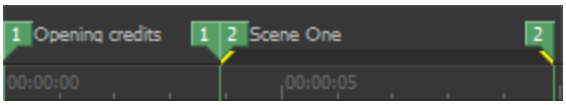
Right-click above the loop region, choose **Markers/Regions**, and choose **Delete All in Selection** from the submenu. All markers and regions in the selected area are removed.

Moving the cursor to a marker

Click the marker tag.

Inserting regions

Click the **Insert Region** button on the editing toolbar (or choose **Insert** > **Region**) to add region tags at each end of the current selection. Regions can be used to indicate sections of projects such as credits or scenes, or they can be used to make notes in the project.



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

Inserting a region

1. Drag the cursor in the timeline or marker bar to make a time selection.
2. Click the **Insert Region** button on the editing toolbar (or choose **Insert** > **Region**. Numbered region tags are placed at the start and end of the selected area, and an edit box is displayed.
3. Type a name for the region in the edit box and press Enter.

Moving the cursor to a region tag

Click a region tag.

To move the cursor to the start or end of a region, right-click either region tag and choose **Go to Start** *or* **Go to End** *from the shortcut menu.*

Deleting a region

Right-click either region tag and choose **Delete** from the shortcut menu.

Deleting all markers and regions in project

Right-click a blank area of the marker bar, choose **Markers/Regions** from the shortcut menu, and choose

Delete All from the submenu. All regions and markers in the project are removed.

Deleting all markers and regions within a selected area

1. Drag along the marker bar to highlight the area you want all markers and regions to be removed from.
2. Right-click a blank area of the marker bar, choose **Markers/Regions** from the shortcut menu, and choose **Delete All in Selection** from the submenu. All regions and markers inside the selected area are removed.

Naming or renaming a region

Right-click the starting region tag and choose **Rename** from the shortcut menu.

–or–

Double-click to the right of the region tag and enter a name in the edit box.

Selecting a region

Right-click the starting or ending region tag and choose **Select Region** from the shortcut menu. The region is highlighted.

–or–

Double-click the start or end region tag. The region is highlighted.

Moving a region

Drag either region tag to move the tab and change the region's size.

Hold the Alt key while dragging either region tag to move a region and preserve its length.

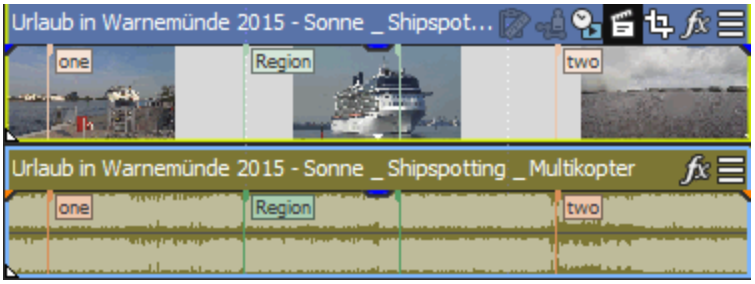
Using media markers and regions

From the View menu, choose **Event Media Markers** to toggle the display markers (including XDCAM essence marks) and regions that are saved in a media file. These markers are displayed in the timeline in events that refer to the media file.

Media markers and regions cannot be edited within the event. However, when you edit the markers in markers and regions in the Trimmer window or in an external audio editor, the event will reflect your changes.



Media markers/regions visible in Trimmer window



Media markers/regions displayed in event

Tips:

- From the View menu, choose **Event Media Markers**, and then choose **Show Marker Labels** from the submenu to toggle the display of marker labels in events.
- When media markers are displayed, you can use them as snap points for positioning the cursor and for edge-trimming if **Snap to Markers** is selected on the Options menu. If a media file's frame rate does not match your project frame rate, frame quantization will occur after the snap if **Quantize to Frames** is selected on the Options menu. For more information, see "Adjusting an event's length" on page 142 and "Enable snapping" on page 124

Inserting command markers

From the Insert menu, choose **Command** to place a metadata command marker on the command bar.

Command markers indicate when an instruction (function) will occur in a streaming media file. You can use command markers to display headlines, captions, link to Web sites, or any other function you define.

Windows Media Player 9 and later will ignore metadata commands unless the **Run script commands when present** *check box is selected on the Security tab of the player's Preferences dialog. Be sure to instruct your audience to select this check box before playing your file.*

Inserting a command marker

1. Place the cursor where you want to insert the command marker.

2. From the Insert menu, choose **Command**. The Command Properties dialog is displayed.
3. From the **Command** drop-down list, choose the type of command you want to insert, or type a custom command in the box.

4. In the **Parameter** box, type the argument that should be passed to the command. For example, if you're using an URL command, type the address of the Web page you want to display.

Command	Player Type	Description
URL	Windows Media	Indicates when an instruction is sent to the user's Internet browser to change the content being displayed. In the **Parameter** box, type the URL that will display at a specific time during the rendered project's playback.
Text	Windows Media	Displays text in the captioning area of the Windows Media Player located below the video display area. In the **Parameter** box, type the text that will display during playback. *To view captions during playback in Windows Media Player 9, choose* **Captions and Subtitles** *from the Windows Media Player Play menu, and then choose* **On if Available** *from the submenu.*
WMClosedCaption	Windows Media	Displays the text from the **Parameter** box in the captioning window that is defined by an HTML layout file.
WMTextBodyText	Windows Media	Displays the text from the **Parameter** box in the text window that is defined by an HTML layout file.
WMTextHeadline	Windows Media	Displays the text from the **Parameter** box in the headline window that is defined by an HTML layout file.
Scott EOM	Scott Studios WAV file	Calculates when the next queued clip starts playing in a Scott Studios system. For more information, please refer to your Scott Studios documentation.
Scott Cue In	Scott Studios WAV file	Set the beginning of a file in a Scott Studios System without performing destructive editing. For more information, please refer to your Scott Studios documentation.
608CC1	–	Used for primary-language closed captions. In the **Comment** box, type the closed caption control commands.

Command	Player Type	Description
		Tips: • If you type captioning text in the **Comment** box and do not specify captioning markup, a pop-on caption is created. • You can use your keyboard to create standard text and punctuation. To insert special characters and punctuation, use the Character Map (**Start > All Programs > Accessories > System Tools > Character Map**). For more information about closed captioning, see "Adding closed captioning to video files" on page 411
608CC3	–	Used for secondary-language closed captions. In the **Comment** box, type the closed caption control commands.

5. In the **Comment** box, type any comments you want to associate with the command. A comment is generally used to remind you of what the command is while you work on the project; its function is similar to naming markers and regions.
6. In the **Position** box, type the time you want the command to occur in your project. VEGAS Pro inserts at the cursor position by default.

Deleting a command marker

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

Editing a command marker

Right-click the command marker tag and choose **Edit** from the shortcut menu.

–or–

Double-click the command marker tag.

Moving the cursor to a command marker

Click the command marker tag.

Using command templates

If you frequently insert commands that use similar settings, you can create a template to insert command settings automatically.

Creating a template

1. From the Insert menu, choose **Command** to display the Command Properties dialog.
2. Type the settings you want to use in the **Command**, **Parameter**, **Comment**, and **Position** boxes.
3. In the **Template** box, type the name you want to use to store the template.
4. Click the **Save** button .

Recalling a template

1. From the Insert menu, choose **Command** to display the Command Properties dialog.
2. Choose the template you want to use from the **Template** drop-down list. VEGAS Pro fills in the **Command**, **Parameter**, **Comment**, and **Position** boxes using the information stored in the template.
3. Edit the settings in the **Command**, **Parameter**, **Comment**, and **Position** boxes as necessary.
4. Click **OK**.

Editing metadata commands

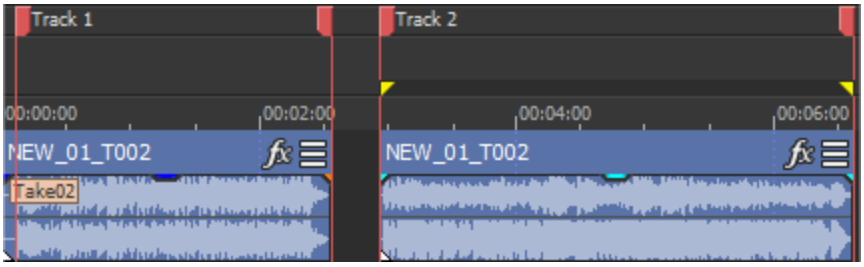
VEGAS Pro saves your metadata command templates in the **cmdtemp.xml** file in the C:\Users\<username>\AppData\Roaming\Vegas\VEGAS Pro\18 folder. You can edit this file directly to modify your templates.

Inserting CD track regions

From the Insert menu, choose **Audio CD Track Region** to add a region using the current selection at the cursor position. CD track regions are used for creating an audio CD track list for burning Red Book audio CDs. For more information, see "Disc-at-once (DAO or Red Book) CD Burning" on page 454

If your first track region begins before 00:00:02:00, a timeline offset is automatically added so the first track begins at exactly two seconds.

CD track numbering is based on the **First track number on disc** *setting on the Audio CD tab in the Project Properties dialog. For more information, see "Setting project properties" on page 41*



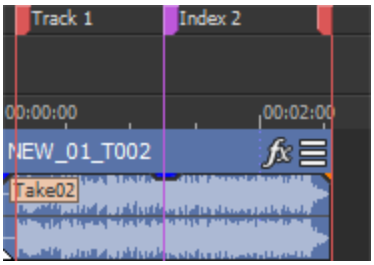
Tips:

- From the Options menu, choose **Quantize to Frames** to turn off frame quantization before creating a CD layout. For more information, see "Quantize to frames" on page 126
- Double-click a region tag to select the duration of the track.
- Press Ctrl+Period to seek to the next track.
- Press Ctrl+Comma to seek to the previous track.

Inserting CD index markers

From the Insert menu, choose **Audio CD Track Index** to add an index marker at the cursor position.

You can use indices to subdivide a track. For example, a track could contain an orchestral composition, and index markers could allow navigation to each of the movements. Each track on a Red Book audio CD can contain up to 99 index markers. For more information, see "Disc-at-once (DAO or Red Book) CD Burning" on page 454



Tips:

- Press Period to seek to the next track or index marker.
- Press Comma to seek to the previous track or index marker.

The Marker Tool

You can use the marker tool to navigate the marker bars and edit multiple selected markers.

1. Click the **Marker Tool** button in the top-right corner of the timeline.
2. Select the markers you want to edit:
   - Press the Left Arrow/Right Arrow keys to move to the previous/next marker in the active bar (marker/region bar, CD layout bar, or command bar).
   - Press Shift+Left Arrow/Right Arrow keys to extend the selection to the previous/next marker.
   - Press Shift while clicking two marker tags to select all markers between the two tags.
   - Press Ctrl while clicking marker tags to select or deselect individual markers.
3. Edit your markers:
   - Dragging any selected marker will move all selected markers in the active bar as a group.
   - Pressing Delete will remove all selected markers in the active bar.

   The marker tool is inactive when you change focus to another portion of the VEGAS Pro window.

Track editing

Tracks are containers along the VEGAS® Pro timeline where you arrange audio and video events.

Events sit on tracks to determine when an event starts and stops, and multiple tracks are mixed together to produce your final output.

Inserting audio tracks

From the Insert menu, choose **Audio Track** to add a new, blank track at the end of the track list.

If you want to add a track in a specific location, right-click a track header and choose **Insert Audio Track** from the shortcut menu. The new track will be inserted above the selected track.

When you drag a media file from the Explorer window or Project Media window to an area of the timeline that does not contain a track, a new track will be created and a new event containing the media file is added to the new track.

You can change the default track volume, pan type, height, track effects, and record input monitor status by right-clicking a track and choosing **Set Default Track Properties** *from the shortcut menu. For more information, see* *"Setting default track properties" on page 233*

Inserting video tracks

From the **Insert** menu, choose **Video Track** to add a new, blank track at the top of the track list.

If you want to add a track in a specific location, right-click a track header and choose **Insert Video Track** from the shortcut menu. The new track will be inserted above the selected track.

When you drag a media file from the Explorer window or Project Media window to an area of the timeline that does not contain a track, a new track will be created and a new event containing the media file is added to the new track.

You can change the default compositing mode, height, and track effects by right-clicking a track and choosing **Set Default Track Properties** *from the shortcut menu. For more information, see* *"Setting default track properties" on page 233*

Selecting tracks

Selecting tracks, along with selecting events, is the first step in a variety of editing tasks. There are different methods for selecting tracks depending on the type of selections you want to make.

When multiple tracks are selected, you can perform editing tasks on all selected tracks simultaneously. For example, if you want to adjust the volume of several audio tracks while preserving their relative levels, select the tracks and drag the **Volume** *fader on any of the selected tracks. All the faders will move together.*

Selecting a single track

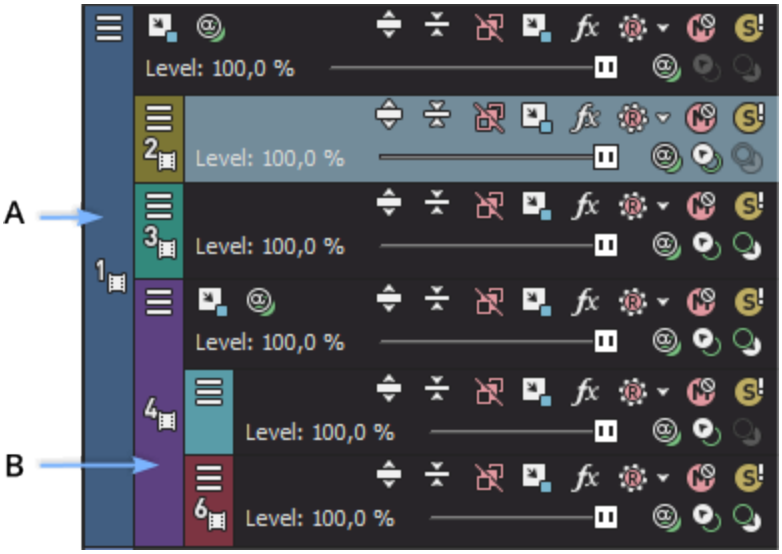
Click anywhere in the track header of the track you want to select. The track is highlighted.

Selecting multiple adjacent tracks

Hold down the Shift key and click in the track headers of the first and last track you want to select. The tracks – including those between the selected tracks – are highlighted.

Selecting groups of composited tracks

Click the vertical bar below a parent track to select a group of composited tracks. For example, clicking the area marked *A* in the following track list to select tracks 1 through 6. Clicking the area marked *B* selects tracks 4 through 6.



For more information, see "Compositing and masks" on page 349

Selecting multiple nonadjacent tracks

Use the following procedure to select multiple tracks that are not located next to each other.

1. Hold down the Ctrl key and click in the track header of each track that you want to select. The tracks are highlighted.

   If you have selected a track that you do not want to select, simply click on the track again.

2. When you have selected all of the tracks, release the Ctrl key.

Selecting all tracks

From the Edit menu, choose **Select**, and then choose **Select All** from the submenu to select all tracks and events in your project.

Arranging tracks

Tracks can be moved to create logical groupings at any time during a project's creation.

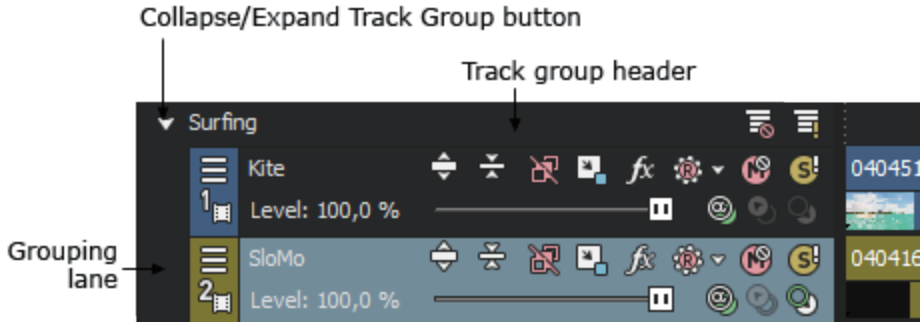
To move a track, drag its icon  to a new location in the track list. The new location is indicated by the highlighted line separating the tracks.

To move multiple tracks, use the Shift or Ctrl keys while clicking on the track icons, and then drag the tracks to a new location.

Grouping tracks

You can use track groups to organize similar tracks and hide them from view when you're not working on them. This can make the track list less cluttered and easier to work with, especially in large projects.

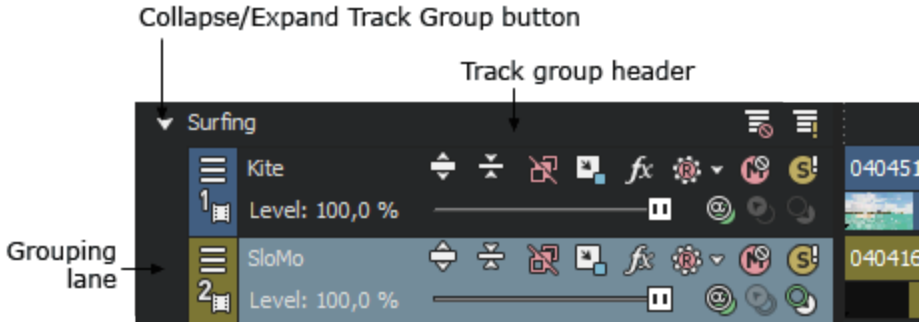
You can reorder track groups in the track list the same way you reorder tracks. Simply drag a track group header to a new position in the track list.



Creating a track group

1. Select two or more tracks to group together. Press Shift to select multiple adjacent tracks. Nonadjacent tracks cannot be grouped together.
2. Right-click one of the tracks, choose **Track Group**, and then choose **Group Selected Tracks**.

   The tracks are grouped together. Click the **Collapse/Expand Track Group** button in the track group header to close and expand the tracks in the group.



When a track group is collapsed, dark gray bars indicate the length and location of events in the collapsed tracks.



If you select a parent or child video track to be added to a track group, all associated parent/child tracks will also be added to the group to preserve the compositing relationship. For more information, see *"Compositing and masks" on page 349*

When you collapse a track group, tracks and events in the group are not locked. Edits made elsewhere in the project may affect tracks and events in the collapsed group.

Adding tracks to existing track groups

Drag one or more tracks into a track group to add the selected tracks to the group.

Removing tracks from groups

Drag one or more tracks out of a track group to remove the selected tracks from the group. You can also right-click one or more selected tracks in a group, choose **Track Group**, and then choose **Ungroup Selected Tracks** to remove tracks from a group.

Clearing track groups

1. Click the track group header to select all tracks in the group.
2. Right-click the track group header and choose **Ungroup Selected Tracks** to ungroup all tracks in the group.



You can also right-click the track grouping lane and choose **Ungroup Selected Tracks** *from the shortcut menu to clear the track group.*

Selecting all tracks in a group

Click a track group header or grouping lane to select all tracks in the group.

Renaming track groups

Every track group in your project has a scribble strip where you can type a name for the track group.

1. Double click the scribble strip. Any existing name is highlighted on the strip.
2. Type the new track group name.
3. Press Enter to save the track group's name.

Muting and soloing track groups

Click the **Solo Track Group** button  in a track group header to isolate all tracks in the group for playback. Soloing a track group overrides muted tracks in the group.

Click the **Solo Track Group** button again to restore the track group for playback.

Click the **Mute Track Group** button  in a track group header to temporarily suspend playback of all tracks in the group. Muting a track group overrides soloed tracks in the group.

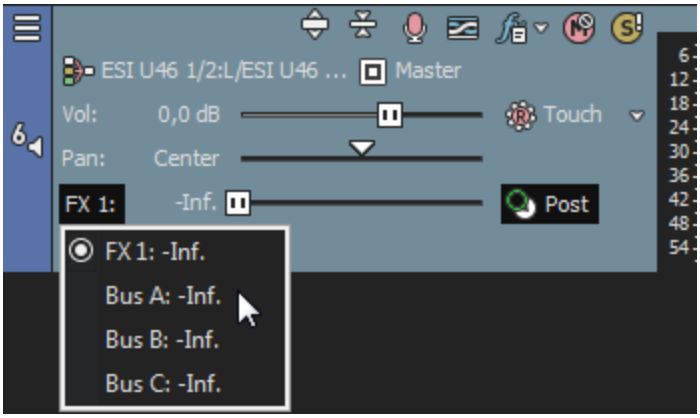
Click the **Mute Track Group** button again to restore the track group for playback.

Duplicating tracks

If you want to create an exact copy of a track – including events, effects, and envelopes – right-click the track number and choose **Duplicate Track** from the shortcut menu.

Audio track controls

The controls in the track list allow you to adjust track volume, panning, phase, assignable FX send levels, and bus send levels.



Tips:

- Audio track controls are duplicated on audio track channel strips in the Mixing Console window. "Audio Track Channel Strips" on page 323
- To move faders and sliders in fine increments, hold Ctrl while dragging the control.

*If you cannot find a track control mentioned here it is probably hidden. In the **Hamburger menu** you can customize which track control should be visible in the track header.*

Changing a track's color

You can change the color of your tracks to create logical track groups.

To change a track's color, right-click the header and choose **Track Display Color** from the shortcut menu. Choose a color from the submenu to change the icon in the track list and the waveform in the timeline.

Use the Display tab in the Preferences dialog to edit the available colors. For more information, see "Preferences - Display Tab" on page 553

Changing a track's height

Drag a track's bottom border to set its height. If you want to set a track's height as the default height for new tracks, you can right-click within the track list and choose **Set Default Track Properties** from the shortcut menu. For more information, see "Setting default track properties" on page 233

Click **Minimize** to minimize a track vertically.

Click **Maximize** to zoom in vertically so a track fills the timeline.

After minimizing or maximizing a track, click the **Minimize** or **Maximize** button again to return a track to its previous height.

Track height keyboard shortcuts

- Press Ctrl+Shift+Up Arrow or Down Arrow to change the height of all tracks at once.
- Press ` to minimize all tracks. Press again to restore tracks to their previous height. When restoring track height, tracks that you previously minimized are not restored–you can restore these tracks by clicking the **Restore Track Height** button on the track header.
- Press Ctrl+` to return all tracks to the default height.

Assigning a name to a track

1. Double-click in the Scribble Strip [redacted] and type the track name.
   If you do not see the Scribble Strip, expand the track to reveal it. The Scribble Strip appears above the **Volume** fader.



2. Press Enter to save the name.

Arming a track for recording

Click the **Arm for Record** button on an audio track to prepare it for recording.

When you click the **Record** button on the main transport bar, all armed tracks will begin recording.

For more information about recording audio, see "Recording audio" on page 99

Inverting the phase of a track

Click the **Invert Track Phase** button to reverse the phase of all events on an audio track.

Although inverting data does not make an audible difference in a single file, it can prevent phase cancellation when mixing or crossfading audio signals.

Select multiple tracks to invert several tracks simultaneously.

If the **Invert** *event switch is selected, inverting the phase of the track will return the event to its original phase.*

Adding or editing track effects

Click the **Track FX** button to add effects to a track or edit the existing effects chain.

For more information about using track effects, see "Adding audio track effects" on page 276

Muting a track

Click the **Mute** button to prevent a track from being played in the mix. Click the **Mute** button on additional tracks to add them to the mute group. To unmute a track, click the **Mute** button again.

Click the **Mute** button in a track group header to temporarily suspend playback of all tracks in the group. Muting a track group overrides soloed tracks in the group.

Muting a track mutes its main output and post-fader sends only unless the **Track prefader sends listen to mute** *check box on the Audio tab of the Preferences dialog is selected. For more information and examples about how the* **Track prefader sends listen to mute** *check box works, see* *"Preferences - Audio Tab" on page 542*

Muting or unmuting a track

1. Deselect the **Automation Settings** button .
2. Click the **Mute** button .

When you have a group of tracks muted, hold Ctrl while clicking the **Mute** *button on an unmuted track to remove all other tracks from the mute group. Hold Ctrl while clicking the* **Mute** *button on a muted track to reset all* **Mute** *buttons.*

Adjusting mute automation

When you select the **Automation Settings** button , the **Mute** button is displayed as , and you can use the button to edit mute automation.

Soloing a track

Click the **Solo** button to mute all unselected tracks. Click the **Solo** button on additional tracks to add them to the solo group. To remove a track from the solo group, click its **Solo** button again.

Click the **Solo** button in a track group header to isolate all tracks in the group for playback. Soloing a track group overrides muted tracks in the group.

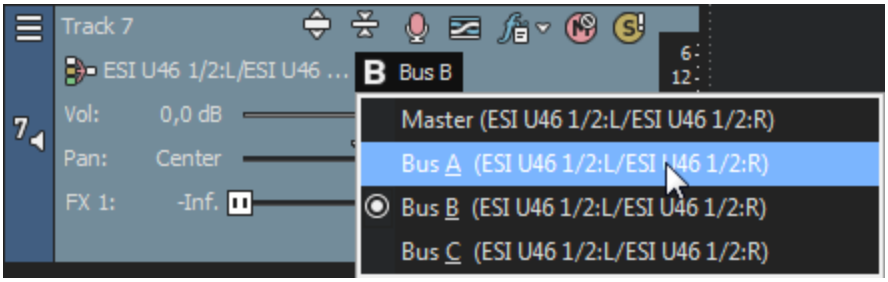
Hold Ctrl while clicking a **Solo** *button to solo a single track and remove all other tracks from the solo group.*

Choosing a track's input/recording device

The **Record Input** button in a track header chooses the audio input that will be used to record to a track. You can click the **Record Input** button to turn input monitoring on or off and choose a recording device.

Assigning a track to a bus

The bus button in a track header chooses the track's primary output. Assigning tracks to busses is especially useful for creating submixes that allow you to adjust the levels of multiple tracks at once or apply an effect to multiple tracks. For more information, see "Creating a cue (headphone) mix with the Mixing Console" on page 346

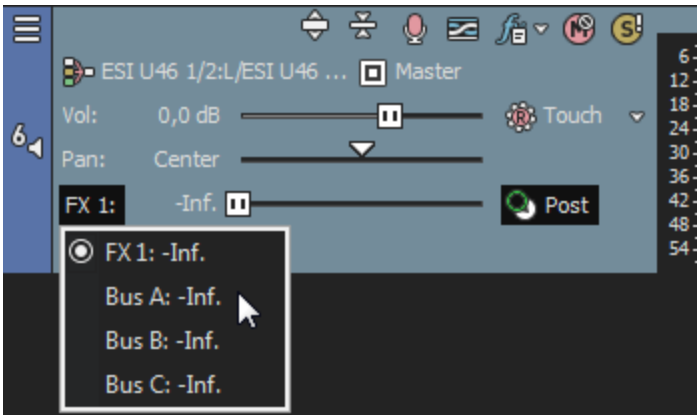


1. Click the bus button on the track.

   The button is displayed as a ⧈ when the track is routed to the master bus, and the bus letter is displayed (A, B, and so on) when a track is routed to another bus.
2. Select the desired bus from the submenu. The **Bus** button changes to display the selected bus.

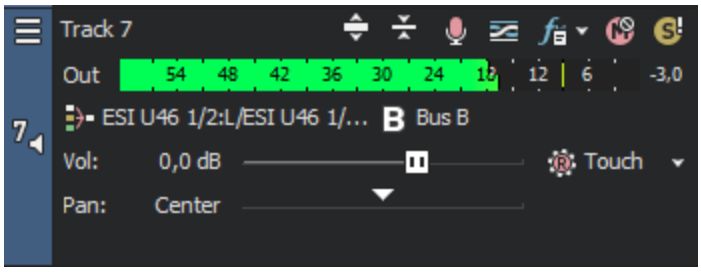
If the **Bus** *button does not appear on the track, then you have not specified more than one bus in your project settings. For more information on specifying the number of busses for your project, see "Adding audio busses" on page 305*

If you want to send a track to multiple outputs – for creating cue mixes or effects sends – you can use the multipurpose fader to control the level of the track sent to each bus or assignable effects chain. "Creating a cue (headphone) mix with the Mixing Console" on page 346 and "Using assignable effects" on page 280

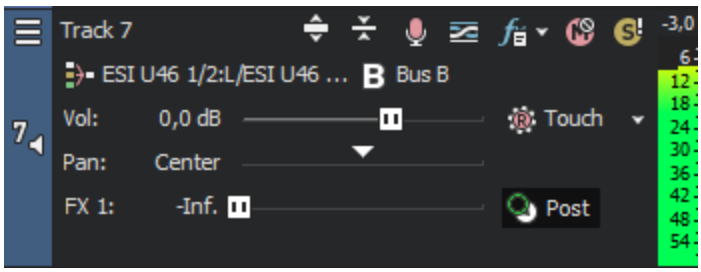


Monitoring track output levels

During playback, a responsive meter is displayed in the track header to monitor the track's output.



Horizontal meters



Vertical meters

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

Right-click the meters and choose a command from the shortcut menu to adjust the display of the meters. This shortcut menu allows you to reset clip indicators, choose a display scale, toggle vertical display, or turn output meters off.

Adjusting a track's volume

The fader in the track header can function as a trim control that adjusts the overall volume of the track, or it can adjust track volume automation settings.

The trim level is added to the volume automation settings so your envelope is preserved, but with a boost or cut applied. For example, setting the trim control to -3 dB has the same effect as decreasing every envelope point by 3 dB.



When adjusting the mix of your tracks, remember to look at the meters on the Master Bus. Because you are adding the volumes of all of the tracks together, it is easy to clip the audio output. Make sure that the meters never display the red Clip indication during playback.

Adjusting the volume trim level

1. Deselect the **Automation Settings** button  .
2. Drag the **Vol** fader to control how loud a track is in the mix.

   A value of 0 dB means that the track is played with no boost or cut. Dragging the fader to the left cuts the volume; dragging to the right boosts the volume.

   You can hold Ctrl while dragging a fader to adjust the setting in finer increments, or double-click the fader to return it to 0 dB.

   If multiple tracks are selected, all selected tracks are adjusted.

Adjusting the volume automation level

When you select the **Automation Settings** button  , the fader thumb is displayed as a  , and you can use the control to edit volume automation. For more information, see "Audio track automation" on page 236

Panning a track

The **Pan** slider in the track header can function as a trim control that adjusts the overall panning of the track, or it can adjust track panning automation settings.

The trim level is added to the pan automation settings so your panning envelope is preserved, but with an offset applied. For example, setting the trim control to -9% left has the same effect as moving every envelope point 9% to the left.

Adjusting track panning trim levels

1. Deselect the **Automation Settings** button  .
2. Drag the **Pan** slider to control the position of the track in the stereo field: dragging to the left will place the track in the left speaker more than the right, and dragging to the right will place the track in the right speaker.

   You can hold Ctrl while dragging the slider to adjust the setting in finer increments, or double-click the slider to return it to 0.

   If multiple tracks are selected, all selected tracks are adjusted.

Adjusting the track panning automation level

When you select the **Automation Settings** button, the **Pan** slider handle is displayed as a, and you can use the control to edit pan automation. For more information, see "Audio track automation" on page 236

Changing the pan mode

Right-click the fader handle and choose a pan type to change the behavior of the **Pan** slider. For more information about pan modes, see "Audio panning modes" on page 407

The selected panning mode is also used for track-level pan envelopes. For more information, see "Audio track automation" on page 236

Adjusting an assignable effects send level

The multipurpose slider in the track header can function as a trim control that adjusts the overall assignable effects send level of the track, or it can adjust assignable effects send automation settings.

The trim level is added to the assignable effects automation settings so your envelope is preserved, but with a boost or cut applied. For example, setting the trim control to -3 dB has the same effect as decreasing every envelope point by 3 dB.

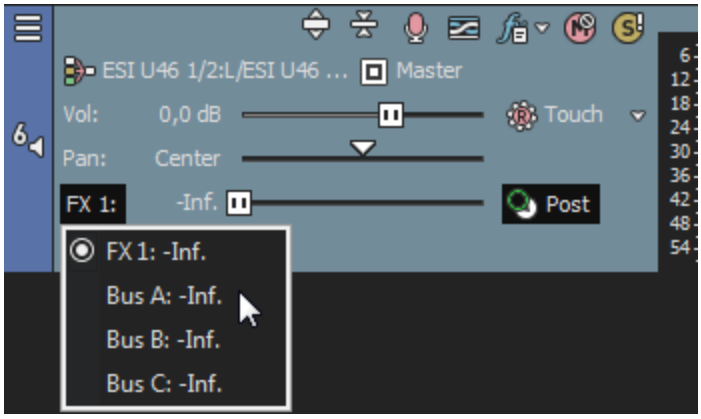
Tips:

- FX sends are post-volume by default. To change to pre-volume, click the **Pre/Post Volume Send** button (or right-click the FX fader and choose **Pre Volume** from the shortcut menu).
- If you want to apply track panning (including pan position and panning mode) to FX sends, right-click the FX fader and choose **Link to Main Track Pan** from the shortcut menu.

  When **Link to Main Track Pan** is not selected, the track sends a center-panned stereo signal using the track's current panning mode.
- Select the **Use legacy track send gain** check box on the Audio page of the Preferences dialog if you want to configure audio track sends to behave as they did in VEGAS Pro 7.0 and earlier. When the check box is selected, you can open projects created with earlier versions of VEGAS Pro and be assured they will sound the same as they did in earlier versions of VEGAS Pro. For more information, see "Preferences - Audio Tab" on page 542

Adjusting the assignable effects trim level

1. Deselect the **Automation Settings** button .
2. Click the label on the multipurpose slider and choose an assignable effects chain from the menu.



3. Drag the FX fader to control the level of the track sent to each of the assignable FX chains that you have created. Dragging the fader to the left cuts the volume; dragging to the right boosts the volume.

   You can hold Ctrl while dragging a fader to adjust the setting in finer increments, or double-click the fader to return it to 0 dB.

   If multiple tracks are selected, all selected tracks are adjusted.

Adjusting the assignable effects automation level

When you select the **Automation Settings** button , the fader thumb is displayed as a , and you can use the control to edit assignable effects send level automation. For more information, see "Audio track automation" on page 236

Adjusting a bus send level

The multipurpose slider in the track header can function as a trim control that adjusts the overall bus send level of the track, or it can adjust bus send automation settings.

The trim level is added to the bus send automation settings so your envelope is preserved, but with a boost or cut applied. For example, setting the trim control to -3 dB has the same effect as decreasing every envelope point by 3 dB.

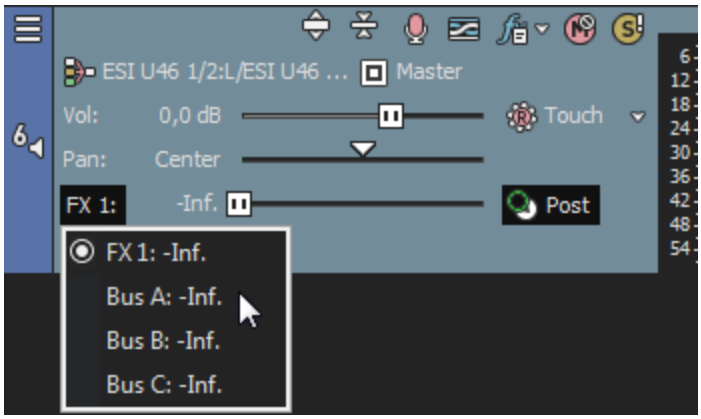
Tips:

- Bus sends are pre-volume (and pre-mute) by default. When bus sends are pre-volume, you can create a cue mix that is independent of your main mix (like the monitor out on a hardware mixer)."Creating a cue (headphone) mix with the Mixing Console" on page 346 To change to post-volume, click the **Pre/Post Volume Send** button (or right-click the bus fader and choose **Post Volume** from the shortcut menu. Post-volume sends are useful for effects sends because the send pays attention to the track's volume and mute controls.
- If you want to apply track panning to bus sends (including pan position and panning mode), right click the bus fader and choose **Link to Main Track Pan** from the shortcut menu.

  When **Link to Main Track Pan** is not selected, the track sends a center-panned stereo signal using the track's current panning mode.
- Select the **Use legacy track send gain** check box on the Audio page of the Preferences dialog if you want to configure audio track sends to behave as they did in VEGAS Pro 7.0 and earlier. When the check box is selected, you can open projects created with earlier versions of VEGAS Pro and be assured they will sound the same as they did in earlier versions of VEGAS Pro. For more information, see "Preferences - Audio Tab" on page 542

Adjusting the bus send trim level

1. Deselect the **Automation Settings** button .
2. Click the label on the multipurpose slider and choose a bus from the menu.



3. Drag the fader to control the level of the track sent to each of the additional busses that you have created for your project. Dragging the fader to the left cuts the volume; dragging to the right boosts the volume.

   You can hold Ctrl while dragging a fader to adjust the setting in finer increments, or double-click the fader to return it to 0 dB.

   If multiple tracks are selected, all selected tracks are adjusted.

Adjusting bus send automation

When you select the **Automation Settings** button , the fader thumb is displayed as a , and you can use the control to edit bus send level automation. For more information, see "Audio track automation" on page 236

Adjusting trim levels

The controls in the track header can function as trim controls or automation controls for track volume, panning, assignable effects send, and bus send levels. Adjusting the trim control affects the level of the entire track as it did in previous releases of VEGAS Pro.

The trim level is added to the track automation setting so your automation settings are preserved, but with a boost or cut applied. For example, setting the trim control to -3 dB has the same effect as decreasing every envelope point by 3 dB.

To adjust trim levels, deselect the **Automation Settings** button. When **Automation Settings** is selected, the volume fader and multipurpose slider adjust automation settings.

Video track controls

The controls in the track list allow you to adjust track motion, effects, opacity, and compositing.



*If you cannot find a track control mentioned here it is probably hidden. In the **Hamburger menu** you can customize which track control should be visible in the track header.*

Changing a track's color

You can change the color of your tracks to create logical track groups.

To change a track's color, right-click the header and choose **Track Display Color** from the shortcut menu. Choose a color from the submenu to change the icon in the Track List and the color that is used to highlight a selected event in the timeline.

Use the Display tab in the Preferences dialog to edit the available colors. For more information, see "Preferences - Display Tab" on page 553

Changing a track's height

Drag a track's bottom border to set its height. If you want to set a track's height as the default height for new tracks, you can right-click within the track list and choose **Set Default Track Properties** from the shortcut menu. For more information, see "Setting default track properties" on page 233

Click **Minimize** to minimize a track vertically.

Click **Maximize** to zoom in vertically so a track fills the timeline.

After minimizing or maximizing a track, click the **Minimize** or **Maximize** button again to return a track to its previous height.

Track height keyboard shortcuts

- Press Ctrl+Shift+Up Arrow or Down Arrow to change the height of all tracks at once.
- Press ` to minimize all tracks. Press again to restore tracks to their previous height. When restoring track height, tracks that you previously minimized are not restored–you can restore these tracks by clicking the **Restore Track Height** button on the track header.
- Press Ctrl+` to return all tracks to the default height.

Expanding or collapsing track layers

Right-click the track header and choose **Expand Track Layers** to expand a video track to reveal three subtracks within the main track: the A roll, B roll, and transition roll. In this view, sequential clips alternate between the A and B rolls, and the overlapping area between events is represented by the transition roll.

Choose the command again to collapse the track layers.

For more information, see "Adding transitions" on page 293

Expanding or collapsing track keyframes

If you're using video track effects or track motion, keyframes will be displayed in the timeline below your video track. You can drag keyframes to adjust their position, or right-click a keyframe to display a shortcut menu that allows you to add and delete keyframes and change the interpolation curve between keyframes.

For more information, see "Adding video effects" on page 287 and "Editing track motion" on page 261

Select the **Lock Envelopes to Events** *button to lock track-level keyframes to the events on the track. When keyframes are locked, you can move events along the timeline, and their associated keyframes move with them.*

Click the **Expand/Collapse Track Keyframes** button in the track header to toggle the height of the track keyframes.

Event-level keyframes are not visible in the timeline.

Assigning a name to a track

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

   If you do not see the Scribble Strip, expand the track to reveal it. The Scribble Strip appears above the **Level** fader.



2. Press Enter to save the name.

Bypassing the motion blur envelope

If you've applied a motion blur envelope to the video bus track, the envelope affects all tracks. To bypass motion blur for a track, select the **Bypass Motion Blur** button in the track header.

For more information, see "Video bus track" on page 230

Applying track motion

Click the **Track Motion** button to display the Track Motion window.

You can use this window to animate a video track or create picture-in-picture effects.

For more information, see "Editing track motion" on page 261

Applying effects to a track

Click the **Track FX** button to add or edit track-level video effects. Track effects are applied to every event on the selected track.

For more information, see "Adding video effects" on page 287

Muting a track

Click the **Mute** button to prevent a track from being played in the mix. Click the **Mute** button on additional tracks to add them to the mute group. To unmute a track, click the **Mute** button again.

When you have a group of tracks muted, hold Ctrl while clicking the **Mute** *button on an unmuted track to remove all other tracks from the mute group. Hold Ctrl while clicking the* **Mute** *button on a muted track to reset all* **Mute** *buttons.*

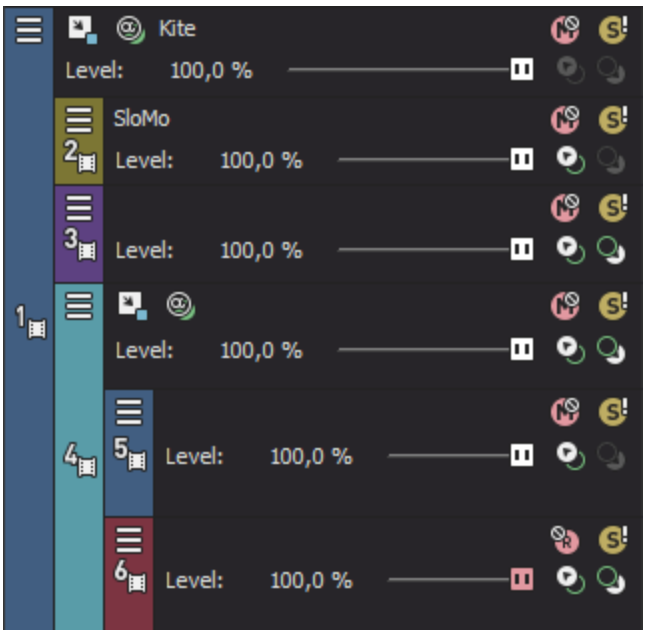
Muting or unmuting a track

1. Deselect the **Automation Settings** button .
2. Click the **Mute** button .

When you have multiple levels of parent and child tracks, clicking the **Mute** button on a parent track mutes the parent track and its compositing children.

In the sample track list, muting track 1 will mute tracks 1 through 6.

Muting track 4 will mute tracks 4 through 6.



For more information, see "Compositing and masks" on page 349

Adjusting mute automation

You can edit mute automation settings by adding a mute envelope to the track or by using the controls in the track header.

1. Select the **Automation Settings** button . The **Mute** button is displayed as .
2. Click the **Mute** button to change the track's mute automation state.

   The button behaves differently if the track has a mute envelope and when you change the track automation recording mode:

   - When the track automation mode is set to **Off**, the button mutes the entire track.
   - When the track has a mute envelope and the track automation mode is set to **Read**, the button changes state to reflect the envelope setting during playback but cannot be adjusted.
   - When the track has a mute envelope and the track automation mode is set to **Touch** or **Latch**, the button edits the envelope setting at the cursor position.

For more information, see "Recording track envelope and keyframe automation" on page 248 and"Video track automation" on page 240

Soloing a track

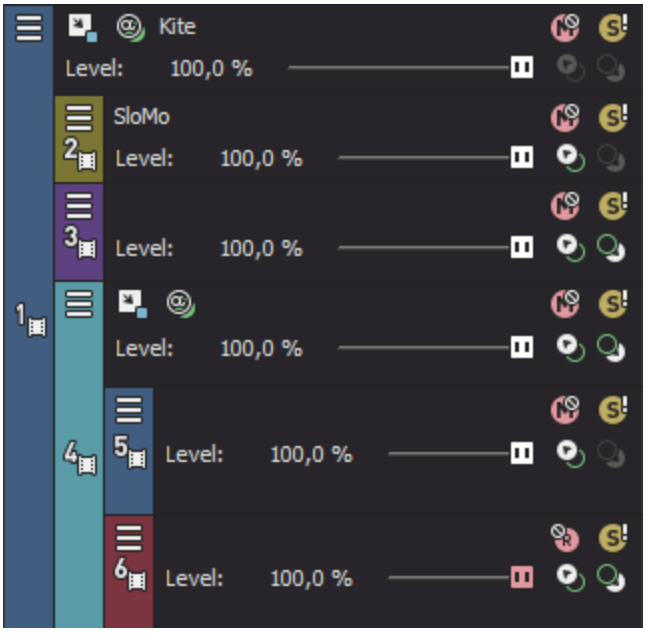
Select the **Solo** button to mute all unselected tracks. Click the **Solo** button on additional tracks to add them to the solo group. To remove a track from the solo group, click the **Solo** button again.

When you have a group of tracks soloed, hold Ctrl while clicking the **Solo** *button on an unsoloed track to remove all other tracks from the solo group. Hold Ctrl while clicking the* **Solo** *button on a soloed track reset all* **Solo** *buttons.*

When you have multiple levels of parent and child tracks, clicking the **Solo** button on a parent track solos the parent track and its compositing children. Other nonsoloed tracks at the same compositing level are bypassed.

In the sample track list, soloing track 1 will solo tracks 1 through 6.

Soloing track 4 will solo tracks 4 through 6. Tracks 2 and 3 are bypassed, and tracks 1 and 7 play normally.



For more information, see "Compositing and masks" on page 349

Adjusting track opacity and trim levels

The **Level** slider in the track header affects the composite level of a track. The slider can function as a trim control that adjusts the overall track opacity, or it can adjust track opacity automation settings.

The trim level is added to the track automation settings so your envelope is preserved, but with a boost or cut applied. For example, setting the trim control to 90% has the same effect as decreasing every envelope point by 10%.

Click the **Parent Composite Mode** or **Compositing Mode** button and choose a mode from the menu to determine how the transparency in a video track is generated. Since lower tracks show through higher tracks, it is the compositing mode of the higher track that determines how much of the lower track shows though. The compositing mode of the lowest video track adjusts its transparency against the background.

For more information, see "Video track automation" on page 240 and "Compositing and masks" on page 349

Adjusting the compositing trim level

1. Deselect the **Automation Settings** button .
2. Drag the **Level** slider to control the transparency or blending of each track: left is 100% transparent, and right is 100% opaque.

   You can hold Ctrl while dragging the slider to adjust the setting in finer increments, or double-click the slider to return it to 100% opaque.

   If multiple tracks are selected, all selected tracks are adjusted.

Adjusting the composite automation level

You can edit automation settings by adding a composite level envelope to the track or by using the controls in the track header.

1. Select the **Automation Settings** button . The slider thumb is displayed as a in automation mode.
2. Drag the **Level** slider.

   The slider behaves differently if the track has a composite level envelope and when you change the track automation recording mode:

   - When the track automation mode is set to **Off**, the slider adjusts the composite level of the entire track.
   - When the track has a composite level envelope and the track automation mode is set to **Read**, the slider will follow the envelope during playback but cannot be adjusted.
   - When the track automation mode is set to **Touch** or **Latch**, the slider edits the envelope setting at the cursor position. If the track does not have a composite level envelope, an envelope will be added when you adjust the slider.

If multiple tracks are selected, all selected tracks are adjusted.

For more information, see "Recording track envelope and keyframe automation" on page 248"Video track automation" on page 240

Adjusting track fade-to-color levels

You can edit automation settings by adding a fade-to-color **envelope** to the track or by using the controls in the track header. The Fade slider is displayed only when the **Automation Settings** button is selected.

You can set the track fade colors for each video track independently by right-clicking the track header, choosing **Fade Colors**, *and then choosing* **Top** *or* **Bottom** *from the submenu. If you want to change the default fade colors, use the* **Track fade top** *and* **Track fade bottom** *controls on the Video tab of the Preferences dialog.*

1. Select the **Automation Settings** button . The slider thumb is displayed as a in automation mode.
2. Drag the **Fade** slider.

   The slider behaves differently when you change the track automation recording mode:

   - When the track automation mode is set to **Off**, the slider adjusts the fade level of the entire track.
   - When the track automation mode is set to **Read**, the slider will follow the envelope during playback but cannot be adjusted.
   - When the track automation mode is set to **Touch** or **Latch**, the slider edits the envelope setting at the cursor position.

If multiple tracks are selected, all selected tracks are adjusted.

For more information, see "Recording track envelope and keyframe automation" on page 248"Video track automation" on page 240

Audio bus tracks

From the View menu, choose **Audio Bus Tracks** to toggle the display of audio bus tracks at the bottom of the timeline. An audio bus track exists for each bus or assignable effects chain in your project and serves as a timeline representation of each bus or assignable effects chain.

You can use bus tracks to automate volume, panning, and effect parameters using envelopes. For more information, see "Audio track automation" on page 236

The controls in the bus track are duplicated on bus or assignable effects channel strips in the Mixing Console window. "Bus Channel Strips" on page 330 and "FX send (assignable effects) channel strips" on page 341

Adding automation to an audio bus track

Adding volume, panning, and effect automation to a bus track is just like adding automation to a standard track.

For more information about track automation, see "Audio track automation" on page 236

Adding effects to a bus track

Click the **Bus FX** button  in the bus track header to add or edit bus effects. If there are no effects on the bus, clicking this button displays the Plug-In Chooser. If an audio bus already has effects assigned, clicking this button displays the Bus FX window. For more information, see "Editing audio effects" on page 284

 If the bus effects chain includes plug-ins with automatable parameters, the **Bus FX** *button is displayed as a*  .

Muting a track

Click the **Mute** button  to prevent a bus track from being played in the mix. Click the **Mute** button on additional tracks to add them to the mute group. To unmute a track, click the **Mute** button again.

Muting or unmuting a bus track

1. Deselect the **Automation Settings** button  .
2. Click the **Mute** button  .

 *When you have a group of tracks muted, hold Ctrl while clicking the* **Mute** *button on an unmuted track to remove all other tracks from the mute group. Hold Ctrl while clicking the* **Mute** *button on a muted track to reset all* **Mute** *buttons.*

Adjusting mute automation

You can edit mute automation settings by adding a mute envelope to the track or by using the controls in the track header.

1. Select the **Automation Settings** button. The **Mute** button is displayed as .
2. Click the **Mute** button to change the bus track's mute automation state.

   The button behaves differently if the track has a mute envelope and when you change the track automation recording mode:

   - When the track automation mode is set to **Off**, the button mutes the entire track.
   - When the track has a mute envelope and the track automation mode is set to **Read**, the button changes state to reflect the envelope setting during playback but cannot be adjusted.
   - When the track has a mute envelope and the track automation mode is set to **Touch** or **Latch**, the button edits the envelope setting at the cursor position.

Soloing a track

Click the **Solo** button to solo all selected audio bus tracks. Click the **Solo** button on additional tracks to add them to the solo group. To remove a track from the solo group, click its **Solo** button again.

Hold Ctrl while clicking a **Solo** *button to solo a single track and remove all other tracks from the solo group.*

Resizing bus tracks

You can drag the horizontal splitter between the track list and bus tracks to increase or decrease the space used to display bus tracks. Perform any of the following actions to resize individual bus tracks:

- Drag a bus track's bottom border to set its height.
- Click **Minimize** to minimize a track vertically.
- Click **Maximize** to zoom in vertically so a bus track fills the lower portion of the timeline.
- After minimizing or maximizing a bus track, click the **Minimize** or **Maximize** button again to return a bus track to its previous height.
- Press Ctrl+Shift+Up/Down Arrow when the bus track area has focus to resize all bus tracks at once.

Video bus track

From the View menu, choose **Video Bus Track** to toggle the display of the video bus track at the bottom of the timeline. A single bus track exists as a timeline representation of the main video output.

You can use the bus track to animate video output effects using keyframes, add motion blur envelopes, or video supersampling envelopes.

Adding keyframes to the video bus track

Adding keyframes to the video bus track is just like working with any other video track. Use video bus track keyframes to animate video output effects. For more information, see "Keyframe animation" on page 268 and "Adding video effects" on page 287

Adding a fade-to color envelope

You can add fade-to-color, motion blur amount, and video supersampling envelopes to the video bus track to affect your video output.

Adding and editing a fade-to-color envelope is just like adding an envelope on a standard video track, but it affects all tracks. For more information, see "Video track automation" on page 240

Adding a motion blur envelope

Motion blur can help you make computer-generated animation look more realistic. For example, if you use track motion or event pan/crop to move a clip across the frame, each frame is displayed clearly when no motion blur is applied. Turning on motion blur adds a motion-dependent blur to each frame to create the appearance of smooth motion in the same way a fast-moving subject is blurred when you take a photograph with a slow shutter speed.



Panned event frame without motion blur



Frame with motion blur

1. Right-click the video bus track, choose **Insert/Remove Envelope** from the shortcut menu, and then choose **Motion Blur Amount** from the submenu.
2. Edit motion blur automation settings:
   - Add and adjust envelope points as necessary to set the time interval that will be used for blurring. For more information, see "Adjusting envelopes" on page 244 Increasing the value emphasizes the blur effect. For example, setting the envelope to 0 means no blurring will occur; setting the envelope to 1 second means that each frame will be blurred for one-half second before and after the frame.

     –or–
   - Select the **Automation Settings** button. The **Motion Blur** slider handle is displayed as a .

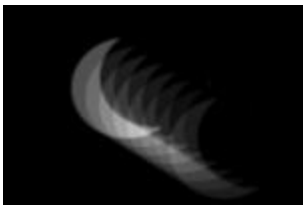
     The **Motion Blur** slider behaves differently if the track has a composite level envelope and when you change the track automation recording mode:
     - When the track automation mode is set to **Off**, the slider adjusts the motion blur level of the entire track.
     - When the track has a motion blur envelope and the track automation mode is set to **Read**, the slider will follow the envelope during playback but cannot be adjusted.
     - When the track automation mode is set to **Touch** or **Latch**, the slider edits the envelope setting at the cursor position. If the track does not have a motion blur envelope, an envelope will be added when you adjust the slider.
3. The motion blur envelope affects all tracks. To bypass motion blur for a track, select the **Bypass Motion Blur** button in the track header.
4. To change blur type, choose a setting from the **Motion blur type** drop-down list on the Video tab in the Project Properties dialog. This setting determines the shape of the blur and the opacity of the frames. For more information, see "Setting project properties" on page 41

Adding a motion blur envelope significantly increases your rendering time.

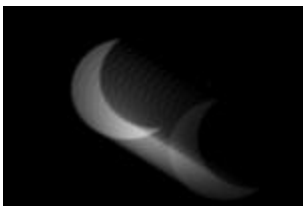
Adding a video supersampling envelope

Video supersampling can improve the appearance of computer-generated animation by calculating intermediate frames between the project's frame rate, allowing you to create smoother motion blurring or motion from sources such as track motion, event pan/crop, transitions, or keyframable effects.

The effect of video supersampling is less apparent with video that contains fast motion, and supersampling cannot improve the appearance of existing video.



Motion blur without supersampling–multiple exposures are visible



Motion blur with supersampling–multiple exposures appear smoother

1. Right-click the video bus track, choose **Insert/Remove Envelope** from the shortcut menu, and then choose **Video Supersampling** from the submenu.
2. Edit automation settings:
   - Add and adjust envelope points as necessary to indicate how many frames will be calculated between frames (using the project's frame rate) to create the blur.

     –or–
   - Select the **Automation Settings** button. The **Supersampling** slider handle is displayed as a . The **Supersampling** slider behaves differently if the track has a supersampling envelope and when you change the track automation recording mode:
     - When the track automation mode is set to **Off**, the slider adjusts the supersampling level of the entire track.
     - When the track has a supersampling envelope and the track automation mode is set to **Read**, the slider will follow the envelope during playback but cannot be adjusted.
     - When the track automation mode is set to **Touch** or **Latch**, the slider edits the envelope setting at the cursor position. If the track does not have a supersampling envelope, an envelope will be added when you adjust the slider.

Video supersampling significantly increases your rendering time. For example, when you set the video supersampling envelope to 2, twice as many frames are rendered than would be rendered without supersampling. Adjust the envelope to apply supersampling only where necessary.

Adding effects to a bus track

Click the **Video Output FX** button in the bus track header to add or edit video output effects. If there are no video output effects, clicking this button displays the Plug-In Chooser. If you've already set up video output

effects, clicking the button displays the Video Output FX window. For more information, see "Adding video effects" on page 287

Muting the video output

Click the **Mute** button to mute the video output. To unmute the video output, click the **Mute** button again.

Muting or unmuting a bus track

1. Deselect the **Automation Settings** button.
2. Click the **Mute** button.

Adjusting mute automation

You can edit mute automation settings by adding a mute envelope to the track or by using the controls in the track header.

1. Select the **Automation Settings** button. The **Mute** button is displayed as .
2. Click the **Mute** button to change the bus track's mute automation state.

   The button behaves differently if the track has a mute envelope and when you change the track automation recording mode:

   - When the track automation mode is set to **Off**, the button mutes the entire track.
   - When the track has a mute envelope and the track automation mode is set to **Read**, the button changes state to reflect the envelope setting during playback but cannot be adjusted.
   - When the track has a mute envelope and the track automation mode is set to **Touch** or **Latch**, the button edits the envelope setting at the cursor position.

Bypassing video effects and envelopes

Click the **Bypass FX and Envelopes** button in the bus track header to bypass all video output effects and bus track envelopes.

Resizing bus tracks

You can drag the horizontal splitter between the track list and bus tracks to increase or decrease the space allocated to bus tracks. Perform any of the following actions to resize individual bus tracks:

- Drag a bus track's bottom border to set its height.
- Click **Minimize** to minimize a track vertically.
- Click **Maximize** to zoom in vertically so a bus track fills the lower portion of the timeline.
- After minimizing or maximizing a bus track, click the **Minimize** or **Maximize** button again to return a bus track to its previous height.
- Press Ctrl+Shift+Up/Down Arrow when the bus track area has focus to resize all bus tracks at once.

Setting default track properties

You can use any track's settings to specify default settings for new tracks.

Editing default track settings

1. Right-click a track header and choose **Set Default Track Properties** from the shortcut menu.
2. Select the check box for each item that you want to use as a default when creating a new track:

Item	Description
Volume	Select this check box if you want to use the current setting of the **Volume** fader whenever you insert an audio track.
Composite Mode	Select this check box if you want to use the current setting of the **Compositing Mode** button whenever you insert a video track.
Pan Type	Select this check box if you want to use the current panning mode whenever you insert an audio track. To set the panning mode, right-click the **Pan** slider and choose a mode from the drop-down list. For more information, see "Audio panning modes" on page 407
Height	Select this check box if you want to use the current track height whenever you insert an audio or video track.
Track FX	Select this check box if you want to use the current track effect chain and settings whenever you insert an audio or video track. For more information, see "Adding audio track effects" on page 276 and "Adding video effects" on page 287
Input monitor	Select this check box if you want to enable record input monitoring when you insert an audio track. For more information, see "Recording audio" on page 99
Automation mode	Select this check box if you want to use the **Automation Settings** setting and track automation mode setting from the selected track whenever you insert an audio or video track. For more information, see "Recording track envelope and keyframe automation" on page 248

3. Click **OK**.

Restoring the original track settings

1. Right-click a track header and choose **Set Default Track Properties** from the shortcut menu.
2. Select the **Restore original defaults** check box.
3. Click **OK**.

Render to New Track

From the Tools menu, choose **Render to New Track** to mix multiple tracks to a single track. This function is similar to track bouncing in the analog world.

When your project contains many tracks and effects, mixing down can help conserve processing power.

When you render multiple tracks, any envelope or track effects that you have applied will be rendered into the new track. The original source files remain unaffected, and the new track(s) will be saved to a new file.

1. Click the **Solo** button  for the tracks that you want to mix down. If no tracks are soloed, the rendered track will match the Master Bus output. Create a time selection if you want to mix down a portion of your project.

   Video tracks will be rendered into a single video track, and audio tracks will be rendered to a single stereo audio track.
2. From the Tools menu, choose **Render to New Track**. The Render to New Track dialog is displayed.
3. Use the controls in the Render to New Track dialog to choose the location and format you want to use to save your rendered track. For more information, see "Rendering projects (Render As)" on page 469
4. Click the **Render** button. A dialog is displayed to show rendering progress.
5. When the mixing is complete, the new track appears in the track list.
6. After the new track appears, you can delete the original tracks.

Using automation

Automation allows you to control audio and video levels, panning, and effect parameters over time. You can create fades, apply stereo panning, and add effects with parameters that change throughout your project.

Automation is represented on the VEGAS® Pro timeline as an envelope or set of keyframes. You can create automation by adding envelopes or keyframes to your tracks (including bus tracks), or you can record automation parameters by adjusting controls in the VEGAS Pro interface (or on a control surface) during playback. For more information about using a control surface, see "Using a control surface" on page 495

Gain, level, and panning controls can adjust automation (dynamic) settings, or they can function as trim (nonautomated) controls.

The trim setting is added to the automation settings so your envelope or keyframe values are preserved, but with an offset applied. For example, setting an audio track's trim control to -3 dB has the same effect as decreasing every envelope point by 3 dB.

If your automation is not behaving as expected, you may have applied a trim value that is offsetting your automation settings.

When a control is set to adjust trim levels, its handle is displayed as a  . When a control is set to adjust automation levels, it is displayed as a  .

Audio track automation

With audio track automation, you can create fades, apply stereo panning, and add effects with parameters or send levels that change over time.

Track automation will always affect all events on the track. This means that any event envelopes will be calculated after the track automation.

To adjust track automation using the controls in the track header, select the **Automation Settings** button  . When **Automation Settings** is not selected, the controls adjust static (trim) levels.



Choose a fade type from the **Audio default** *drop-down list on the Editing tab of the Preferences dialog to set the default fade type that will be used when you add volume and panning automation envelopes. This setting is used only when you create new envelopes–when you add a point to an existing envelope, the new point always uses the same fade type as the preceding envelope point. Also, this setting is not used for event envelopes. For more information, see "Preferences - Editing Tab" on page 550*

Applying mute automation

1. Select an audio track.
2. From the Insert menu, choose **Audio Envelopes**, or right-click in the track list and choose **Insert/Remove Envelope** from the shortcut menu.
3. From the submenu, choose **Mute**. A check mark is displayed next to the command, and an envelope is added to the timeline.

   Mute automation is either on or off with no fade between the on and off states. If you want to use fades, apply volume automation.
4. You can adjust the automation by editing the envelope in the timeline or by clicking the **Mute Automation** button  in the track header. For more information, see "Adjusting envelopes" on page 244

   The button behaves differently depending on the track automation recording mode. For more information, see "Recording track envelope and keyframe automation" on page 248

- When the track automation mode is set to **Off**, the button mutes the entire track.
- When the track has a mute envelope and the track automation mode is set to **Read**, the button changes state to reflect the envelope setting during playback but cannot be adjusted.
- When the track has a mute envelope and the track automation mode is set to **Touch** or **Latch**, the button edits the envelope setting at the cursor position.

When you apply mute automation to a track, it's possible to have a track that is muted and soloed simultaneously if you use the **Mute** and **Solo** buttons in the track header. The mute state overrides the solo state:

- If a track's **Solo** button is selected, the track is included in the solo group, but it will be muted whenever the mute automation is set to mute the track.
- If the track's **Mute** button is selected, the track is muted regardless of the mute automation settings.

Applying volume or pan automation

1. Select an audio track.
2. From the Insert menu, choose **Audio Envelopes**, or right-click in the track list and choose **Insert/Remove Envelope** from the shortcut menu.
3. From the submenu, choose **Volume** or **Pan**. A check mark is displayed next to the command, and an envelope is added to the timeline.
4. If you want to change the track's volume or pan setting throughout the track, edit the envelope in the timeline. For more information, see "Adjusting envelopes" on page 244

   Panning envelopes will use the current panning mode for the **Pan** *slider in the track list. For more information about panning modes, see "Audio panning modes" on page 407*

5. If you want to change volume or pan settings by recording automation, select the **Automation Settings** button in the track header. The **Volume** fader or **Pan** slider handle is displayed as a in automation mode.
6. Drag the **Volume** fader or **Pan** slider to edit automation settings at the cursor position. You can also adjust automation by editing the envelope in the timeline. For more information, see "Adjusting envelopes" on page 244

   The control behaves differently depending on the track's automation recording mode. For more information, see "Recording track envelope and keyframe automation" on page 248

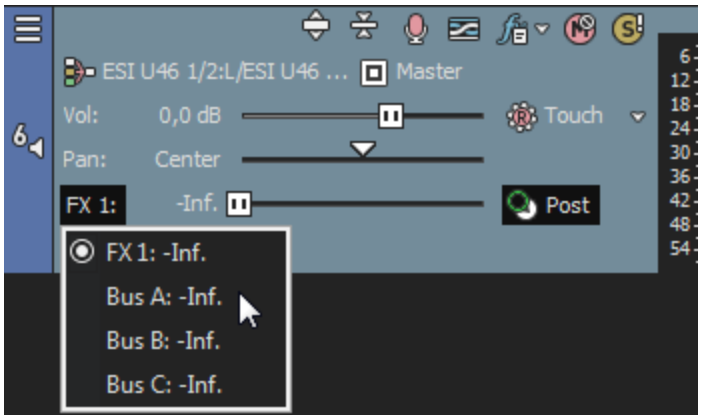
   - When the track automation mode is set to **Off**, the control adjusts the level of the entire track. In this mode, the automation control acts as a second trim control.
   - When the track has a volume or pan envelope and the track automation mode is set to **Read**, the control will follow the envelope during playback but cannot be adjusted.
   - When the track automation mode is set to **Touch** or **Latch**, the control edits the envelope setting at the cursor position. If the track does not have an envelope, an envelope will be added when you adjust the control.

   If multiple tracks are selected, all selected tracks are adjusted.

Applying assignable effects send automation

You can use assignable effects automation to vary the level of a track sent to an assignable effects chain. Before you can add an assignable effects envelope, you'll need to add an assignable effects chain to your project. For more information, see "Adding an assignable effects chain" on page 280

1. Select an audio track.
2. From the Insert menu, choose **Audio Envelopes**, or right-click in the track list and choose **Insert/Remove Envelope** from the shortcut menu.
3. From the submenu, choose the effects chain where you want to send the selected track. A check mark is displayed for each assignable effects chain that is automated for the selected track.
4. Select the **Automation Settings** button in the track header. The fader thumb is displayed as a in automation mode. You can also edit automation by editing the envelope in the timeline. For more information, see "Adjusting envelopes" on page 244
5. Click the label on the multipurpose slider and choose an assignable effects chain from the menu.



6. Drag the FX fader to control the level of the track sent to each of the assignable FX chains that you have created.

   The fader behaves differently depending on the track's automation recording mode. For more information, see "Recording track envelope and keyframe automation" on page 248

   - When the track has an assignable effects envelope and the track automation mode is set to **Off**, the fader adjusts the send level of the entire track. In this mode, the automation control acts as a second trim control.
   - When the track has an assignable effects envelope and the track automation mode is set to **Read**, the fader will follow the envelope during playback but cannot be adjusted.
   - When the track has an assignable effects envelope and the track automation mode is set to **Touch** or **Latch**, the fader edits the envelope setting at the cursor position. If the track does not have an envelope, one will be created when you adjust the fader.

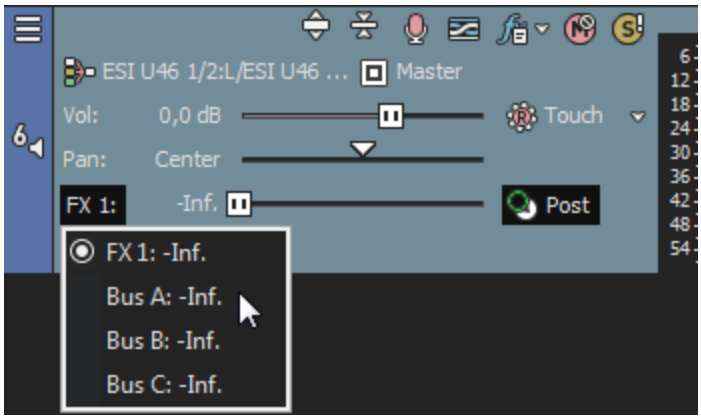
   If multiple tracks are selected, all selected tracks are adjusted.

Applying bus send automation

You can use bus envelopes to vary the level of a track sent to a bus. Before you can add a bus envelope, you'll need to specify the number of busses for your project. For more information, see "Adding audio busses" on page 305

1. Select an audio track.
2. From the Insert menu, choose **Audio Envelopes**, or right-click in the track list and choose **Insert/Remove Envelope** from the shortcut menu.
3. From the submenu, choose the bus where you want to send the selected track. A check mark is displayed for each bus send level that is automated for the selected track.
4. Select the **Automation Settings** button in the track header. The fader thumb is displayed as a in automation mode. You can also adjust automation by editing the envelope in the timeline. For more information, see "Adjusting envelopes" on page 244

5. Click the label on the multipurpose slider and choose a bus from the menu.



6. Drag the fader to control the level of the track sent to the selected bus. Dragging the fader to the left cuts the volume; dragging to the right boosts the volume.

   The fader behaves differently depending on the track's automation recording mode. For more information, see "Recording track envelope and keyframe automation" on page 248

   - When the track automation mode is set to **Off**, the fader adjusts the send level of the entire track. In this mode, the automation control acts as a second trim control.
   - When the track has a bus envelope and the track automation mode is set to **Read**, the fader will follow the envelope during playback but cannot be adjusted.
   - When the track has a bus envelope and the track automation mode is set to **Touch** or **Latch**, the fader edits the envelope setting at the cursor position. If the track does not have an envelope, one will be created when you adjust the fader.

   If multiple tracks are selected, all selected tracks are adjusted.

Adding or removing track effect automation

If a plug-in supports automation, you can dynamically adjust effect parameters over time. For more information, see "Automating audio effect parameters" on page 242

Hiding envelopes

From the View menu, choose **Audio Envelopes**, and choose the envelope you want to hide from the submenu. Hiding an envelope simply removes the line from the timeline while it retains the playback properties.

From the View menu, choose **Show Envelopes** *(or press Ctrl+Shift+E) to toggle the display of all envelopes in the timeline.*

If you've added effect automation envelopes to a track, the track can get cluttered. Click the down arrow next to the **Track FX** button and choose an envelope from the drop-down list to select which envelope you want to display.

Locking envelopes to events

From the Options menu, choose **Lock Envelopes to Events** if you want envelope points and position to move with an event when it is moved along the timeline.

This option also locks track-level keyframes to the events on the track. When keyframes are locked, you can move events along the timeline, and their associated keyframes move with them.

Video track automation

Video track envelopes allow you to vary compositing levels or fade a track between two colors.

A track envelope will always affect all events on the track. This means that any event envelopes will be calculated after the track envelope.

To adjust track automation using the controls in the track header, select the **Automation Settings** button. When **Automation Settings** is not selected, the **Level** slider adjusts static (trim) levels, and the **Fade** slider is not displayed.

Choose a fade type from the **Video default** *drop-down list on the Editing tab of the Preferences dialog to set the default fade type that will be used when you add fade-to-color, composite level, and event velocity envelopes. This setting is not used for track motion or keyframe envelopes. For more information, see "Preferences - Editing Tab" on page 550*

Applying mute automation

1. Select a video track.
2. From the Insert menu, choose **Video Envelopes**, or right-click in the track list and choose **Insert/Remove Envelope** from the shortcut menu.
3. From the submenu, choose **Mute**. A check mark is displayed next to the command, and an envelope is added to the timeline.
4. You can adjust the automation by editing the envelope in the timeline or by clicking the **Mute Automation** button in the track header. For more information, see "Adjusting envelopes" on page 244

   Click the **Automation Settings** button in the track header to toggle between Mute and Mute Automation modes.

   When you apply mute automation to a track, it's possible to have a track that is muted and soloed simultaneously if you use the **Mute** and **Solo** buttons in the track header. The mute state overrides the solo state:
   - If a track's **Solo** button is selected, the track is included in the solo group, but it will be muted whenever the mute automation is set to mute the track.
   - If the track's **Mute** button is selected, the track is muted regardless of the mute automation settings.

Applying composite-level automation

Composite-level automation allows you to vary the opacity/transparency of a video track and has a similar effect to adjusting the **Level** slider in the track header.

The **Compositing Mode** button determines how the transparency in a video track is generated. Since lower tracks show through higher tracks, it is the compositing mode of the higher track that determines how much of the lower track shows though. The compositing mode of the lowest video track has no effect on a project. For more information about compositing, see "Compositing and masks" on page 349

1. Select a video track.
2. From the Insert menu, choose **Video Envelopes**, or right-click in the track list and choose **Insert/Remove Envelope** from the shortcut menu.
3. From the submenu, choose **Track Composite Level**.

   If the track already contains a composite level envelope, it will be removed. If the track does not contain a composite-level envelope, it will be added with a setting of **100%** for the duration of the track.

4. If you want to change the track's composite level throughout the track, edit the envelope in the timeline. For more information, see "Adjusting envelopes" on page 244
5. If you want to change the composite setting by recording automation, select the **Automation Settings** button in the track header. The slider thumb is displayed as a in automation mode.
6. Drag the **Level** slider.

   The slider behaves differently if the track has a composite level envelope and when you change the track automation recording mode. For more information, see "Recording track envelope and keyframe automation" on page 248

   - When the track automation mode is set to **Off**, the slider adjusts the composite level of the entire track. In this mode, the automation control acts as a second trim control.
   - When the track has a composite level envelope and the track automation mode is set to **Read**, the slider will follow the envelope during playback but cannot be adjusted.
   - When the track automation mode is set to **Touch**or **Latch**, the slider edits the envelope setting at the cursor position. If the track does not have a composite level envelope, an envelope will be added when you adjust the slider.

Applying fade-to-color automation and set fade colors

Fade-to-color automation is used to fade a track between two colors. It can be used to fade a track to or from black, and if applied to the top video track, you can fade the entire project.

Adding the envelope

The fade color is chosen by moving the envelope towards the top or bottom of the track. You can add points (nodes) to automate the fade.

1. Select a video track.
2. From the Insert menu, choose **Video Envelopes**, or right-click in the Track List and choose **Insert/Remove Envelope** from the shortcut menu.
3. From the submenu, choose **Track Fade to Color**.

   If the track already contains a fade-to-color envelope, it will be removed. If the track does not contain a fade-to-color envelope, it will be added with a setting of **No Color** (0%) for the duration of the track.
4. If you want to change the fade-to-color setting throughout the track, edit the envelope in the timeline. For more information, see "Adjusting envelopes" on page 244
5. If you want to change the fade-to-color envelope by recording automation, select the **Automation Settings** button in the track header to display automation controls. The **Fade** slider is available only in automation mode.
6. Drag the **Fade** slider.

   The slider behaves differently when you change the track automation recording mode. For more information, see "Recording track envelope and keyframe automation" on page 248

   - When the track automation mode is set to **Off**, the slider adjusts the fade level of the entire track.
   - When the track automation mode is set to **Read**, the slider will follow the envelope during playback but cannot be adjusted.
   - When the track automation mode is set to **Touch**or **Latch**, the slider edits the envelope setting at the cursor position.

Setting fade colors

The default fade colors are determined by the **Track fade top** and **Track fade bottom** controls on the Video tab of the Preferences dialog. For more information, see "Preferences - Video Tab" on page 533

1. To change the **Top** or **Bottom** color for a track, right-click the track header and choose **Fade Colors** from the shortcut menu.
2. Choose **Top** or **Bottom** from the submenu. A color picker is displayed.
3. Use the color picker to specify the new color.
4. Click **OK**.

Hiding envelopes

From the View menu, choose **Video Envelopes** and select the envelope you want to hide.

Hiding an envelope simply removes the line from the timeline while retaining automation properties.

From the View menu, choose **Show Envelopes** *(or press Ctrl+Shift+E) to toggle the display of all envelopes in the timeline.*

Locking envelopes to events

From the Options menu, choose **Lock Envelopes to Events** if you want envelope points and position to move with an event when it is moved along the timeline.

This option also locks track-level keyframes to the events on the track. When keyframes are locked, you can move events along the timeline, and their associated keyframes move with them.

Automating audio effect parameters

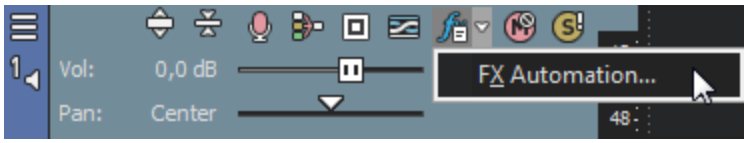
When you add an effect that supports automation, you can use automation to dynamically adjust effect parameters.

Automation for audio track effects is applied on the audio track. Automation for bus effects and assignable effects is applied on the appropriate bus track.

For more information about audio effects, see "Adding audio track effects" on page 276 "Using bus effects" on page 278 and "Using assignable effects" on page 280

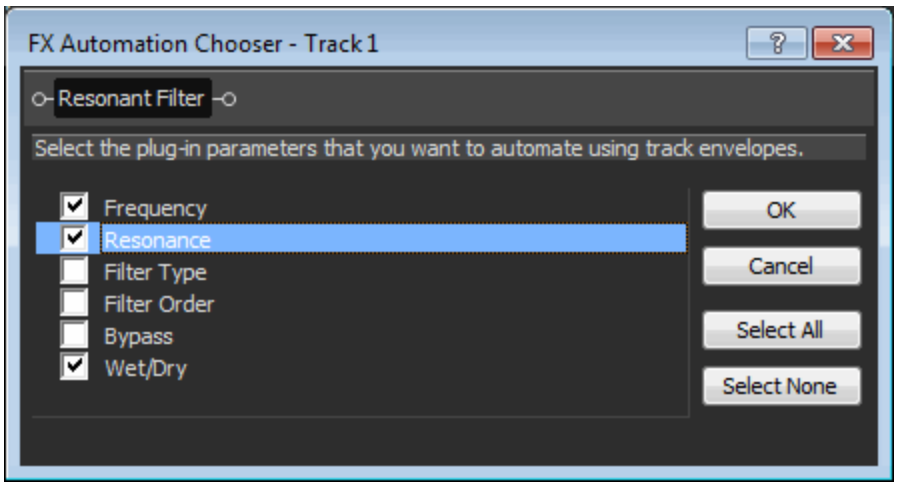
Adding effect automation

1. Click the down arrow next to the **Track FX** button and choose **FX Automation** to display the FX Automation Chooser.



If no track effects exist, clicking the **Track FX** *button will display the Plug-In Chooser. Effects that can be automated are indicated by the icon in the chooser. The first time you select a plug-in, the application will determine whether it can be automated and will update the plug-in's icon and add it to the* **Automatable** *folder in the Plug-In Chooser.*

2. Click an effect button at the top of the FX Automation Chooser. A list of the effect's automatable parameters is displayed:



3. Select the check box for each parameter that you want to control with an envelope.

   If you're working with a 5.1 surround project, you can select the **Enable** *check boxes to determine which channels will be affected by the plug-in. An automation envelope is added to the timeline for each selected channel so you can enable or bypass the plug-in during the project.*

   If you want to use distinct plug-in settings for each channel (separate EQ settings for the front and surround speakers, for example), you can add multiple instances of the plug-in to the track effects chain and select the **Enable** check boxes for the channels you want each instance of the plug-in to affect.

4. Click **OK** to close the FX Automation Chooser. An envelope is added to the track for each parameter that you selected in the FX Automation Chooser.

Adjusting effect automation parameters

You can adjust automated effect parameters by editing the envelopes in the timeline or by recording automation with the controls in the effects window. For more information, see "Adjusting envelopes" on the facing page and "Recording track envelope and keyframe automation" on page 248

If you've enabled the **Bypass** parameter for a plug-in, you can click the **Bypass** button in the plug-in's banner to toggle the Bypass envelope at the cursor position.



When you automate an effect's frequency parameter – such as the frequency parameters in the track EQ effect – you may notice that the frequency changes are more apparent when moving through the lower frequencies. This is because frequency scales in track EQ and other plug-ins use a logarithmic scale, but effect automation uses linear interpolation.

To make the automated frequency changes sound more natural, change the fade curve types to change the interpolation rates between envelope points. For high-to-low frequency sweeps, use a fast fade curve; for low-to-high frequency sweeps, use a slow curve. For more information about changing fade curves, see "Adjusting envelopes" on the facing page

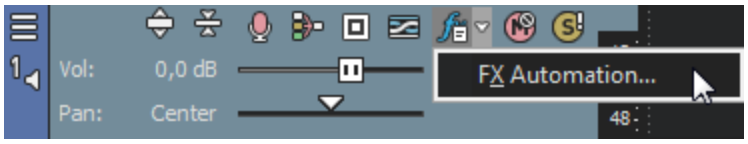
Bypassing effect automation

Toggle the **Bypass FX Automation** button in the effects window to enable or bypass automation envelopes:

- After you've added effect automation envelopes, the **Bypass FX Automation** button is deselected, and effect parameters are automated using the envelope settings.
- When the button is selected, effect automation envelopes are ignored and the effect's initial state is used for the duration of the track.
- If you delete all automation envelopes from a plug-in, the **Bypass FX Automation** button is unavailable.

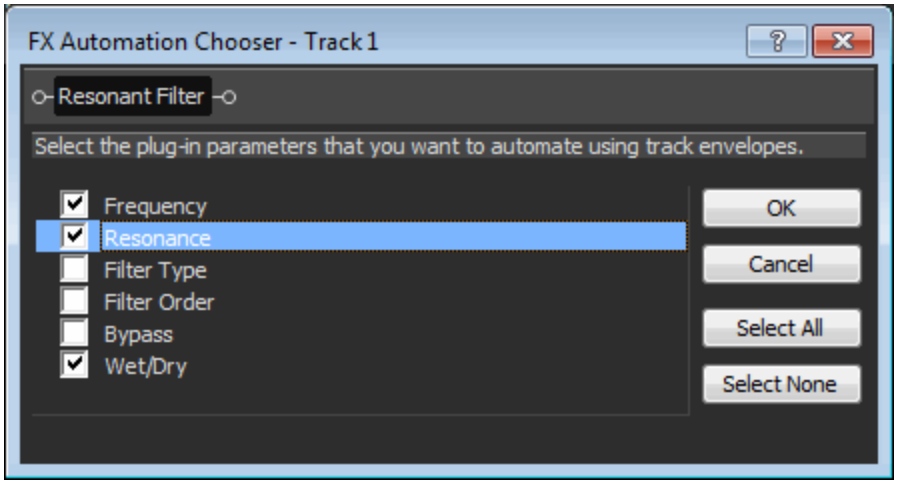
Removing effect automation

1. Click the down arrow next to the **Track FX** button and choose **FX Automation** to display the FX Automation Chooser.



If no track effects exist, clicking the **Track FX** *button will display the Plug-In Chooser. Effects that can be automated are indicated by the icon in the chooser. The first time you select a plug-in, the application will determine whether it can be automated and will update the plug-in's icon and add it to the* **Automatable** *folder in the Plug-In Chooser.*

2. Click an effect button at the top of the FX Automation Chooser. A list of the effect's automatable parameters is displayed:



3. Clear the check box for the automation you want to remove.
4. Click **OK** to close the FX Automation Chooser. The envelope is removed from the timeline for each check box that you cleared in the FX Automation Chooser.

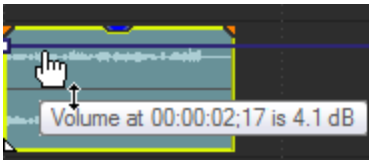
Adjusting envelopes

When the Normal Edit or Envelope , tool is selected, you can add, remove, or adjust envelope points.

Events cannot be moved or edited when the Envelope tool is selected.

Adjusting an envelope

By default, a new envelope will contain a single envelope point. If you want to adjust the overall level of an envelope, drag the envelope up or down. A floating ToolTip will show you the envelope's current setting:



If an envelope has multiple points, you can drag each point, or you can drag envelope segments up or down.

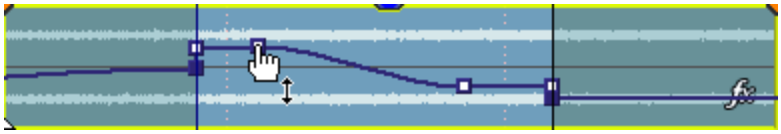
Tips:

- If snapping is enabled, envelope points will snap to snap points. Hold Shift to temporarily suspend snapping. For more information, see "Enable snapping" on page 124
- Hold Ctrl while dragging an envelope point or segment to adjust the value in fine increments without changing the envelope points' timeline positions.
- Hold Ctrl+Alt while dragging an envelope point or segment to adjust the value in normal increments without changing the envelope points' timeline positions.
- Hold Alt while dragging an envelope point to move the point's timeline position without changing its value.
- With the Envelope tool , you can drag along the timeline to select multiple envelope points in the selected track.

Adjusting envelope points within a time selection

When you drag envelope points within a time selection, all envelope points within the selection are adjusted, and a fade can be applied to the beginning and end of the selection to smooth the transition.

1. Create a time selection. For more information, see "Creating selections and positioning the cursor" on page 119
2. Drag an envelope point or segment within the selection. All envelope points within the selection are adjusted as you drag, and fades are applied to the beginning and end of the selection (additional envelope points are created as necessary):

   You can use the Editing page of the Preferences dialog to set the default length and alignment for these fades.

   Clear the **Time selection envelope fades** check box on the Editing page of the Preferences dialog if you want to edit envelope points individually. For more information, see "Preferences - Editing Tab" on page 550

Adding envelope points

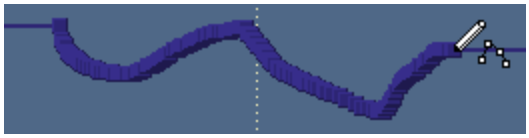
To create more complex envelopes, you will need to add points. To add an envelope point, double-click the envelope. A new envelope point will be added which can be dragged and positioned as necessary.

To delete a point, right-click it and choose **Delete** from the shortcut menu.

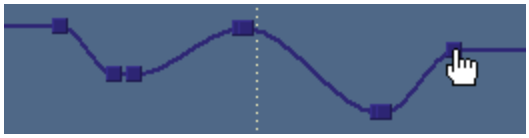
Drawing envelope points (envelope brush)

To create an envelope quickly, you can draw freehand envelope curves in the timeline.

1. With the Normal Edit or Envelope tool active, hover over an envelope.
2. Hold Shift, and then click and drag over the envelope. The cursor is displayed as a .
   As you drag, a trail of envelope points is created.
3. Release the mouse button when you're finished drawing.
   If the **Smooth and thin automation data after recording or drawing** check box is selected on the External Control & Automation tab of the Preferences dialog, the number of envelope points will be reduced when you release the mouse. For more information, see "Preferences - External Control & Automation Tab" on page 558



Unthinned envelope



Thinned envelope

Thinning envelope points

Thinning envelope points decreases the number of points on an envelope while retaining its overall settings.

Right-click an envelope and choose **Thin All Points** from the shortcut menu to thin the entire envelope.

To apply thinning to a section of the envelope, create a time selection, right-click the envelope, and then choose **Thin Selected Points** from the shortcut menu.

Thinning is intended to reduce the number of envelope points created through automation recording and will have little or no effect if you create envelopes by adding and editing points manually.

Flipping an envelope

You can flip an envelope to invert the envelope around its center. Volume, panning, bus, and assignable effects envelopes can be flipped.

Flipping all points

1. Right-click an envelope or a point. A shortcut menu is displayed.
2. Choose **Flip All Points** from the shortcut menu.

Flipping selected points

1. Create a time selection with the Normal Edit or the Envelope tool .
2. Right-click an envelope in the time selection. A shortcut menu is displayed.
3. Choose **Flip Selected Points** from the shortcut menu.

Setting fade properties

You can adjust the fade curve for each envelope segment individually. To change the fade curve, right-click an

envelope segment and choose a command from the shortcut menu.

Fade Type	Fade In/Out Envelope
Linear Fade	
Fast Fade	
Slow Fade	
Smooth Fade	
Sharp Fade	
Hold	

Cutting, copying, and pasting envelope points

1. Select the Envelope tool .
2. Select the envelope points you want to copy:
   a. Create a time selection that contains the envelope points you want to copy.
   b. Click the envelope you want to copy.

   If the envelope isn't displayed, you can right-click the track, choose **Show Envelopes** *from the shortcut menu, and then choose an envelope from the submenu.*
3. From the Edit menu, choose **Copy**.
4. Select the envelope where you want to paste the envelope points:
   a. Click within a track to select it.
   b. Insert an audio or video envelope if needed. For more information, see "Audio track automation" on page 236 or "Video track automation" on page 240
   c. Click to select the envelope where you want to paste the selected points.
   d. Click to position the cursor where you want the envelope to start.
5. From the Edit menu, choose **Paste**.

Copying an envelope to another track

1. Select the Envelope tool .
2. Select the envelope you want to copy:
   a. Double-click above the time ruler to create a time selection that matches the length of your project.
   b. Click the envelope you want to copy.

   If the envelope isn't displayed, you can right-click the track, choose **Show Envelopes** *from the shortcut menu, and then choose an envelope from the submenu.*
3. From the Edit menu, choose **Copy**.

4. Select the envelope where you want to paste the envelope points:
   a. Click within a track to select it.
   b. Insert an audio or video envelope if needed. For more information, see "Audio track automation" on page 236 or "Video track automation" on page 240
   c. Click to select the envelope where you want to paste the selected points.
   d. Click **Go to Start** if you want the envelope to appear exactly as it was in the original track, or click to position the cursor where you want the envelope to start.
5. From the Edit menu, choose **Paste**.

Recording track envelope and keyframe automation

Automation recording allows you to edit envelope and keyframe settings by using the controls in the VEGAS Pro interface. When combined with a control surface, you can create fades and adjust control parameters with a level of control that only a tangible control can provide. For more information, see "Using a control surface" on page 495

Automation recording is available for the following settings:

- Audio track envelopes (using the controls in the track header)
- Audio track effect parameters for automatable effects (using the controls in the Track FX window)
- Bus and assignable effects output and panning levels (using the controls in the Mixing Console window or bus track header)
- Surround panning keyframes
- Video track envelopes (using the controls in the track header)
- Video track effect parameters (using the controls in the Video Track FX window)
- Custom composite mode plug-in settings (using the controls in Parent Track Composite Mode or Track Composite Mode window when **Sync Cursor** is selected)
- Track-level mask generator plug-in settings (using the controls in the Video Track FX window when **Sync Cursor** is selected)

If you want to thin envelope points after recording automation, you can select the **Smooth and thin automation data after recording** *check box on the External Control & Automation tab of the Preferences dialog or right-click the envelope and choose* **Thin All Points** *or* **Thin Selected Points** *from the shortcut menu. For more information, see "Preferences - External Control & Automation Tab" on page 558*

Record automation settings

1. Add an envelope or automatable/keyframeable effect to a track.
   For automatable audio track effects, you must add an effect automation envelope for each parameter you want to automate. For more information, see "Automating audio effect parameters" on page 242
2. Select the **Automation Settings** button.

   To toggle automation controls for all tracks, press Ctrl+A before selecting the **Automation Settings** *button.*

3. Click the ▾ next to the **Automation Settings** button and choose **Automation Write (Touch)** or **Automation Write (Latch)** from the menu.

Automation Recording Mode	Track Icon	Description
Automation Write (Touch)		Envelope points or keyframes are created only while a control is being adjusted. When you stop adjusting the control, automation recording stops and the existing envelope points/keyframes are unaffected.
Automation Write (Latch)		Envelope points or keyframes are created when you change a control setting, and recording continues until you stop playback. When you stop adjusting the control, the control's current setting overwrites the existing envelope points/keyframes.

4. Click to position the cursor in the timeline, and click the **Play** button  to start playback.
5. Adjust the control that corresponds to the envelope point or keyframe you want to adjust.
   During playback, adjusting a control will create envelope points or keyframes at the cursor position. As long as you're adjusting the control, new envelope points/keyframes will be created for each change of the play cursor's position.
6. Click **Stop**  to end playback and stop recording automation.

Edit sections of your recorded settings in Touch mode

In Touch recording mode, envelope points or keyframes are created only while a control is being adjusted. When you stop adjusting the control, automation recording stops and the existing envelope points/keyframes are unaffected.

Use Touch mode for touching up sections of your recorded automation settings.

1. Select the **Automation Settings** button  .

    *To toggle automation controls for all tracks, press Ctrl+A before selecting the* **Automation Settings** *button.*

2. Click the  next to the **Automation Settings** button and choose **Automation Write (Touch)** from the menu. The icon in the track header is displayed as a  .
3. Click to position the cursor in the timeline, and click the **Play** button  to start playback.
4. When you're ready to start editing, adjust the control that corresponds to the envelope point or keyframe you want to adjust.
   Envelope points/keyframes are updated at the cursor position, and when you stop adjusting the control, the original settings are preserved.
5. Click **Stop**  to end playback and stop recording automation.

Overwrite recorded settings in Latch mode

In Latch mode, envelope points or keyframes are created when you change a control setting, and recording continues until you stop playback. When you stop adjusting the control, the control's current setting overwrites the existing envelope points/keyframes.

Use Latch mode to overwrite automation settings with new values.

1. Select the **Automation Settings** button .

   To toggle automation controls for all tracks, press Ctrl+A before selecting the **Automation Settings** *button.*

2. Click the next to the **Automation Settings** button and choose **Automation Write (Latch)** from the menu. The icon in the track header is displayed as a .
3. Click to position the cursor in the timeline, and click the **Play** button to start playback.
4. When you're ready to start editing, adjust the control that corresponds to the envelope point or keyframe you want to adjust.

   Envelope points/keyframes are updated at the cursor position until you stop playback.
5. Click **Stop** to end playback and stop recording automation.

Edit individual envelope points or keyframes

Editing individual envelope points or keyframes gives you fine control over your recorded settings.

1. Select the **Automation Settings** button on the track you want to edit.
2. Click the next to the **Automation Settings** button and choose **Track Automation: Write (Touch)** or **Track Automation: Write (Latch)** from the menu.
3. Select the parameter you want to edit:
   - For a track envelope, select the envelope tool and click the envelope point you want to edit. You can right-click a point and choose **Properties** from the shortcut menu to display an effect's property page.
   - For a keyframe, click the **Expand/Collapse Track Keyframes** button to expand track keyframe rows, and then double-click a keyframe to open its property page. For more information about using an effect, see "Adding video effects" on page 287
4. Adjust the control that corresponds to the envelope point or keyframe you want to adjust. The selected envelope point/keyframe is edited, and all others are unaffected.

   For track envelopes, you can also edit the envelope directly in the timeline. For more information, see "Adjusting envelopes" on page 244

Set the automation recording mode for a track

1. Select the **Automation Settings** button .
2. Click the next to the **Automation Settings** button and choose a command from the menu to choose the automation mode.

To set the automation mode for all tracks, press Ctrl+A before choosing a mode on any track.

Mode	Track Icon	Description
Off		Automated parameters are ignored during playback. When you switch to Off mode, the control setting from the cursor position is used as a static setting, and the envelope/keyframe is dimmed to indicate that it is unavailable.
Read		The envelope/keyframe value is applied during playback, and the

Mode	Track Icon	Description
		control reflects the envelope/keyframe settings at the cursor position. Adjustments to the control are not recorded.
Write (Touch)		The envelope/keyframe value is applied during playback, and the control follows the envelope/keyframe settings during playback and when you position the cursor. Envelope points or keyframes are created only while a control is being adjusted. When you stop adjusting the control, automation recording stops and the existing envelope points/keyframes are unaffected.
Write (Latch)		The envelope/keyframe value is applied during playback, and the control follows the envelope/keyframe settings during playback and when you position the cursor. Envelope points or keyframes are created when you change a control setting, and recording continues until you stop playback. When you stop adjusting the control, the control's last setting overwrites the existing envelope points/keyframes.

Animating video events and tracks

Using animation in VEGAS® Pro, you can pan and crop video, add motion to still images to create a Ken Burns effect, or animate a video track as an overlay.

Panning and cropping video events

Use Crop if you want to cut out portions of an image. There are two different methods for cropping an event. Use the **Crop OFX plug-in**, found in the Video FX window, or use the internal **Pan/Crop tool** accessed by clicking the Crop icon in the event header.

The main benefits of using the **Crop OFX plug-in** are the ease of use provided by the Video Preview interact and it can used where ever you can apply OFX effects, - media, event, track, project.

Crop using the Crop OFX Plug-in

You can apply the Crop OFX plug-in at all the same places you can apply any OFX Plug-in; Media level, Project, Track or Event. To take advantage of the Preview Window interacts it is best applied at the Track or Event level. In this example, we'll add it to a specific event.

1. With at least one event on the timeline, open the Video FX window
2. Expand the OFX folder
3. Choose **Crop**
4. Drag and drop the default preset on the event. You now see the Video Event FX window as well as the interacts in the Video Preview window.
   a. The interact controls include four crop handles; Left, Top, Right, Bottom. Once you drag one of these handles, the handle opposite it becomes the anchor point. e.g., if you drag the right handle the left handle becomes the anchor point. The anchor point has a black dot in the middle of the handle icon.
5. To crop off a portion of the image, click and drag a crop handle toward the center. e.g., to crop off the left side of the image, drag the left crop handle toward the center.
6. To crop using the Video FX window:
   a. Click the Anchor Point dropdown arrow and choose an anchor point.
   b. Use the **X Crop** or **Y Crop** slider or enter a specific value in the **X** or **Y** text box to set the crop.
7. To change the location of the cropped area using the Video Preview interact, click and drag the selection area to a new position.
8. To change the Location using the Video FX window, type a new value into the **Location** text box. Or, click the arrow next to Location in the Video FX window to expand the **Location** field and click and drag the location control.
9. To adjust the Angle using the Video Preview window, click and drag the circle inside the selection area.
10. To adjust the Angle using the Video FX window, enter a value in the angle text box, or drag the Angle slider.
11. To adjust Opacity, enter a number in the **Opacity** text box in the Video FX window or drag the **Opacity** slider.



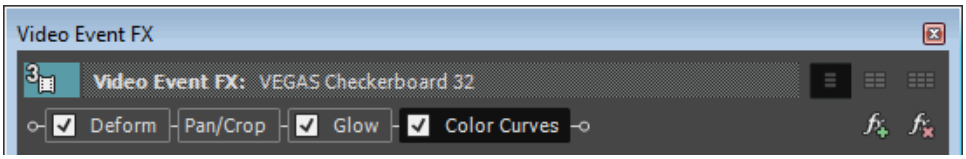
If you want to create an animated crop, use the keyframe controller at the bottom of the Video Event FX window to establish distinct settings throughout the duration of the event. To access the keyframe controller click the animate button associated with the paramater you want to animate. For more information, see "Keyframe animation" on page 268. Because the parameters are so dependent on each other it is important to have animation turned on for ALL the parameters before you start to animate a crop.

Crop using the Pan/Crop tool

Use the **Pan/Crop tool** to crop, zoom, rotate, or pan the selected video event. You can also use panning and cropping to add motion to video events created with still images.

You can also use the Pan/Crop tool to create masks using Bézier curves.

To prevent unwanted blurring, you can choose whether effects are applied to the event before or after any event panning and cropping by arranging the **Pan/Crop** *button in the plug-in chain at the top of the Video Event FX window.*

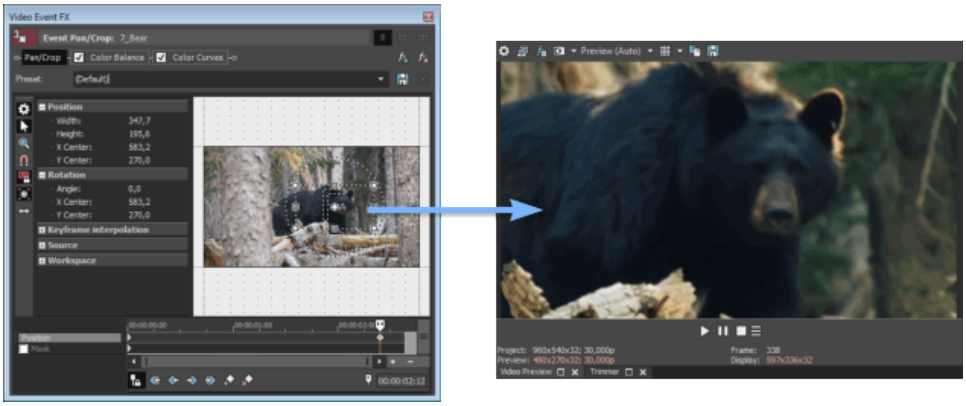


Here, the Deform plug-in is applied before the pan/crop and the Glow and Color Curves plug-ins are applied after the pan/crop.

Cropping or zooming a video event

Cropping is the process of removing the outside edges from an image or video without resizing it.

When you use a single setting for the duration of an event, you are cropping the contents of the event. When you add keyframes to change the extent of cropping through the duration of the event, you can create an animated zoom effect.



1. From the Tools menu, choose **Video**, and choose **Video Event Pan/Crop** (or click the **Pan/Crop** button on the video event).

   The Pan/Crop plug-in is displayed in the Video Event FX window.
2. Adjust the selection area to change the viewable portion of the event.
   - To resize the selection box, drag the handles located around the perimeter of the box. To type specific dimensions for the selection box, expand the **Position** heading on the left side of the window and type new values in the **Width** and **Height** boxes.

     Select the **Lock Aspect Ratio** button if you want the selection box to retain its aspect ratio during resizing. When the button is not selected, the height and width can be resized independently.

     Select the **Size About Center** button if you want the selection box to retain its center point when you resize the box by dragging its edges. When the button is not selected, the opposite side of the selection box will remain anchored when you drag the edges to resize it.

- To reposition the selection box, click in the middle of the selection area and drag to a new position. To type a specific location, expand the **Position** heading on the left side of the window and type new values in the **X Center** and **Y Center** boxes.

  When **Move Freely** is selected, you can move the selection box along the X or Y axis. When **Move in X Only** is selected, you can only move the selection box horizontally. When **Move in Y Only** is selected, you can only move the selection box vertically.
- To zoom in on the selection so the selection fills the output frame, expand the **Source** heading on the left side of the window and choose **Yes** from the **Stretch to fill frame** drop-down list. When **No** is selected, the media retains its original size, and the area outside the selection box is cropped.

Right-click the workspace to display a shortcut menu that displays commands to restore, center, or flip the selection box. You can also force the box to match the source media's aspect ratio or your project's output aspect ratio. Matching the output aspect ratio can prevent black bars from appearing when you use source media (such as photographs) that does not match your project's aspect ratio.

3. The cropping or zooming occurs instantly and the results are updated in the Video Preview window.
4. If you want to create an animated crop or zoom, use the keyframe controller at the bottom of the Video Event FX window to establish distinct zoom settings throughout the duration of the event.

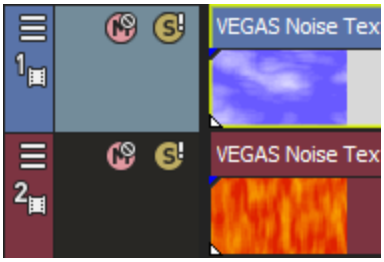
   During playback, intermediate frames are interpolated to create smooth motion. Expand the **Keyframe interpolation** heading on the left side of the window and drag the **Smoothness** slider to adjust the interpolation. For more information, see "Keyframe animation" on page 268

Use the **Default Pan/Crop smoothness** *control on the External Control & Automation tab of the Preferences dialog to set the default Smoothness value for new keyframes.*

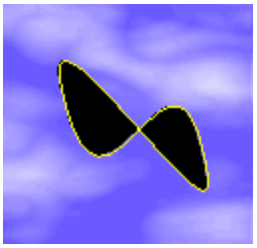
Creating a Bézier mask

Select the **Mask** check box in the keyframe controller at the bottom of the Video Event FX window and use the controls in the **Path** heading on the left side of the Pan/Crop plug-in to create masks using Bézier curves.

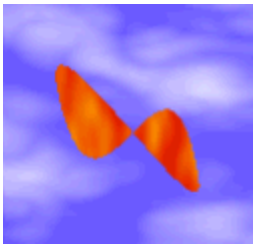
Each event can contain multiple Bézier masks.



Video Tracks



Bézier Mask



Video Output

Double-click the mask shape in the workspace to edit its properties. For more information, see "Editing a mask" on the facing page

Creating a rectangular or oval mask

Use the **Rectangle or Square Mask Creation Tool** or **Oval or Circle Mask Creation Tool** on the left side of the Video Event FX window to quickly create new masks. Each event can contain multiple masks.

1. From the Tools menu, choose **Video**, and choose **Video Event Pan/Crop** (or click the **Pan/Crop** button on the video event). The Pan/Crop plug-in is displayed in the Video Event FX window.
2. Select the **Mask** check box in the keyframe controller at the bottom of the Video Event FX window.
3. Click the **Rectangle or Square Mask Creation Tool** or **Oval or Circle Mask Creation Tool** on the left side of the Video Event FX window.
4. Click and drag in the workspace to create a mask.
   - Hold Shift while dragging to constrain the mask to a square or circular shape.
   - Hold Ctrl while dragging to scale the mask shape from its center.
   - When creating an oval or circular mask, hold the left or right Alt key to create a half-oval (or half-circle) mask.
   - When creating a rectangle or square mask, hold Alt to create a mask with rounded corners.
5. Double-click the mask shape in the workspace to edit its properties. For more information, see "Editing a mask" on the facing page

Masking event effects

You can use the **Apply to FX** control on the left side of the Video Event FX window to mask video event effects.

1. Apply an effect to your video event. For example, if you wanted to blur a subject's face, you could use the Pixelate plug-in.

   For more information, see "Adding video effects" on page 287
2. Create a mask around the portion of the event where you want the effect applied.

   For more information, see "Creating a Bézier mask" on the previous page or "Creating a rectangular or oval mask" above
3. Select the **Mask** check box in the keyframe controller at the bottom of the Video Event FX window and expand the **Mask** heading on the left side of the window.

4. Choose **Yes** from the **Apply to FX** menu.
   When you choose **Yes**, the video event effects will be applied only to the mask area:



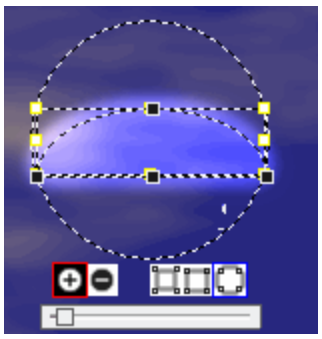
   When you choose **No**, the mask is applied to the frame:



Editing a mask

After you create a Bézier, rectangular, or circular mask, you can use the tools in the workspace to edit the mask

1. Double-click the mask shape in the workspace to edit its properties:



2. Click the **Positive Mask** or **Negative Mask** button to choose whether you want to mask the area inside or outside the mask shape.

   You can also choose **Positive** *or* **Negative** *from the* **Mode** *drop-down list in the* **Path** *heading on the left side of the Pan/Crop plug-in.*

3. If you want to feather the edge of the mask shape, select the **Feather Inside**, **Feather Both**, or **Feather Outside** button and drag the slider below the mask shape to adjust the feather amount.

   You can also use the **Feather type** *and* **Feather (%)** *controls in the* **Path** *heading on the left side of the Pan/Crop plug-in.*

4. To move a mask, double-click the path to select it, and then drag it within the workspace.
   - You can also hold Alt+Shift while clicking a mask to select or deselect it.
   - You can also use the **Position** controls on the left side of the Pan/Crop plug-in to move selected masks.
   - To scale or rotate a selected mask, use the drag handles around the shape. Hold Ctrl or Shift to constrain movement.
   - Hold Shift while rotating a mask to constrain rotation to 15-degree increments.
   - To flip selected masks, right-click the mask and choose **Flip Horizontal** or **Flip Vertical** from the shortcut menu.
   - To duplicate a mask, right-click the mask and choose **Duplicate** from the shortcut menu (or hold Ctrl while dragging a selected mask to a new position).

Rotating a video event

1. From the Tools menu, choose **Video**, and choose **Video Event Pan/Crop** (or click the **Pan/Crop** button on the video event).

   The Pan/Crop plug-in is displayed in the Video Event FX window.
2. Adjust the selection area to crop the event. (If you rotate the entire frame, the background behind the video event will show through.)
3. Drag the corner of the selection box to rotate the event. Your cursor is displayed as a .

   To type a specific rotation angle, expand the **Rotation** heading on the left side of the window and type a new value in the **Angle** box.



4. If you want to rotate your video around a center point other than the center of the selection box, drag the point at the center of the selection point.

   To type a specific center point, expand the **Rotation** heading and type new values in the **X Center** and **Y Center** boxes.

   As you rotate your event, the video will rotate about this center.

   The rotation occurs instantly and the results are updated in the Video Preview window.

5. If you want to use multiple rotation settings, use the keyframe controller at the bottom of the Video Event FX window to establish distinct settings throughout the duration of the event.

   During playback, intermediate frames are interpolated to create smooth motion. Expand the **Keyframe interpolation** heading on the left side of the window and drag the **Smoothness** slider to adjust the interpolation. For more information, see "Keyframe animation" on page 268

   Use the **Default Pan/Crop smoothness** *control on the Editing tab of the Preferences dialog to set the default Smoothness value for new keyframes.*

Panning a video event

You can use event panning to focus on the action of a video event, or you can simulate motion using a still image.

Another use for panning is Pan-and-Scan, which is a technique commonly used when film is converted for television. Movie screens and film are usually wider (~2.35:1) than television (~1.33:1). When you transfer the film to video, you can use panning to crop your video frame and move the crop area to follow the action or subject.

1. From the Tools menu, choose **Video**, and choose **Video Event Pan/Crop** (or click the **Pan/Crop** button on the video event).

   The Pan/Crop plug-in is displayed in the Video Event FX window.
2. Adjust the selection area to crop the event. (If you pan the entire frame, the background behind the video event will show through.)
3. To resize the selection box, drag the handles located around the perimeter of the box. To type specific dimensions for the selection box, expand the **Position** heading on the left side of the window and type new values in the **Width** and **Height** boxes.

   Select the **Lock Aspect Ratio** button if you want the selection box to retain its aspect ratio during resizing. When the button is not selected, the height and width can be resized independently.

   Select the **Size About Center** button if you want the selection box to retain its center point when you resize the box by dragging its edges. When the button is not selected, the opposite side of the selection box will remain anchored when you drag the edges to resize it.
4. To reposition the selection box, click in the middle of the selection area and drag to a new position. To type a specific location, expand the **Position** heading on the left side of the window and type new values in the **X Center** and **Y Center** boxes.

   When **Move Freely** is selected, you can move the selection box along the X or Y axis. When **Move in X Only** is selected, you can only move the selection box horizontally. When **Move in Y Only** is selected, you can only move the selection box vertically.
5. To zoom in on the selection so the selection fills the output frame, expand the **Source** heading on the left side of the window and choose **Yes** from the **Stretch to fill frame** drop-down list. When **No** is selected, the media retains its original size, and the area outside the selection box is cropped.

   Right-click the workspace to display a shortcut menu that displays commands to restore, center, or flip the selection box. You can also force the box to match the source media's aspect ratio or your project's output aspect ratio. Matching the output aspect ratio can prevent black bars from appearing when you use source media (such as photographs) that does not match your project's aspect ratio.

6. Expand the **Source** heading on the left side of the window and choose **Yes** from the **Stretch to fill frame** drop-down list.
7. Drag the selection box to set the viewable portion the event. Your cursor is displayed as a ✣.
8. Use the keyframe controller at the bottom of the Video Event FX window to establish distinct settings throughout the duration of the event. The path of the panning is drawn in the Video Event FX window.

   During playback, intermediate frames are interpolated to create smooth motion. Expand the **Keyframe interpolation** heading on the left side of the window and drag the **Smoothness** slider to adjust the interpolation. For more information, see "Keyframe animation" on page 268

   Use the **Default Pan/Crop smoothness** *control on the Editing tab of the Preferences dialog to set the default Smoothness value for new keyframes.*

Editing keyframe interpolation

If you have two or more keyframes, you can expand the **Keyframe interpolation** heading and edit the **Smoothness** setting to adjust the smoothness of the motion.

Smoothness adjusts spatial interpolation: how motion occurs within the frame. A **Smoothness** setting of 0 produces linear motion from one keyframe to the next. Increasing the setting produces a curved path.

If you want to adjust temporal interpolation how motion occurs over time change a keyframe type by right-clicking a keyframe and choosing a new interpolation curve type (linear, fast, slow, smooth, sharp, or hold).

During playback, intermediate frames are interpolated to create smooth motion. For more information, see "Keyframe animation" on page 268

Use the **Default Pan/Crop smoothness** *control on the Editing tab of the Preferences dialog to set the default Smoothness value for new keyframes.*

Editing source media aspect ratio and stretching

Use the controls in the **Source** heading on the left side of the Pan/Crop plug-in to indicate how your video will be stretched or cropped.

Item	Description
Maintain aspect ratio	Choose **Yes** from the drop-down list (or select the  button) to prevent distortion of the source media file. When you choose **No**, the source media's ratio of height to width is not preserved when video is stretched in the output frame.
Stretch to fill frame	Choose **Yes** from the drop-down list if you want the media in the selection box to fill the output frame. When you choose **No**, the media retains its original size, and the area outside the selection box is cropped.

Editing workspace display settings

Use the controls in the **Workspace** heading on the left side of the Pan/Crop plug-in to change the display.

Item	Description
Zoom	To change the magnification of the video in the workspace, select the **Zoom** box and type a new setting, or select the box and click

Item	Description
	the button to display a slider that you can use to adjust the magnification level.
X offset	To pan the display left or right, select the **X offset** box and type a new setting, or select the box and click the button to display a slider that you can use to adjust the offset. Negative values move the video to the left, positive values move to the right, and 0 represents the horizontal center of the workspace.
Y offset	To pan the display up or down, select the **Y offset** box and type a new setting, or select the box and click the button to display a slider that you can use to adjust the offset. Negative values move the video up, positive values move the video down, and 0 represents the vertical center of the workspace.
Grid spacing	Select the **Grid spacing** box and type a new setting or select the box and click the button to display a slider that you can use to adjust the number of divisions displayed in the workspace.

You can also change the **X offset** *and* **Y offset** *values by hovering over the workspace until the pointer is displayed as a and dragging the workspace to pan in any direction.*

Editing the selection box

Use the controls in the **Edit** heading on the left side of the Pan/Crop plug-in to edit the selection box in the window.

Item	Description
Snap to grid	Choose **Yes** from the drop-down list if you want to snap the edges of the selection box to the workspace grid when you drag to resize or move the box. When you choose **No**, you can move and resize the selection box freely.
Lock aspect	Choose **Yes** from the drop-down list if you want the selection box to retain its aspect ratio during resizing. When you choose **No**, the height and width can be resized independently.
Scale about center	Choose **Yes** from the drop-down list if you want the selection box to retain its center point when you resize the box by dragging its edges. When you choose **No**, the opposite side of the selection box will remain anchored when you drag the edges to resize it.
Allow movement	**Horizontal**: You can move the selection box only horizontally in the workspace. **Vertical**: You can move the selection box only vertically in the workspace. **Unconstrained**: You can move the selection box horizontally or vertically in the workspace.

You can also right-click in the Pan/Crop plug-in to display a shortcut menu that will allow you to quickly adjust the selection box:

Item	Description
Restore	Returns the crop area to full frame.
Center	Moves the crop area to the center of the frame.
Flip Horizontal	Flips the event left to right and backwards.
Flip Vertical	Flips the event top to bottom and backwards.
Match Output Aspect	Sets the x,y ratio to match your project properties.
Match Source Aspect	Sets the x,y value to match the properties of your source media.

Saving or recalling a keyframe preset

Keyframe presets save the settings of the selected keyframe row at the cursor position.

Presets for the Position and Mask keyframe rows are saved separately: presets you create in the Position row will not be available in the Mask row.

Saving a preset

1. Adjust your Position or Mask settings as desired to create a keyframe.
2. Type a name in the **Preset** box.
3. Click the **Save Preset** button .

Recalling a preset

1. Click in the Position or Mask keyframe row to select a row and position the cursor where you want to apply the preset.
2. Choose a setting from the **Preset** drop-down list.

   If no keyframe exists at the cursor position, one is created using the settings from the preset. If a keyframe exists at the cursor position, the keyframe's settings are replaced with the settings from the preset.

Deleting a preset

Click the **Delete Preset** button to delete the current preset.

Editing track motion

From the Tools menu, choose **Video**, and choose **Track Motion** from the submenu (or click the **Track Motion** button on a track header) to display the Track Motion window.

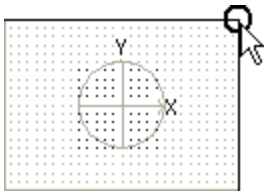
The Track Motion window is used to move a video track over another track. In the following example, a picture-in-picture window has been created by resizing and positioning the overlay video clip. Motion was used to gradually move the text up from the bottom of the window.



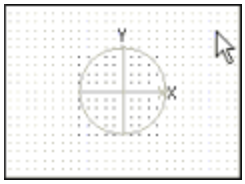
Zooming or panning a video track

When you use a single setting for the track, you move all video on the track. When you add keyframes to change track motion settings through the duration of the track, you can create animation. For more information, see "Keyframe animation" on page 268

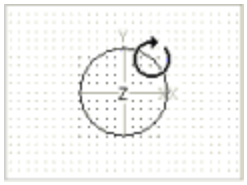
1. Click the **Track Motion** button on the track that contains the overlay you want to animate. The Track Motion window is displayed.
2. Choose a setting from the **Composite Mode** drop-down list to specify how your track will be composited over other tracks. For more information, see "Compositing and masks" on page 349
3. Adjust the selection area to change the viewable area of the track and its position. You can use the **Position**, **Orientation**, and **Rotation** controls on the left side of the window, or you can drag the selection box in the workspace. When you drag, guides are displayed in bold to indicate how the track will be moved or rotated:



Moving closer to or farther from viewer. Drag across corners to flip the track.



Dragging the track to change its position.



Rotating around the Z axis

4. Use the buttons at the top of the dialog to allow or prevent movement or scaling. See the *Change editing options* heading in this topic for more information.

   Right-click the workspace to display a shortcut menu that displays commands to restore, center, or flip the selection box. You can also force the box to match the source media's aspect ratio, your project's output aspect ratio, or a square aspect. Matching the output aspect ratio can prevent black bars from appearing when you use source media (such as photographs) that does not match your project's aspect ratio.

   The track motion occurs instantly, and the results are updated in the Video Preview window.
5. Use the keyframe controller at the bottom of the Track Motion window to establish distinct track motion settings throughout the duration of the track.

   During playback, intermediate frames are interpolated to create smooth motion.

   Expand the **Keyframe interpolation** heading on the left side of the window and drag the **Smoothness** slider to adjust the interpolation.

Use the **Default Track Motion smoothness** *control on the External Control & Automation tab of the Preferences dialog to set the default Smoothness value for new keyframes.*

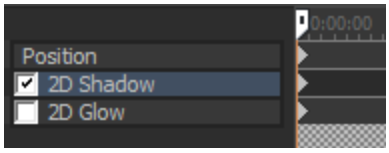
Creating a shadow effect

The shadow effect creates a drop shadow under an object, window, or title. A shadow is especially effective under a picture-in-picture window.

This procedure assumes that you have already created an event on the track above the background video to be used as an overlay.

1. Click the **Track Motion** button on the track where you want to add a shadow effect. The Track Motion window is displayed.
2. Select the **2D Shadow** row in the keyframe controller. When the **2D Shadow** row is selected, shadow controls are displayed in the Track Motion dialog.

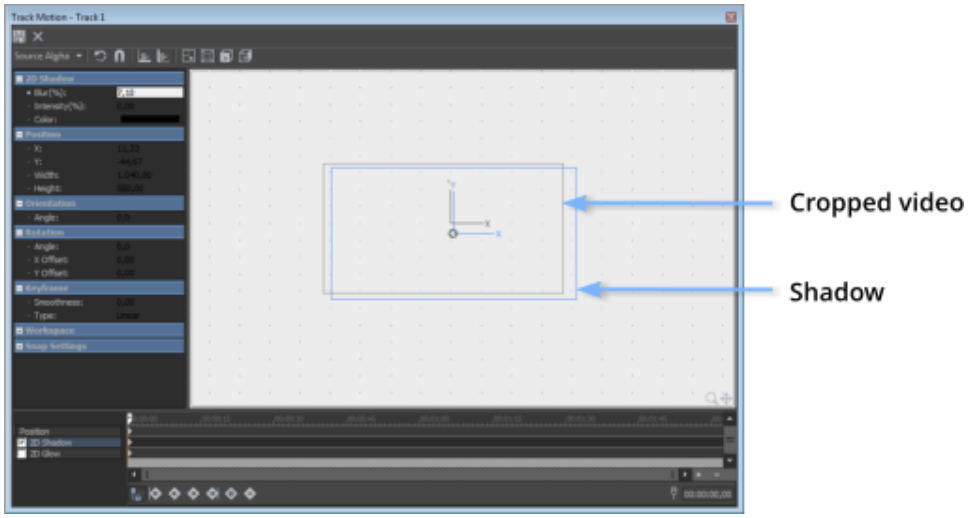
   Select the **2D Shadow** check box to apply the shadow so you can see the results of your shadow in the Video Preview window, or clear the check box to bypass the shadow.



3. Use the 2D Shadow controls on the left side of the window to set the color and appearance of the shadow:

Item	Description
Blur %	Type a number in the box or click the button to display a slider you can use to soften the edge of the shadow. Set to 0 for a hard edge, or increase the setting to feather the edge of the shadow.
Intensity	Type a number in the box or click the button to display a slider you can use to establish the transparency of the shadow's blurred edge. Decrease the setting for a translucent shadow, or increase the setting for a more opaque shadow.
Color	Click the down arrow next to the color swatch to display a color picker. Use the sliders or edit boxes in the color picker to set the shadow color, or use the eyedropper tool to sample a color from your screen.

4. Adjust the size position of the shadow by dragging the box in the workspace or using the **Position**, **Orientation**, and **Rotation** controls on the left side of the window. For more information about manipulating the selection box, see *Crop, zoom, or pan a video track* in this section.



5. To animate the shadow, click in the **2D Shadow** row of the Keyframe Controller to set the cursor to a later time and adjust the shadow settings.

   You can use keyframe animation to change the color or transparency of the shadow, or you can move the shadow independently of the overlay video.

   For more information, see "Keyframe animation" on page 268

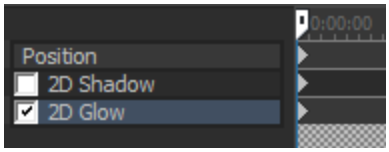
Creating a glow effect

A glow is similar to a shadow, but is typically a bright color with feathered edges.

This procedure assumes that you have already created an event on the track above the background video to be used as an overlay.

1. Click the **Track Motion** button on the track where you want to add a shadow effect. The Track Motion window is displayed.
2. Select the **2D Glow** row in the keyframe controller. When the **2D Glow** row is selected, glow controls are displayed in the Track Motion dialog.

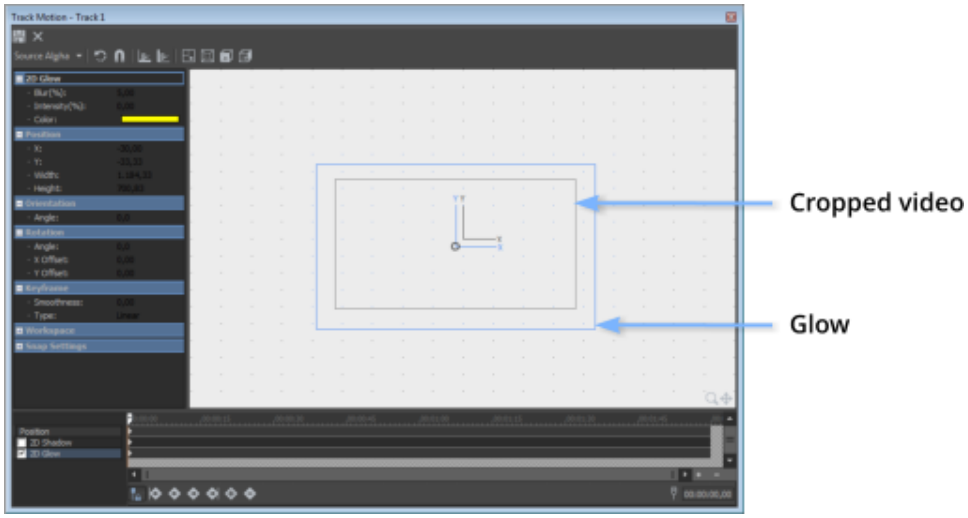
   Select the **2D Glow** check box to apply the shadow so you can see the results of the glow effect in the Video Preview window, or clear the check box to bypass the glow.



3. Use the 2D Glow controls on the left side of the window to set the color and appearance of the glow:

Item	Description
Blur %	Type a number in the box or click the button to display a slider you can use to soften the edge of the glow effect. Set to 0 for a hard edge, or increase the setting to feather the edge of the glow.
Intensity	Type a number in the box or click the button to display a slider you can use to establish the transparency of the glow's blurred edge. Decrease the setting for a translucent glow, or increase the setting for a more opaque glow.
Color	Click the down arrow next to the color swatch to display a color picker. Use the sliders or edit boxes in the color picker to set the glow color, or use the eyedropper tool to sample a color from your screen.

4. Adjust the size position of the glow by dragging the box in the workspace or using the Position, Orientation, and Rotation controls on the left side of the window. For more information about manipulating the selection box, see *Crop, zoom, or pan a video track* in this section.



5. To animate the glow, click in the **2D Glow** row of the Keyframe Controller to set the cursor to a later time and adjust the glow settings.

   You can use keyframe animation to change the color or transparency of the glow, or you can move the glow independently of the overlay video.

   For more information, see "Keyframe animation" on page 268

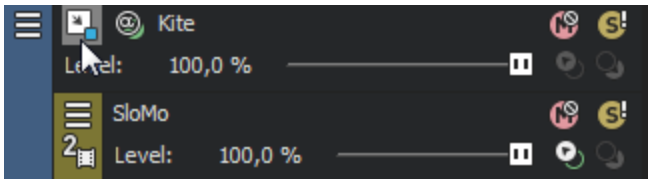
Moving a group of composited tracks (applying parent motion)

1. Click the **Make Compositing Child** button on the tracks you want to group to create a compositing group.

   If you want to move the compositing group in the 3D space, click the **Parent Composite Mode** button on the parent track and choose **3D Source Alpha**.

   For more information, see "Compositing and masks" on page 349 and "3D compositing" on page 353

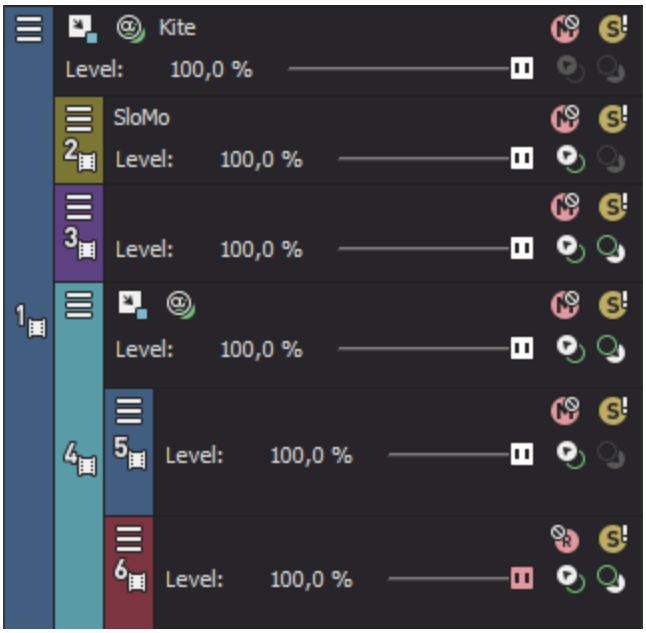
2. Click the **Parent Motion** button on the parent track. The Track Motion window is displayed.



Parent track motion is applied to the parent track and all child tracks.

In the sample track list, parent track motion on track 1 will affect tracks 1 through 6.

Parent track motion applied to track 4 will affect only tracks 4 through 6.



3. Choose a setting from the **Composite Mode** drop-down list to specify how your tracks will be composited over other tracks.
4. Perform the procedures described earlier in this topic to crop or zoom the composited tracks, change their position on screen, or add shadow or glow effects.
5. If you want to create animated track motion, use the keyframe controller at the bottom of the Track Motion window to establish distinct zoom settings throughout the duration of the track.

   During playback, intermediate frames are interpolated to create smooth motion.

   For more information, see "Keyframe animation" on page 268

Changing editing options

Use the toolbar at the top of the Track Motion window to change your editing options:

Item	Description
Enable Rotation	Select this button if you want to be able to rotate, or spin, the video. When the button is not selected, video is locked so you can move it horizontally or vertically, but the track cannot be rotated.
Enable Snapping to Grid	Select this button if you want your editing to snap to the grid.
Edit in Object Space	Select this button if you want to edit in the object's space rather than the camera's space. For example, if a video object is rotated, its X axis may not correspond to the X axis of the of the Video Preview window.

Item	Description
	Selecting the **Edit in Object Space** button in conjunction with the **Prevent Movement** buttons allows you to move the object along its own X and Y axes.
Prevent Movement (X)	Select this button if you want to prevent horizontal movement of the track.
Prevent Movement (Y)	Select this button if you want to prevent vertical movement of the track.
Lock Aspect Ratio	Select this button if you want the selection box to retain its aspect ratio during resizing. When the button is not selected, the height and width can be resized independently.
Scale About Center	Select this button if you want the selection box to retain its center point when you resize the box by dragging its edges. When the button is not selected, the opposite side of the selection box will remain anchored when you drag the edges to resize it.
Prevent Scaling (X)	Select this button if you want to lock the horizontal dimension of the selection box.
Prevent Scaling (Y)	Select this button if you want to lock the vertical dimension of the selection box.

Saving or recalling a keyframe preset

Keyframe presets save the settings of the selected keyframe row at the cursor position.

Notes:

- Presets for the Position, 2D Shadow, and 2D Glow keyframe rows are saved separately.
- Presets for 2D and 3D track motion are saved separately: presets you create in this window will not be available in the 3D Track Motion window. For more information, see "3D compositing" on page 353

Saving a preset

1. Adjust your Position, 2D Shadow, or 2D Glow settings as desired to create a keyframe.
2. Type a name in the **Preset** box.
3. Click the **Save Preset** button .

Recalling a preset

1. Click in the Position, 2D Shadow, and 2D Glow keyframe row to select a row and position the cursor where you want to apply the preset.
2. Choose a setting from the **Preset** drop-down list.

   If no keyframe exists at the cursor position, one is created using the settings from the preset. If a keyframe exists at the cursor position, the keyframe's settings are replaced with the settings from the preset.

Deleting a preset

Click the **Delete Preset** button to delete the current preset.

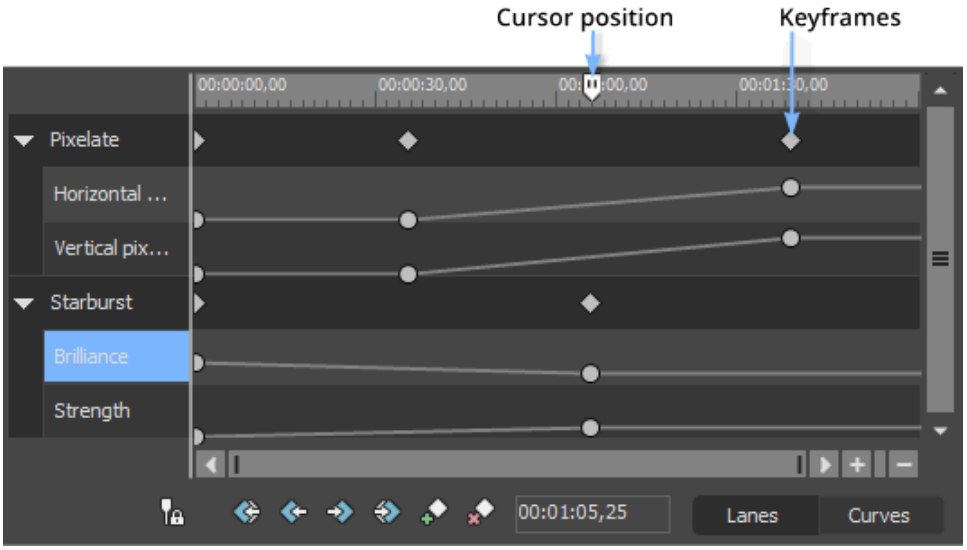
Keyframe animation

Keyframes define the state of an effect's settings at a given point in time.

Each keyframe contains a set of parameters for a specified point on the timeline. The settings for intermediate frames are interpolated. Additional keyframes can be added to create more complex effects.

The Keyframe Controller is displayed at the bottom of Video FX, Video Media Generators, Track Motion, and Transition dialogs and is used to add and remove keyframes and control the FX parameters for individual keyframes.

You have to click at least one **Animate** *button* *next to the FX parameter control to display the keyframe controller. Some older Video FX have only one* **Animate** *button below the FX user interface.*



Each effect in a video effects chain can have its own keyframes.

Adding a keyframe

1. In the Keyframe Controller, click to position the cursor where you want to add a keyframe.
2. Click the **Insert Keyframe** button . A keyframe is added to the Keyframe Controller timeline.

   The new keyframe's attributes are copied from the previous keyframe to allow you to make subtle changes without recreating all your settings.

   To quickly add a keyframe, double-click on the Keyframe Controller timeline, or position the cursor on the timeline and modify your effect parameters.

Removing a keyframe

1. Select a keyframe by clicking it.
2. Click the **Delete Keyframe** button .

Navigating between keyframes

To jump to the next or previous keyframe, click the **Previous Keyframe** and **Next Keyframe** buttons (or press Ctrl+Left Arrow or Ctrl+Right Arrow).

To jump to the first or last keyframe, click the **First Keyframe** or **Last Keyframe** button.

Copying a keyframe

Right-click the keyframe and choose **Copy** from the shortcut menu. The keyframe and its settings are copied to the clipboard.

Hold the Ctrl key while dragging to copy a keyframe.

Using keyframe animation to modify an effect

Keyframe animation can be used to smoothly and gradually modify an effect. For example, if you wanted to gradually fade an event to black and white, you could use the Black and White effect to create two keyframes. The first keyframe would use the **Reset to None** preset, and the second keyframe would use the **100% Black and White** preset. During playback the event would start playing in color and gradually fade to black and white.

1. Add an effect to an event or track. For more information, see "Adding video effects" on page 287
   The Video FX window is displayed.
2. Click the **Animate** button to display the keyframe controller at the bottom of the window.
3. In they keyframe controller, click to position the cursor where you want the effect to start.

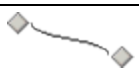
   Select the **Sync Cursor** *button to synchronize the cursor positions on the main timeline and Keyframe Controller timeline.*

4. Click the **Insert Keyframe** button.
5. Adjust the effect attributes as desired.
6. Repeat steps 3 through 5 to add a keyframe for each effect parameter change.
   During playback, the effect will smoothly transition through the attributes you established for each keyframe.

Changing the interpolation curve between keyframes

The interpolation curve determines the rate of animation between two keyframe settings.

For event pan/crop and track motion keyframes, the color of the keyframe indicates which interpolation curve is being used.

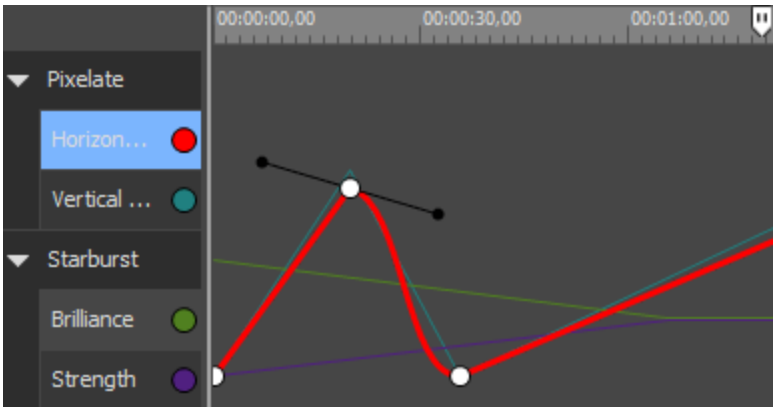
Command	Description	Looks Like
Linear	Effect parameters are interpolated in a linear path.	
Fast	Effect parameters are interpolated in a fast logarithmic path.	
Slow	Effect parameters are interpolated in a slow logarithmic path.	
Smooth	Effect parameters are interpolated along a smooth, natural curve.	
Sharp	Effect parameters are interpolated along a sharp curve.	
Hold	No animation will take place. The keyframe's settings will be maintained until the next keyframe.	

In the Lanes view of the Video FX dialog or in the Pan/Crop or Track Motion dialog, you can right-click a selected keyframe and choose a command from the shortcut menu to change the interpolation curve. The curve type is updated for all selected keyframes.

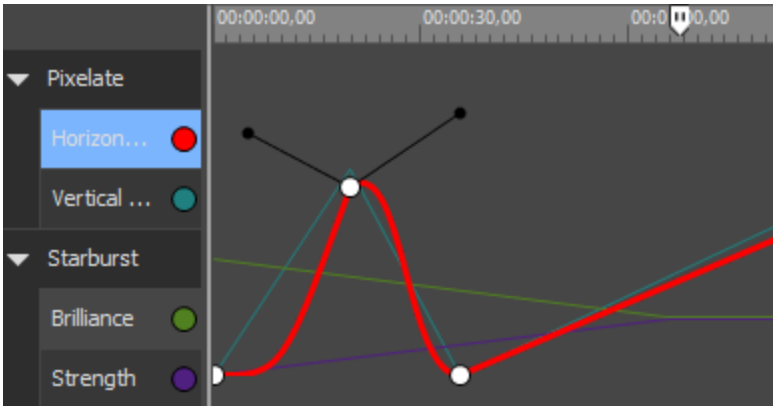
For video effects, the line between keyframes indicates which interpolation curve is being used.

In the Curves view of the Video FX dialog, you can manually adjust a keyframe's spline curves. Click the **Lanes/Curves** button to toggle between Lanes and Curves views.

Right-click a keyframe and choose **Manual** from the shortcut menu to display the spline curve handles. Drag the handles to adjust the curve.



Right-click a keyframe and choose **Split Manual** from the shortcut menu to independently adjust the curve on each side of the keyframe.



Moving keyframes

After you've set your keyframes, you may need to adjust their positions along the timeline. Drag a keyframe to a new position in the Keyframe Controller timeline to change its position.

Hold Ctrl or Shift while clicking to select multiple keyframes. A selected keyframe is displayed as ◈, and an unselected keyframe is displayed as a ◈.

Hold Alt while dragging the first or last keyframe in a group of selected keyframes to adjust their spacing equally.

Adjusting track-level keyframes

If you're using video track effects or track motion, keyframes will be displayed in the timeline below your video track. You can drag keyframes to adjust their position, add and delete keyframes, and change the interpolation curve between keyframes.

Select the **Lock Envelopes to Events** *button* *to lock track-level keyframes to the events on the track. When keyframes are locked, you can move events along the timeline, and their associated keyframes move with them.*

Click the **Expand/Collapse Track Keyframes** button in the track header to toggle the height of the track keyframes. When expanded, a separate row is displayed for each keyframed item.

Event-level keyframes are not visible in the timeline.

Adding track keyframes

1. Click the **Expand/Collapse Track Keyframes** button .
2. Double-click to add a keyframe to the track view. The keyframe will use the same settings and interpolation curve as the previous keyframe.

Moving track keyframes

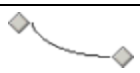
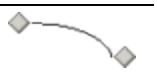
Drag the keyframe to a new position in the timeline. If track keyframe rows are collapsed, overlapping keyframes will move together.

To move multiple keyframes, select the Envelope tool *and create a time selection that includes the keyframes you want to move. When you drag, all keyframes in the time selection will move together.*

Changing the interpolation curve between keyframes

The interpolation curve determines the rate of temporal interpolation: the rate of motion between two keyframes. To change the interpolation curve, right-click a keyframe and choose a command from the shortcut menu:

If you want to adjust spatial interpolation–how motion occurs within a video image–change the **Smoothness** *setting in the Event Pan/Crop or Track Motion dialog. A* **Smoothness** *setting of 0 produces linear motion from one keyframe to the next. Increasing the setting produces a curved path. For more information, see* *"Panning and cropping video events" on page 252* *and* *"Editing track motion" on page 261*

Command	Description	Looks Like
Hold	No animation will take place. The keyframe's settings will be maintained until the next keyframe.	
Linear	Effect parameters are interpolated in a linear path.	
Fast	Effect parameters are interpolated in a fast logarithmic path.	
Slow	Effect parameters are interpolated in a slow logarithmic path.	
Smooth	Effect parameters are interpolated along a smooth, natural curve.	

Editing track keyframes

Individual keyframe parameters cannot be adjusted in the track view. To edit a keyframe, open the effect's property page.

1. Click the **Expand/Collapse Track Keyframes** button to expand track keyframe rows.
2. Double-click a keyframe to open its property page. For more information about using an effect, see "Adding video effects" on page 287

Motion tracking

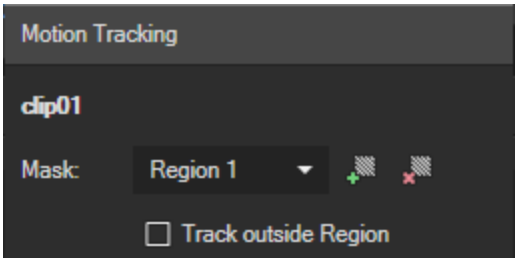
With Motion Tracking it is possible to select a screen area and detect the motion in this area in the scene. The detected motion can be used in various ways. So, for example you could use it to let a masked pixelate effect follow someones face to anonymize it or attach a hat on someones head.

Starting from VEGAS Pro 18 the Motion Tracking feature was completely overhauled. It is no longer a part of the Bézier Masking Effect and you don't need to use scripts any more to transfer the detected motion data to another event. It is now done in an own dialog window and the motion data can easily used by any Event FX that supports location data.

To track motion in a video event:

1. Select the event and open the **Motion Tracking** dialog window. You can open it from the **Tools** menu > **Video** > **Motion tracking**, the event's context menu, Hamburger menu or with the keyboard shortcut Alt + M.

The Motion Tracking Panel control elements



Clip name: The Motion Tracking panel can stay open all the time, so it is important to see, what event is actually being tracked.

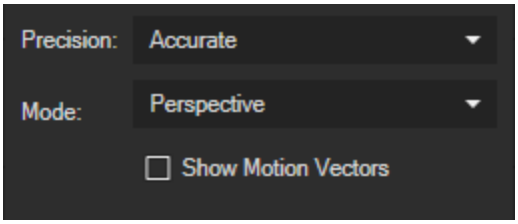
Mask: In the list box, you can select from all regions that are to be tracked or contain motion tracks.

To add a region, click the + button  .

To remove the currently selected region, click the - button  .

 The motion track import menu is only shown if a Bézier Mask or Picture-In-Picture FX is applied to the clip from which motion can be imported.

Track outside mask: Inverts the mask so the non-masked area of the frame is processed. (When the mask is outside the frame, the whole frame is processed then)



Precision:Choose from three different precision options - Fast, Balanced or Accurate - which represent different trade-offs between processing time and precision.

Mode: Select the type of movement to be determined

- **Location:** x/y position shift detection
- **Rotation & Location:** detection of position shift and rotation
- **Scale & Location:** detection of position shift and scale changes
- **Shape & Location:** detection of affine transformation (all of the above + shearing)
- **Perspective:** detection of perspective transformation.

Show Motion Vectors: This shows detected motion vectors. This is particularly helpful when the tracked motion goes wrong because it shows which motion the algorithm is actually detecting (and which not)

The motion vectors are not persistent and will not be stored in the project file.



Motion track indicator: Green segments indicate frames with motion data.

Status bar: Below the Motion track indicator is a status bar, that gives information about the success of the tracking or how and why the tracking had to stop.

Track buttons: You control the tracking process with the track buttons. Starting from the play cursor position you can track forward **(5)**, in both directions **(3)** or

	backwards **(1)**. Then the tracking goes in the specified direction until the clip border was reached or the mask was lost. You can also manually track frame-by-frame with the track one frame forward **(4)** or backward **(2)** button. **Motion transfer menu: (6)** This button opens a multi-level menu in which you can select a target Event FX to which the mask motion is to be transferred. The top level contains all suitable target events, these are the event itself and any other event that shares time positions with the tracked event. On the second level all suitable FX on these events are shown and you can also add a Bézier Mask FX there. The third level contains all FX parameters that represent location data.

2. Click the **Add mask** button  . On the Preview window, a rectangle is displayed. It defines the area of the screen where the algorithm tries to detect movement.
3. Place the play cursor at a time position where the object to be tracked is clearly visible and adjust the corners of the mask to ensure that the moving object is enclosed by the **mask** as completely as possible, with as little background as possible.
4. Click the **Track both directions** button **(3)** to start the tracking. If everything went fine, the movement is tracked from the start to the end of the object. Quite often however, the tracking will stop at some point in the video, if for some reason the mask can no longer track the movement.
5. Then you could adjust the mask frame and track the motion frame-by frame with the Track one frame forward **(4)** or backward **(2)** button. Or you could move the play cursor to some other point in the video, adjust the mask there and start the tracking again.
6. When the tracking was successful (the motion track indicator is mostly or complete green) you can transfer the motion data to an effect on another event. Click the Motion transfer menu button **(6)** and select the event, the effect and the parameter that should use the motion data.

Remarks:

- The tracking data are event envelopes. When they are transmitted from the tracked event, their timing is relative to the event. For example, if you track the movement in a clip and transfer it to a graphic on the track above with a picture-in-picture effect so that the graphic follows the moving object, the event with the graphic must not be moved in time afterwards, otherwise the tracking data will not be correct.
- The Motion Tracking feature is no longer part of the **Bézier Masking** FX. To use **Bézier Masking** with Motion Tracking, track the motion data and create the Bézier masking FX from the **Transfer Motion Data Menu**
- You can track different moving objects in the same event by using several masks.

Applying effects

You can use effects to manipulate the audio and video components of your project.

The included audio plug-ins can improve the quality of the audio in your project or create unique sounds. VEGAS® Pro supports additional DirectX and VST effects from a variety of vendors. Audio effects can be applied to all events on a track, to busses, or as assignable effects or to individual events.

The included video plug-ins are comprised of effects, transitions, and text/background generators. Effects can be used to improve video quality or manipulate an image, transitions can change the way video events flow into one another, and generators can create text and colored backgrounds.

Tips:

- To add effects quickly, you can drag plug-ins and plug-in packages from the Plug-In Manager window to an audio track header. For more information, see "Creating and using effects packages" on page 283 and "The Plug-In Manager Window" on page 35
- Use the VST Effects tab in the Preferences dialog to indicate where the application should search for VST plug-ins and to select which plug-ins you want to use.For more information, see "Preferences - VST Effects" on page 550

Adding audio track effects

Track-level DirectX or VST plug-ins are applied to every event on the selected track.

To add effects quickly, you can drag plug-ins and plug-in packages from the Plug-In Manager window to an audio track header. For more information, see "Creating and using effects packages" on page 283 and "The Plug-In Manager Window" on page 35"The Plug-In Manager Window" on page 35

Be aware that using non-in-place plug-ins (such as Time Stretch, Pitch-Shift without preserving duration, and some Vibrato settings) will cause audio to play out of synchronization with the waveform display in the timeline and with other tracks. If an effects chain includes non-in-place plug-ins, the effects chain icon will be displayed in yellow ( ) to indicate that automatic plug-in delay compensation is being used.

When input monitoring is on during audio recording, plug-in chains that cannot be used for live monitoring are automatically bypassed and are displayed in red ( ). For more information, see "Recording audio" on page 99

Creating a track effects chain

1. Click the **Track FX** button in the track header, or select the track and choose **Tools** > **Audio** > **Track FX**.
   If there are no effects added to the event, the Plug-In Chooser window appears.
   If there are effects added to the event, the Audio Track FX window appears. Click the **Plug-In Chain** button to open the Plug-In Chooser.
2. Select each plug-in you want to add and click the **Add** button.
   The plug-ins appear at the top of the window in the order in which you added them.

   To reorder the plug-ins within the chain, simply drag a plug-in button to a new location, or click the **Move Plug-In Left** *or* **Move Plug-In Right** *buttons.*
3. Click the **OK** button.
   The Audio Track FX window appears.

4. Use the settings in the Audio Track FX window to enable/bypass effects, edit effect parameters, and add/remove effects from a chain.

   If you're working with a 5.1 surround project, you can use distinct plug-in settings for each channel (separate EQ settings for the front and surround speakers, for example) using effect automation. Add multiple instances of the plug-in to the track effects chain and select the **Enable** check boxes in the FX Automation Chooser for the channels you want each instance of the plug-in to affect. For more information, see "Automating audio effect parameters" on page 242

Editing a track effects chain

1. Click the **Track FX** button in the track header.

   The Audio Track FX window appears.
2. Select an effect button at the top of the window.

   Clear the check box to bypass an effect without removing it from the chain.
3. Use the controls in the bottom half of the window to adjust the effect's settings.For more information, see "Editing audio effects" on page 284

Automating effect parameters

If a plug-in supports it, you can use envelopes to automatically adjust effect parameters over time. Automation envelopes can be added to tracks and bus tracks to control individual effect parameters for track effects, bus effects, and assignable effects.

For more information about using automation envelopes on tracks, see "Automating audio effect parameters" on page 242

When you add a plug-in that supports automation, the **Bypass FX Automation** button is displayed in the Audio Track FX window:

- After you've added effect automation envelopes, the **Bypass FX Automation** button is deselected, and effect parameters are automated using the envelope settings.
- When the button is selected, effect automation envelopes are ignored and the effect's initial state is used for the duration of the track.
- If you delete all automation envelopes from a plug-in, the **Bypass FX Automation** button is unavailable.

Learning more about a specific plug-in

For more information about using specific plug-ins, click the **Plug-In Help** button in the Audio Track FX window to display the plug-in's help file.

Adding audio event effects

Event-level DirectX or VST plug-ins are applied only to the event where they are applied.

Be aware that using non-in-place plug-ins (such as Time Stretch, Pitch-Shift without preserving duration, and some Vibrato settings) will cause audio to play out of synchronization with the waveform display in the timeline and with other tracks. If an effects chain includes non-in-place plug-ins, the effects chain icon will be displayed in yellow ( ) to indicate that automatic plug-in delay compensation is being used.

When input monitoring is on during audio recording, plug-in chains that cannot be used for live monitoring are automatically bypassed and are displayed in red ( ).

Creating an event effects chain

1. Click the **Event FX** button on the event in the timeline, or choose **Tools** > **Audio** > **Audio Event FX**.
   If there are no effects added to the event, the Plug-In Chooser window appears.
   If there are effects added to the event, the Audio Event FX window appears. Click the **Plug-In Chain** button to open the Plug-In Chooser.
2. Select each plug-in you want to add and click the **Add** button.
   The plug-ins appear at the top of the window in the order in which you added them.

   To reorder the plug-ins within the chain, simply drag a plug-in button to a new location, or click the **Move Plug-In Left** *or* **Move Plug-In Right** *buttons.*
3. Click the **OK** button.
   The Audio Event FX window appears.
4. Use the settings in the Audio Event FX window to enable/bypass effects, edit effect parameters, and add/remove effects from a chain.

Editing an event effects chain

1. Click the **Event FX** button on the event in the timeline.
   The Audio Event FX window appears.
2. Select an effect button at the top of the window.

   Clear the check box to bypass an effect without removing it from the chain.
3. Use the controls in the bottom half of the window to adjust the effect's settings.For more information, see "Editing audio effects" on page 284

Learning more about a specific plug-in

For more information about using specific plug-ins, click the **Plug-In Help** button ? in the Audio Event FX window to display the plug-in's help file.

Using bus effects

In addition to assigning effects to individual tracks, you may also apply DirectX and VST effects to busses.

Bus effects will be applied to all tracks assigned to that bus. If a track contains track effects and bus effects, track effects will be processed before the bus effects. For more information about the audio signal flow, see "Signal flow diagram" on page 309

To specify whether the bus level is applied before or after the bus effects chain, do one of the following:

- Click the **Pre/Post Fader Insert FX** button / in the Faders control region of the bus channel strip. For more information, see "Bus Channel Strips" on page 330
- Right-click the button in the bus track or bus control and choose **Post Volume** from the shortcut menu if you want to apply the effects chain after the bus volume. This has the same effect as right-clicking the bus output fader and choosing **Pre FX** from the shortcut menu.

When you're working with 5.1 surround projects, the Master bus supports 5.1-channel audio effects.

Tips:

- To add effects quickly, you can drag plug-ins and plug-in packages from the Plug-In Manager window to busses in the Mixing Console window or a bus track header. For more information, see "The Plug-In Manager Window" on page 35
- If you want to add effects to all audio in your project, you can add effects to the Master bus.

When input monitoring is on during audio recording, audio effects chains that contain non-in-place plug-ins are displayed in yellow ( ) to indicate that automatic plug-in delay compensation is being used. Chains that cannot be used for live monitoring are automatically bypassed and are displayed in red ( ).

Applying effects to a bus

1. Click the **Bus FX** button  located on the bus's audio bus track. For more information, see "Audio bus tracks" on page 229 The Plug-in Chooser window appears.

   You can also use the Insert FX control region in the bus channel strip to add or edit bus effects. For more information, see "Bus Channel Strips" on page 330

2. Select each plug-in you want to add and click the **Add** button, or browse to an FX package.

   To reorder the plug-ins within the chain, simply drag a plug-in button to a new location, or click the **Move Plug-In Left**  *or* **Move Plug-In Right**  *buttons.*

3. When you have finished adding the plug-ins, click the **OK** button.

Editing effects on a bus

1. Click the **Bus FX** button  located on the audio bus track. If the bus has an effects chain, the Bus FX window is displayed.
2. Use the Bus FX window to enable/bypass effects, edit effect parameters, and add/remove effects from a chain. For more information, see "Editing audio effects" on page 284

You can also use the Insert FX control region in the bus channel strip to add or edit bus effects. For more information, see "Bus Channel Strips" on page 330

Automating effect parameters

If a plug-in supports it, you can use envelopes to automatically adjust effect parameters over time. Automation envelopes can be added to tracks and bus tracks to control individual effect parameters for track effects, bus effects, and assignable effects.

For more information about using automation envelopes on tracks, "Automating audio effect parameters" on page 242

When you add a plug-in that supports automation (effects that can be automated are indicated by the icon in the Plug-In Chooser), the **Bypass FX Automation** button is displayed in the Bus FX window:

- After you've added effect automation envelopes, the **Bypass FX Automation** button is deselected, and effect parameters are automated using the envelope settings.
- When the button is selected, effect automation envelopes are ignored and the effect's initial state is used for the duration of the track.
- If you delete all automation envelopes from a plug-in, the **Bypass FX Automation** button is unavailable.

Learning more about a specific plug-in

For more information about using specific plug-ins, click the **Plug-In Help** button ? in the Bus FX window to display the plug-in's help file.

Applying non-real-time event effects

Most processing in VEGAS Pro is nondestructive: editing events and adding effects does not modify your source media.

You can use non-real-time event effects to add effects to an event and render a new media file that includes the processed audio. Non-real-time effects are useful for large projects or for processor-intensive plug-ins.

To add effects quickly, you can drag plug-ins and plug-in packages from the Plug-In Manager window to an event in the timeline. For more information, see "The Plug-In Manager Window" on page 35

1. Select the event that contains the take you would like to process.
2. From the Tools menu, choose **Audio**, then **Apply Non-Real-Time Event FX**. The Plug-Ins Chooser dialog appears.
3. Select each plug-in you want to add and click the **Add** button.

   To reorder the plug-ins within the chain, simply drag a plug-in button to a new location, or click the **Move Plug-In Left** *or* **Move Plug-In Right** *buttons.*
4. Click the **OK** button. The Take dialog box is displayed with the settings for the first plug-in of the chain.
5. Adjust the settings for each effect. Click the help button within the FX window for information about each plug-in's settings. You can preview the processed audio by clicking the **Preview** button .
6. When you have finished adjusting the effect settings, click the **OK** button. The Apply Non Real-Time FX dialog appears.
7. Specify a file name and format for the new media file.
8. Click the **Render** button. After processing, a new file is added to the Project Media window and a new take is added to the event. For more information, see "Using takes as alternate versions of events" on page 165

Using assignable effects

You can use assignable effects chains when you want to route multiple tracks to a chain of DirectX or VST plug-ins while setting the level for each track independently.

You can add up to 32 assignable effects chains to the Mixing Console window. Each chain can have up to 32 plug-ins.

When input monitoring is on during audio recording, audio effects chains that contain non-in-place plug-ins are displayed in yellow ( ) to indicate that automatic plug-in delay compensation is being used. Chains that cannot be used for live monitoring are automatically bypassed and are displayed in red ( ).

Adding an assignable effects chain

From the Insert menu, choose **Audio Assignable FX** (or click the **Insert Assignable FX** button in the Mixing Console toolbar) to create an effects chain to which you can route tracks in your project.

You can create up to 32 assignable effects chains in your project, and each chain can contain up to 32 effects.

To add effects quickly, you can drag plug-ins and plug-in packages from the Plug-In Manager window to the Mixing Console window. Drop on an existing assignable effects control to add plug-ins to the chain. For more information, see "The Plug-In Manager Window" on page 35

When input monitoring is on during audio recording, audio effects chains that contain non-in-place plug-ins are displayed in yellow ( ) to indicate that automatic plug-in delay compensation is being used. Chains that cannot be used for live monitoring are automatically bypassed and are displayed in red ( ).

Creating an assignable effects chain

1. From the Insert menu, choose **Audio Assignable FX**. The Plug-In Chooser window appears.
2. Click each plug-in you want to add, and click the **Add** button, or browse to an effects package. The plug-ins appear at the bottom of the window in the order in which you added them.

   To reorder the plug-ins within the chain, simply drag a plug-in button to a new location, or click the **Move Plug-In Left** *or* **Move Plug-In Right** *buttons.*
3. Once you have added all of the plug-ins and specified the plug-in chain order, click the **OK** button. The new chain is added to the Mixing Console window, and the Assignable FX window appears.
4. Adjust the settings for the effects. For more information about using specific plug-ins, click the **Plug-In Help** button ?.

When you create an assignable effects chain for your project, the **Remove Assignable FX** command is enabled on the Tools > Audio submenu so you can delete a chain from the project.

If the Mixing Console window is visible, click the **Insert Assignable FX** *button in the toolbar. For more information, see " The Mixing Console Window" on page 37*

Editing an assignable effects chain

1. Click the **Assignable FX** button located on the effect chain's audio bus track. For more information, see "Audio bus tracks" on page 229

   The Assignable FX window is displayed.
2. Use the Assignable FX window to enable/bypass effects, edit effect parameters, and add/remove effects from a chain. For more information, see "Editing audio effects" on page 284

If the ***Mixing Console Window*** *is visible, you can use the Insert FX control region in the assignable effects channel strip to edit the assignable effects chain. For more information, see "FX send (assignable effects) channel strips" on page 341*

Deleting an assignable effects chain

When you remove an assignable effects chain, it is deleted from the project. You must recreate the chain if you want to use it again. If you want to keep the chain, but do not want to use it in your current project, you may save the chain as a preset. For more information, see "Creating and using effects packages" on page 283

To bypass an assignable effects chain without removing it from the project, select the **Mute** *button in the Faders control region of the assignable effects channel strip. For more information, see "FX send (assignable effects) channel strips" on page 341*

Right-click an assignable effects channel strip in the Mixing Console window and choose **Delete** from the shortcut menu, or select an assignable effects channel strip and press the Delete key.

Automating effect parameters

If a plug-in supports it, you can use envelopes to automatically adjust effect parameters over time. To automate assignable effects, add automation envelopes to the assignable effect's audio bus track. For more information, see "Audio bus tracks" on page 229

For more information about automating effect parameters, see "Automating audio effect parameters" on page 242

Learning more about a specific plug-in

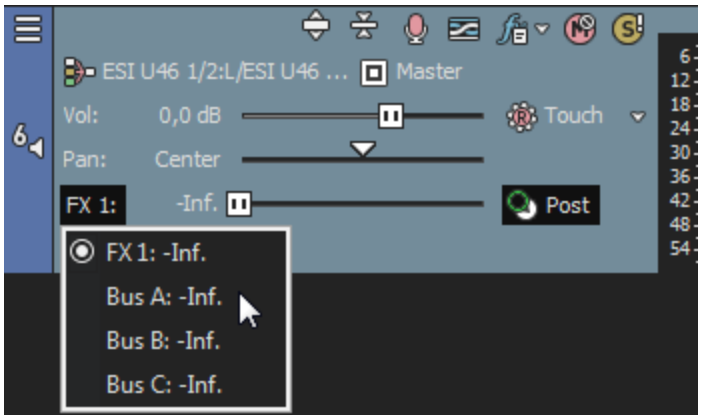
For more information about using specific plug-ins, click the **Plug-In Help** button ? in the Assignable FX window to display the plug-in's help file.

Routing tracks to an assignable effects chain

Routing tracks to an assignable effects chain allows you to assign multiple tracks to a plug-in chain.

In order to route tracks to an assignable effects chain, you must first add an assignable effects chain to your project. For more information, see "Adding an assignable effects chain" on page 280

1. Click the label on the multipurpose slider and choose the desired assignable effects chain from the menu. The button name changes to reflect the name of the selected chain.



If you can't see the multipurpose fader, drag the bottom edge of the track header to increase its height.

2. Drag the fader to adjust the level of the track sent to the assignable effects chain.

   If you set the **Dry Out** faders in your effects chain to -inf, you can adjust the wet/dry balance using the **Volume** fader Faders control region of the assignable effects channel strip. For more information, see "FX send (assignable effects) channel strips" on page 341

   Tips:

   - If the Mixing Console Window is visible, you can use the Sends control region in the audio track channel strip to send a track to an assignable effects chain. For more information, see "Audio Track Channel Strips" on page 323
   - FX sends are post-volume by default. To change to pre-volume, right-click the FX fader and choose **Pre Volume** from the shortcut menu.
   - If you want to apply track panning (including pan position and panning mode) to FX sends, right click the FX fader and choose **Link to Main Track Pan** from the shortcut menu. For more information, see "Audio panning modes" on page 407

     When **Link to Main Track Pan**is not selected, the track sends a center-panned stereo signal using the track's current panning mode.
   - Select the **Use legacy track send gain** check box on the Audio page of the Preferences dialog if you want to configure audio track sends to behave as they did in VEGAS Pro 7.0 and earlier. When the check box is selected, you can open projects created with earlier versions of VEGAS Pro and be assured they will sound the same as they did in earlier versions of VEGAS Pro.

Using assignable effects envelopes

Assignable effects envelopes allow you to change the level of a track sent to an assignable effects chain over time.

For more information, see "Using assignable effects" on page 280 and "Audio track automation" on page 236

Removing an assignable effects chain

When you remove an assignable effects chain, it is deleted from the project. You must recreate the chain if you want to use it again. If you want to keep the chain, but do not want to use it in your current project, you may save the chain as a preset. For more information, see "Creating and using effects packages" below



To bypass an assignable effects chain without removing it from the project, select the **Mute** *button*  *in the Assignable FX Control.*

1. In the Mixing Console window, select the assignable effects chain you want to remove (to select multiple chains, hold down the Ctrl key while selecting).
2. Right-click a selected chain and choose **Delete** from the shortcut menu (or press Delete). The effects chains are removed from your project.

Creating and using effects packages

An effects package allows you to quickly recall frequently used chains of effects. FX packages retain their chain order and individual plug-in settings.

For more information, see "Adding audio track effects" on page 276"Using bus effects" on page 278 and "Using assignable effects" on page 280

Saving an FX chain as a preset

1. Click the **Plug-In Chain** button

 on the Track FX, Bus FX, or Assignable FX dialog to display the Plug-In Chooser window.

2. Use the Plug-In Chooser to add, remove, or arrange plug-ins.
3. Click the **Save As** button.
4. Enter a name on the Save Plug-In Package dialog and click **OK**.

Using an FX chain preset

1. Click the **Plug-In Chain** button  on the Track FX, Bus FX, or Assignable FX dialog to display the Plug-In Chooser window.
2. In the Plug-In Chooser, browse to the preset package you want to recall.
3. Click **OK** to load the effects and settings from the package.

Bypassing all audio effects

From the Options menu, choose **Bypass All Audio FX** to omit all audio effects (track, bus, and assignable effects) during playback.

Bypassing effects allows you to quickly compare your project with and without effects and conserve processing power to avoid playback problems.

 *When effects are bypassed, you can choose whether bypassed effects remain open. When the* **Keep bypassed FX running** *check box on the General tab of the Preferences dialog is selected, effects remain open so you can bypass/enable effects with no pause for A/B testing. When the check box is cleared, effects are fully bypassed, conserving processing power.*

Editing audio effects

Audio effect settings are displayed when you click the  button on a track, bus, or assignable FX control.

Use the effects window to enable/bypass effects, edit effect parameters, add/remove DirectX and VST effects from tracks, busses, and assignable FX chains, edit effect parameters, and configure effects automation.

 If no effects have been added to a track or bus, the button is displayed in gray  *. Click the button to display the Plug-In Chooser, where you can select the plug-ins you want to use.*

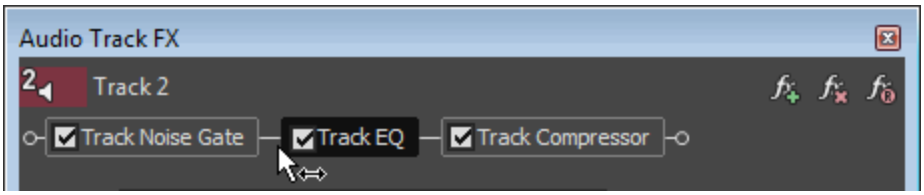
Tips:

- To move faders and sliders in fine increments, hold Ctrl while dragging the control.
- Double-click the title bar of the audio effects window to resize the window for the current plug-in.

Enabling or bypassing effects

Select the check box for each plug-in you want to apply or clear a check box to bypass an effect without removing it from the chain.

The effect of plug-ins on a chain is cumulative, so you may need to rearrange the plug-ins so that one plug-in's processing does not adversely affect other plug-ins in the chain. To reorder the plug-ins within the chain, drag a plug-in button to a new location.



You can bypass or enable all plug-ins by right-clicking the fx *button in the track list and choosing* **Enable All** *or* **Bypass All** *from the shortcut menu.*

Editing effect parameters

Click the plug-in's button to select it, and use the bottom half of the window to adjust the effect's parameters. For more information about using specific plug-ins, click the **Plug-In Help** button ?.

Adding or removing effects

1. Click the **Plug-In Chain** button fx to display the Plug-In Chooser.
2. Select a plug-in button, and then click the **Add** or **Remove** button. The modified chain is displayed at the top of the window.
   - Effects that can be automated are indicated by the icon in the Plug-In Chooser.
   - VST plug-ins are indicated by the VST icon in the Plug-In Chooser.
   - If you select a plug-in package, that chain will replace the current chain.
3. Click the **OK** button.

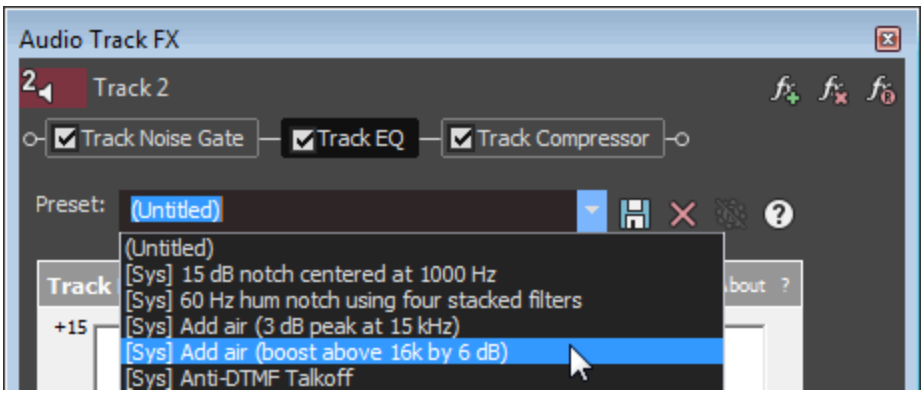
Tips:

- You can bypass, enable, or delete all plug-ins in the chain by right-clicking the fx button in the track list.
- You can remove a plug-in from the chain by selecting a plug-in and clicking the **Remove Selected Plug-In** button .

Loading a plug-in preset

Loading a preset for an individual DirectX plug-in

Choose a setting from the **Preset** drop-down list. The plug-in settings stored in the preset are loaded.



Loading a preset for an individual VST plug-in

1. Click the **Open VST Preset** button  .
2. The Open VST Preset dialog is displayed.
3. Browse to the .fxp file that you want to use.
4. Click the **Open** button.
5. The current VST preset is replaced with the settings stored in the .fxp file.

Loading a bank of VST plug-in presets

1. Click the **Open VST Bank** button  .
2. The Open VST Preset Bank dialog is displayed.
3. Browse to the .fxb file that you want to use.
4. Click the **Open** button.
5. All presets for the current VST plug-in are replaced with the settings stored in the .fxb file, and the first preset in the bank is loaded by default.

Creating or deleting a preset

Saving a preset for an individual DirectX plug-in

1. Adjust the settings for the plug-in.
2. Type a name in the **Preset** box.
3. Click the **Save Preset** button  . The settings for the current plug-in are saved.

Saving a preset for an individual VST plug-in

1. Type a name in the **Preset** box.
2. Click the **Save VST Preset As** button  .
3. The Save VST Preset dialog is displayed.
4. Browse to the folder where you want to save the .fxp file and type a name in the **File name** box.
5. Click the **Save** button. The current plug-in settings are saved in the .fxp file.

Saving a bank of VST plug-in presets

1. Click the **Save VST Bank As** button  .
   The Save VST Preset Bank dialog is displayed.
2. Browse to the folder where you want to save the .fxb file and type a name in the **File name** box.
3. Click the **Save** button. All presets for the current plug-in are stored in the bank.

Delete a preset

Choose a preset from the **Preset** drop-down list and click the **Delete** button  .

Notes:

- You cannot delete built-in presets.
- VST plug-in settings are loaded or saved using .fxp and .fxb files as described above. Individual presets and banks cannot be deleted from this window.

Automating effect parameters

If a plug-in supports it, you can use envelopes to automatically adjust effect parameters over time. Automation envelopes can be added to tracks and bus tracks to control individual effect parameters for track effects, bus effects, and assignable effects.

For more information about using automation envelopes on tracks, see "Automating audio effect parameters" on page 242

When you add a plug-in that supports automation (effects that can be automated are indicated by the icon in the Plug-In Chooser), the **Bypass FX Automation** button is displayed in the window:

- After you've added effect automation envelopes, the **Bypass FX Automation** button is deselected, and effect parameters are automated using the envelope settings.
- When the button is selected, effect automation envelopes are ignored and the effect's initial state is used for the duration of the track.
- If you delete all automation envelopes from a plug-in, the **Bypass FX Automation** button is unavailable.

Learning more about a specific plug-in

For more information about using specific plug-ins, click the **Plug-In Help** button in the effects window to display the plug-in's help file.

Adding video effects

There are several methods available for adding effects to video. Video plug-ins can be added to tracks, video events, source media files (via the Project Media window), or to the entire video project.

Tips:

- To apply a preset without displaying the Video FX dialog, hold the Shift key while dragging a preset from the Video FX window to a track header, event, or the Video Preview window. For more information, see "The Video FX Window" on page 32
- To add effects quickly, you can drag plug-ins from the Plug-In Manager window to events, tracks, and the Video FX or Video Preview windows. For more information, see "The Plug-In Manager Window" on page 35
- To move faders and sliders in fine increments, hold Ctrl while dragging the control.
- Double-click the title bar of the Video FX window to resize it for the current plug-in.

Adding video event effects

Video event effects are applied to individual events.

1. Click the **Event FX** button on the event in the timeline .
   If there are no effects added to the event, the Plug-In Chooser window appears.
   If there are effects added to the event, the Video Event FX window appears in the window docking area.
   Click the **Plug-In Chain** button to open the Plug-In Chooser.
2. Select each plug-in you want to add and click the **Add** button.

3. Click **OK** to close the Plug-In Chooser.
   The Video Event FX window appears.
4. Use the settings in the Video Event FX window to enable/bypass effects, edit effect parameters, and add/remove effects from a chain.
   Tips:
   - To reorder the plug-ins within the chain, drag a plug-in button to a new location.
     

   - You can also drag an effect from the Video FX window to the event on the timeline. For more information, see "The Video FX Window" on page 32
   - You can also double-click a preset in the Video FX window to apply the effect preset to the selected event.

Adding video track effects

Video track effects are applied to every event on the track.

1. Click the **Track FX** button in the track header. For more information, see "Video track controls" on page 224
   If there are no effects added to the track, the Plug-In Chooser window appears.
   If there are effects added to the track, the Video Track FX window appears. Click the **Plug-In Chain** button to open the Plug-In Chooser.
2. Select each plug-in you want to add and click the **Add** button.
3. Click **OK** to close the Plug-In Chooser.
   The Video Track FX window appears.
4. Use the settings in the Video Track FX window to enable/bypass effects, edit effect parameters, and add/remove effects from a chain.
   Tips:
   - To reorder the plug-ins within the chain, drag a plug-in button to a new location.
     

   - You can also drag an effect from the Video FX window to the track header in the track list. For more information, see "The Video FX Window" on page 32
   - You can also double-click a preset in the Video FX window to apply the effect preset to the selected track (when no events are selected).

Adding video media effects

Video media effects are applied to every occurrence of the media file in your project. The source media file is not affected.

1. In the Project Media window, select a file and click the **Media FX** button. For more information, see "Using the Project Media window" on page 68
   If there are no effects applied to the file, the Plug-In Chooser window appears.
   If there are effects applied to the file, the Media FX window appears. Click the **Plug-In Chain** button to open the Plug-In Chooser.

You can access the Media FX also via the Hamburger menu of a video event, where you also can add a button for it in the event header. The Media FX button in the header also functions as an indicator, whether a Media FX is applied ( ) or not ( ).

2. Select each plug-in you want to add and click the **Add** button.
3. Click **OK** to close the Plug-In Chooser.
   The Media FX window appears.
4. Use the settings in the Media FX window to enable/bypass effects, edit effect parameters, and add/remove effects from a chain.
   To reorder the plug-ins within the chain, drag a plug-in button to a new location.



   You can click the **Save As** button in the Plug-In Chooser to create a filter package. A filter package allows you to quickly recall frequently used chains of effects. FX packages retain their chain order and individual plug-in settings.

Adding video output effects

Video output effects are applied to every video event in your project.

1. Click the **Video Output FX** button in the Video Preview window. For more information, see "Using the Video Preview window" on page 423
   If there are no effects applied to the project, the Plug-In Chooser window appears.
   If there are effects applied to the project, the Video Output FX window appears. Click the **Plug-In Chain** button to open the Plug-In Chooser.
2. Select each plug-in you want to add and click the **Add** button.
3. Click **OK** to close the Plug-In Chooser.
   The Video Output FX window appears.
4. Use the settings in the Video Output FX window to enable/bypass effects, edit effect parameters, and add/remove effects from a chain.
   Tips:
   - To reorder the plug-ins within the chain, drag a plug-in button to a new location.



   - You can also drag an effect from the Video FX window to the Video Preview window. For more information, see "The Video FX Window" on page 32

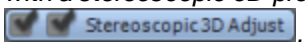
Editing existing video effects

1. Perform one of the following actions to display the editing window for the type of effect you want to modify:

- Event effects: Click the **Event FX** button on the event in the timeline.
- Track effects: Click the **Track FX** button in the track header.
- Media effects: In the Project Media window, select a file and click the **Media FX** button.
- Video output effects: Click the **Video Output FX** button in the Video Preview window.

2. Select an effect button at the top of the window.



Clear the check box to bypass an effect without removing it from the chain. When you're working with a stereoscopic 3D project, a separate check box is displayed for the left- and right-eye video: 

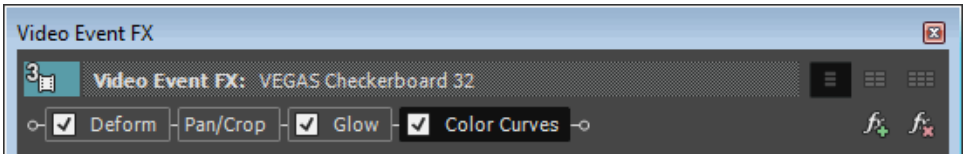
. By limiting an effect to the left or right eye only, you can use multiple instances of a plug-in with different settings for each eye. For more information, see *"Stereoscopic 3D editing" on page 191*

3. Use the controls in the bottom half of the dialog to adjust the effect's settings.

Click the **Remove Selected Plug-In** *button to remove the current plug-in from the chain.*

Applying video event effects before or after event panning or cropping

To prevent unwanted blurring, you can choose whether effects are applied to the event before or after any event panning and cropping by dragging the **Pan/Crop** button in the plug-in chain at the top of the Video Event FX window. For more information, see "Panning and cropping video events" on page 252

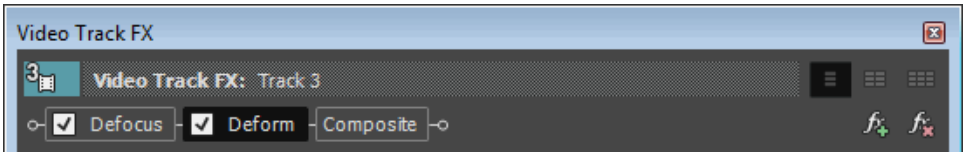


Here, the Deform plug-in is applied before the pan/crop and the Glow and Color Curves plug-ins are applied after the pan/crop.

Applying video track effects before or after track compositing

When you add effects to a video track, you can specify whether the effects are applied before or after compositing. For more information, see "Compositing and masks" on page 349

You can choose whether an effect is applied pre- or post-compositing by dragging the **Composite** button in the plug-in chain at the top of the Video FX window.



Bypassing all video effects

You can use the **Split-Screen View** button in the Video Preview window to create a split-screen preview that bypasses all video effects (track effects, event effects, media effects, and video output effects) without

removing them from your project. For more information, see "Split-screen previews" on page 429

Animating a video effect

If you want to create an animated effect, use the keyframe controller at the bottom of the Video Event FX dialog to establish distinct settings throughout the duration of the effect.

During playback, intermediate frames are interpolated to create smooth motion. For more information, see "Keyframe animation" on page 268

Automating video output effect parameters with the bus track

You can think of VEGAS Pro as having a single video bus: when you have multiple tracks, they are all composited to a single video output. For more information, see "Compositing video" on page 349

When you choose **Video Bus Track** from the View menu, a bus track is displayed for the video output. You can add keyframes to adjust effect parameters over time. For more information, see "Keyframe animation" on page 268

For more information about using the video bus track, see "Video bus track" on page 230

Using LUT's to enhance video

LUT stands for Look Up Table, and is often referred to as a Color Look Up Table. LUTs are commonly used to add a specific color look to your video. Think of them as a universal color preset. LUTs are applied as an OFX plug-in and can be added, like other video effects, to tracks, video events, source media files (via the Project Media window), or to the entire video project using any of the methods described in this chapter. The one difference is that you will have to browse to the LUT, to select it, from the plugin window.

1. Open the Video effects window and expand the OFX folder
2. Drag the effect LUT Filter to the desired location (Media, Event, Track, Main output)
3. In the Video FX window, click the **Browse** button
4. Navigate to where you saved the LUT file, select the file, and click **Open**
5. Pick an Interpolation; **Linear (good)** or **Tetrahedral (best)**
6. Adjust the **Strength** slider to achieve the look you prefer

Notes:

- Linear (good) intepolation is fast and reasonably accurate where as Tetrahedral is more accurate, but slightly slower.
- The LUT filter produces an image that is a blend of the original image and the color-adjusted image. The Strength slider controls the mix, or the percentage of the color-adjusted image vs. the original image. A setting of 0 would be equal to no LUT being applied.

Learning more about a specific plug-in

The video plug-ins that are installed on your system will vary depending on the version of the software that you are using. For more information about a specific plug-in, click the Plug-In Help button in the Video FX window to access online help.

LUT Export

The LUT Export feature enables you to package any video effect chain into a .cube file (LUT file) that can then be imported and used in other effects chains within VEGAS Pro or any other software that imports and reads CUBE files.

To export an effect chain as a LUT, create a chain of effects at any of the four effects levels in VEGAS (Event, Track, Master Bus, Media). Once such a chain exists (using an event chain as an example), you have to:

1. Click the **Event FX button** in the event header to open the Video Event FX window (if it is not already open)
2. Deselect the check-box for any non-color-related plug-in to temporarily remove it from the chain (see note below)
3. Click the Plug-in Chain button to open the Plug-in Chain window
4. Click the Event **Save LUT** button
5. Choose a location and specify a file name for the LUT and save it.

Keep in mind that a proper LUT can contain only plug-ins and filters that adjust things related to color such as hue, saturation, levels, and so on. A LUT cannot properly reproduce filters or effects that distort the image in some way, such as masking, blurs, shading, pixelation, compositing, and so on. You have to be highly aware of the plug-ins you allow to pass through the LUT export process. If you allow any non-supported plug-ins, the resulting LUT will be unpredictable, and very unlikely to represent what you think it will.

Using the Color Grading panel

The **Color Grading** panel provides a powerful set of color-grading and correction tools arranged in a clear, logical workflow. It can be used for any video media in your project including High Dynamic Range (HDR) footage.

Click the Color Grading button on the "The Transport and Editing Toolbar" on page 23, Choose Menu **Tools** > **Video** > **Color Grading** or press Alt+G to toggle the display of the panel.

You can also add the Color grading button to the Event Header of each video event via the Hamburger button of the event



The panel contains three sections, each of which contains multiple controls. You can make adjustments to any or all of the controls in the panel for every video event in your project timeline. You can use this panel separately or in conjunction with all other video plug-ins available in VEGAS Pro.

Applying Color Grading to your footage

Color grading must be applied at the event level. When the Color Grading panel is open, it is automatically applied to the Event Video FX plug-in chain of any selected event. To make adjustments to the colors of the footage in your events, you must first select one event. The Color Grading panel shows the setting for that selected event. Select a different event to apply grading to that event. The Color Grading controls reset to reflect the settings applied to the currently selected event, so you can quickly switch from one event to another and quickly make adjustments to each. If no event is selected, the Color Grading panel remains visible, but its controls are temporarily disabled.

Using the controls in section 1

Section one contains the following tabs:

1. **Input LUT:** Click the **Input LUT** to add a camera LUT to your color-grading chain if your footage requires it. This enables VEGAS Pro to properly interpret the color space of your footage.
   - Click the **Browse** button and select a .cube LUT file.
   - Toggle the **Enable** button on and off to enable or disable the output of the LUT
   - Select your **Interpolation** from the Interpolation drop-down: **Linear interpolation** is fast and reasonably accurate whereas **Tetrahedral** is more accurate, but slightly slower.
   - Adjust the **Strength** slider to alter the amount of the LUT you will apply to your video.
   - Click the **Reset** button to set the LUT plug-in back to its default values
2. **Color Wheels:** Click the **Color Wheels** tab to access the four color Wheels.
   - Adjust the thumb for each wheel to adjust the color of your video.
   - Double-click thumbs and sliders to reset them to their default values
   - Click the Reset button to reset a wheel to its default
3. **Color Channels:** Click the **Color Channels** tab to access controls for **Lift**, **Gamma**, **Gain**, and **Offset**.
4. **Input/Output:** Click the **Input/Output** tab to access **Levels** controls and Independent controls including **Saturation** and **Exposure** controls

Using the controls in section 2

Section two contains the following tabs

1. **Color Curves:** Click the **Color Curves** tab to access the color curves
   - Select the checkbox of the channel for which you want to access curves
   - Drag the curve's point handles to alter the shape of the curve
   - Double click a curve to add a new point
   - Click the **Reset** button to reset the curve to its default value
   - Click the **Auto Adjust** button to perform an automatic white balance calculation on your footage
2. **HSL:** Click the **HSL** tab to access controls for Hue, Saturation, and Luminance
3. **Look LUT:** Click the **Look LUT** tab to add a creative LUT to your footage

Using the controls in section 3

Section three contains the following controls

1. Click the **Bypass Color Grading** button to temporarily remove the effects of all **Color Grading** panel controls from your footage.
2. Click the **Bézier Mask** button to open the Event Video FX window and add a **Bézier Mask plug-in** to the chain.
3. Click the **Broadcast Colors** button to open the Event Video FX window and add a **Broadcast Colors** plug-in to the chain.
4. Click the **Reset All** button to reset all Color Grading panel controls to their defaults.
5. Click the **Export LUT** button to **save** the settings of your Color Grading panel to a LUT file in .cube format that you can then use elsewhere in the same or different projects.
6. Click the **Exit** button to hide the Color Grading panel from view (your settings will continue to affect your footage even when the panel is not visible)

Adding transitions

Choose **View** > **Window** > **Transitions** to display or hide the Transitions window. Use this window to choose and preview transition effects that you can use to control how a video event begins or ends, or to change the way one event flows into another.

At the top of the window you can see the available video effects organized into categories. In addition to categories such as **Fades**, **Wipes** or **3D Effects**, there are three special categories:

- **All plug-ins**: All available plug-ins are listed here.
- **Third party:** Additionally installed third-party plug-ins are displayed here. If you select this category, an additional **Filter** drop-down menu will appear in the upper right corner, where you can filter the third-party plug-ins by provider.
- **Favorites:** All plug-ins that you have marked as favorites are listed here. You mark a plug-in as a favorite by clicking on the little star in front of the plug-in name  .

The left pane lists each of the available transitions of the selected category. The thumbnail images in the right pane represent each of the existing presets for the selected effect. Hover your cursor over a preset to see an animated example.

Drag a transition preset to overlapping video events in the timeline to add a transition.

Tips:

- You can type in the **Search plug-ins** box to find plug-ins. For example, if you wanted to find a specific color-correction plug-in, you could type "color" in the box to display only plug-ins that include the term "color" in the plug-in name, description, or group name.
- To apply a preset without displaying the Video Event FX dialog, hold the Shift key while dragging a preset from the Transitions window to the timeline.
- To move faders and sliders in fine increments, hold Ctrl while dragging the control.
- Select **Event Fade Lengths** from the View menu to display fade lengths between selected and non-selected events in the timeline. You can use this display as a quick indicator of a transition's length.
- Double-click the title bar of the Video FX window to resize it for the current plug-in.

Adding transitions to events

1. Choose **View** > **Window** > **Transitions** to display the Transitions window.
2. Select a transition from the list on the left side of the window. The thumbnail images on the right side of the window represent each of the existing presets for the selected transition. Point to a preset to see an animated example.
3. After you've found the preset you want to use, drag it to the position where you want it to occur on the timeline.

   You can drop the transition at either end of an event, between two overlapping events, or between two adjacent events.

   The Video Event FX window is displayed to allow you to edit the transitions settings, and a **Transition Properties** button  is displayed in the timeline to show you where the transition takes place. You can also click this icon to edit the transition's settings.

Adding a transition to all selected events

If you tend to use the same transitions often, you can save yourself some time by adding a transition to all selected events.

1. Select the events where you want to add the transition.
2. Choose **View** > **Window** > **Transitions** to display the Transitions window.
3. Select a transition from the list on the left side of the window. The thumbnail images on the right side of the window represent each of the existing presets for the selected transition. Point to a preset to see an animated example.

4. After you've found the preset you want to use, drag it to one of the selected events.
   The new transition replaces all existing transitions in the selected events.
   The Video Event FX window is displayed to allow you to edit the transitions settings, and a **Transition Properties** button is displayed in the timeline to show you where the transition takes place. You can also click this icon to edit the transition's settings.

Dropping on existing cuts, crossfades, or transitions

- If you drop the preset on an existing transition, only transitions within the selection will be changed. Cuts and crossfades are preserved.
- If you drop the preset on an existing crossfade, only crossfades and transitions within the selection will be changed. Cuts are preserved.
- If you drop the preset on an existing cut, all cuts, crossfades, and transitions within the selection will be changed.

Dropping on event edges

- If you drop the preset on a transition that is at the beginning or end of an event (but does not span two events), only single-event transitions that occur on the same end of the event within the selection will be changed.
- If you drop the preset on an event fade-in or -out, event fade-ins/outs and single-event transitions that occur on the same end of the event within the selection will be changed.
- If you drop the preset on an event edge with no fade, all other event edges, event fade-ins/outs, and single-event transitions that occur on the same end of the event within the selection will be changed.

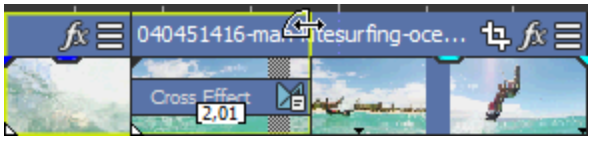
To change the length of the transition for cuts that are converted to transitions, use the **Cut-to-overlap conversion** *settings on the Editing tab of the Preferences dialog. For more information, see* *"Preferences - Editing Tab" on page 550*

Changing the speed/duration of a transition

After you've added a transition to an event, you can easily adjust its duration, which will change the speed at which the transition occurs.

Adjusting a transition at the beginning or end of an event

1. Hover over the edge of the transition until the fade cursor is displayed.
2. Drag the edge of the transition to set its new length:

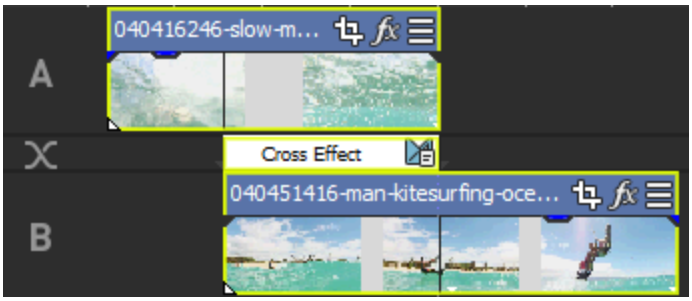


Adjusting a transition between two events

Drag either of the events to change the amount of overlap between them. The transition length is updated to match the overlapping area:



Right-click a track header and choose **Expand Track Layers** from the shortcut menu to reveal the A roll, B roll, and transition roll. In this view, sequential clips alternate between the A and B rolls, and the overlapping area between events is represented by the transition roll.

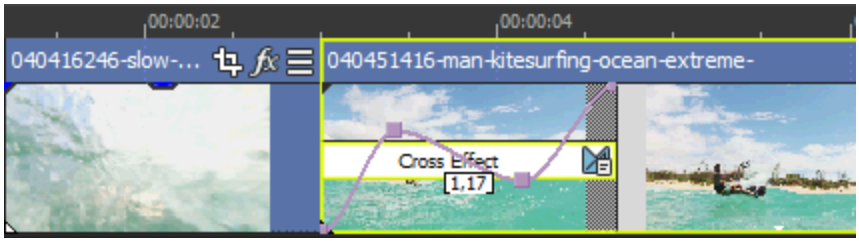


Adding a transition progress envelope

Normally, a transition progresses from 0 to 100% in a linear fashion over the length of the transition. A transition progress envelope gives you complete control over a transition: you can hold, reverse, and repeat individual transitions.

1. Right-click a transition.
2. From the shortcut menu, choose **Insert/Remove Envelope**, and then choose **Transition Progress** from the submenu. An envelope is added to your transition.
3. Add points and adjust the fade curves as desired. For more information, see "Adjusting envelopes" on page 244

   In the following example, the transition starts, progresses to 50%, reverses direction, and then finishes.



Editing a transition

Click the **Transition Properties** button on a transition to change the transition's settings.

Changing to a different transition

1. Click the **Transition Properties** button on an event to display the Video Event FX window.
2. Drag a different transition from the Transitions window to the Video Event FX window.

Removing a transition

1. Click the **Transition Properties** button on an event to display the Video Event FX window.
2. Click the **Remove Selected Plug-In** button to remove the current transition.

Converting a cut to a transition

When you have two video events that are inserted back-to-back with no transition (referred to as a *cut*), you

can convert the cut to a transition by dragging a transition from the Transitions window and dropping it between the events.

You can also right-click between the two events, choose **Transition** from the shortcut menu, and choose a crossfade or transition type from the submenu.

One or both of the events will be extended so they overlap, allowing room for the transition. Use the **Alignment** drop-down list under the **Cut-to-overlap conversion** heading on the Editing tab of the Preferences dialog to determine where the transition is placed. For more information, see "Preferences - Editing Tab" on page 550

There must be sufficient media on each side of the cut to accommodate the overlap time specified on the Editing tab of the Preferences dialog.

Converting a crossfade or transition to a cut

1. Click to position the cursor within the transition.
2. Hold Ctrl while pressing the / key on your numeric keypad.

   The transition is converted to a cut, using the **Cut-to-overlap conversion** settings on the Editing tab of the Preferences dialog to determine where the cut occurs. For more information, see "Preferences - Editing Tab" on page 550

Adding generated media to your project

Media generators can be used to create backgrounds, text, and textures in your project.

Double-click the title bar of the Video Media Generators window to resize it for the current plug-in.

Adding a generated media event

1. Position the cursor where you want to create the event.
2. Select the media generator you want to use:
   - Select a generator in the left pane of the Media Generators window. The thumbnail images in the right pane represent each of the existing presets for the selected generator. Hover your mouse pointer over a preset to see an animated example, and drag the preset you want to use to the timeline. For more information, see "The Media Generators Window" on page 33
   - From the Insert menu, choose **Generated Media**. The Plug-In Chooser is displayed. Select the plug-in you want to use and click **OK**.

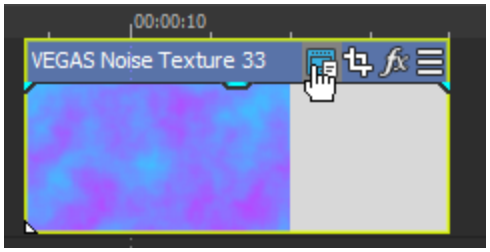
   You can double-click a preset to add it to the selected track.

   The Video Media Generators dialog is displayed.
3. In the Video Media Generators dialog, type values in the **Frame size** and **Length** boxes to specify the size and duration of the generated media.
4. Use the controls in the Video Media Generators dialog to adjust the plug-in's settings. For more information, see "The Media Generators Window" on page 33

To create a generated media event quickly, drag a preset thumbnail from the Media Generators window to the timeline. A new event is created where you drop the thumbnail using the preset's parameters.

Editing a generated media event

1. Click the **Generated Media** button on an event. The Video Media Generators dialog is displayed.



2. Use the controls in the Video Media Generators dialog to adjust the plug-in's settings.
   - Click the **Match Event Length** button to set the length of the generated media to match the length of the event.
   - Click the **Media Properties** button to edit information about the generated media, such as the frame size, frame rate, field order, pixel aspect, and rotation. For more information, see "Viewing or changing media file properties" on page 94
   - Click the **Replace Plug-In** button to change the media generator for the current event.
   - Use the lower portion of the Video Media Generators dialog to choose a new preset or adjust the plug-in's settings.

Copying a generated media event

You can duplicate generated media events using copy and paste commands, by holding Ctrl while dragging an event to a new position on the timeline, or by dragging generated media from the Project Media window to the timeline.

When you duplicate a generated media event, a dialog is displayed with two options:

- **Create a new copy of the source media**: The new event is created using the same settings as the original event. Each event can be edited independently.
- **Create a reference to the original media**: The new event uses the same source media as the original generated media event. Any change to either event affects both events.

Removing generated media

To remove generated media from your project, select the event and press Delete.

Animating a generated media event with keyframes

If you want to create an animated effect, use the keyframe controller at the bottom of the Video Media Generators dialog to establish distinct settings throughout the duration of the effect.

During playback, intermediate frames are interpolated to create smooth motion. For more information about keyframe animation, see "Keyframe animation" on page 268

Learn more about a specific plug-in

Creating text and titles

Most video projects include titles and credits. There are several ways to add text to your project: you can use the included plug-ins for static text and scrolling credits, or you can use an external image-editing program to create images with text on them.

Adding text with the Titles & Text plug-in

1. Choose **View** > **Window** > **Media Generators** to display the Media Generators window.
2. In the left pane, select the Titles & Text plug-in. The available presets are displayed in the right pane.
3. Drag a preset to a position on the timeline to create a generated media event.

   If you want text to appear as an overlay, add it to a track above the video you want to overlay and use a transparent background.For more information, see "Compositing and masks" on page 349

4. Use the Titles & Text plug-in controls to edit the appearance of your text.For more information, see "Using the Titles & Text Plug-In" on the facing page

Adding text and titles with the ProType Titler

*The Pro-Type Titler is **deprecated** and hidden by default.*

With the ProType Titler, you can create static text, animated text effects with splined paths, per-character animation, and advanced curves. Add shadows, glows, blurs, and gradients for unique text treatments.

1. Choose **View** > **Window** > **Media Generators** to display the Media Generators window.
2. In the left pane, select the ProType Titler plug-in. The available presets are displayed in the right pane.
3. Drag a preset to a position on the timeline to create a generated media event.

   If you want text to appear as an overlay, add it to a track above the video you want to overlay and use a transparent background. For more information, see see "Compositing and masks" on page 349

4. Use the Pro Type Titler plug-in controls to edit the appearance of your text.
   You can use animation in the ProType Titler to create scrolling and crawling credits.

Creating a title from a graphic

Title images can be created in almost any editing program. The following general procedure explains how to create titles with a transparent background.

You can use track motion to animate titles created from still images. For more information, see "Editing track motion" on page 261

1. Start your image-editing application.
2. Create a new image and set the dimensions of the new image to be the same as the frame size for the project.
3. Make the default canvas (background) transparent.

4. Select the Text tool and type the text for your title.

   Size and position your titles carefully to fit within the Title Safe Area, or the titles may extend beyond the edges of your television. For more information, see "Using the Video Preview window" on page 423

5. Save the file as a PNG, PSD, or TGA file (PNG is recommended). Make sure that you save the alpha channel information, which will be used for transparency.
6. Add the image as an event to the track above the track containing the background.
7. Click the **Compositing Mode** button to set the title track to **Source Alpha** (default).

   Notes:

   - If your title is saved as a TGA image, the alpha channel may not be detected automatically. Use the Media Properties dialog and choose a new setting from the **Alpha channel** drop-down list. For more information, see "Viewing or changing media file properties" on page 94
   - If your image does not have an alpha channel, you can apply the Chroma Keyer filter to the image to key out the background.

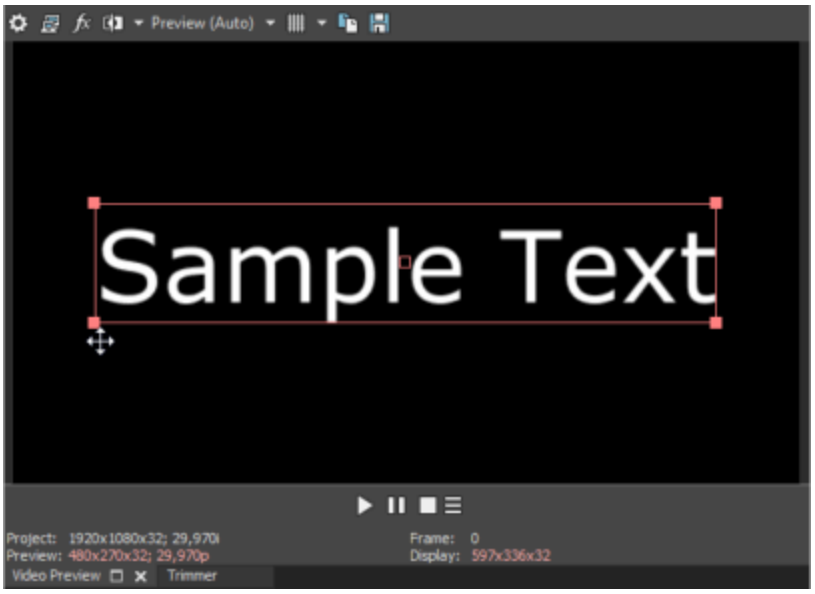
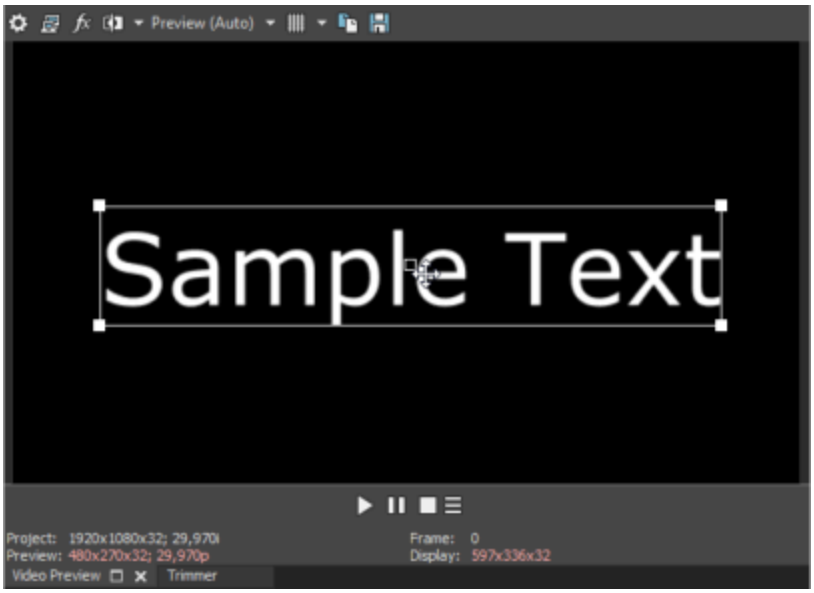
Using the Titles & Text Plug-In

When you add the Titles & Text plug-in to your project, the Video Media Generators dialog is displayed. Use the controls in the Video Media Generators dialog to control the appearance of your text.

You can use keyframe animation to animate any of the plug-in's controls using keyframes. Click a control's **Animate** button to create keyframes at the bottom of the Video Media Generators window.

For more information, see "Keyframe animation" on page 268

Item	Description
Text	Type your text in the text box. The controls above the text box allow you to set the typeface, font size, bold or italic properties, and justification for the selected text. *Right-click the text box to display a shortcut menu with* **Cut**, **Copy**, **Paste**, **Delete**, *and* **Select All** *commands.*
Text Color	Click the arrow to show or hide the text color controls. You can use the color picker, type color values (or names), or use the eyedropper to sample a color from your screen.
Animation	Choose a setting from the drop-down list to apply animation effects to your text.
Scale	Drag the slider to adjust the size of your text. A setting of 1 applies no scaling; drag to the right to enlarge the text, or drag left to shrink the text. When your text event is selected in the timeline, you can drag the corners of the text box in the Video Preview window to scale it:

Item	Description
	
Location	Click the arrow to show or hide the text location controls. Perform any of the following actions to position the text within your project's video frame: • Drag the point in the position box:  • Type coordinates in the position box.  0.00, 0.00 represents the lower-left corner of the frame, 0.50, 0.50 represents the center, and 1.00, 1.00 represents the upper-right corner. • When your text event is selected in the timeline, you can drag the text box in the Video Preview window to position it: 
Anchor point	Choose a setting from the drop-down list to set the anchor point of the text box. Text scales relative to the anchor point, which does not move. The anchor point is identified by an empty square in the Video Preview window.
Advanced	Click the arrow to show or hide the advanced controls for background color, tracking, and line spacing.

Item	Description
Background	Click the arrow to show or hide the background color controls. You can use the color picker, type color values (or names), or use the eyedropper to sample a color from your screen.
Tracking	Drag the slider to adjust the amount of spacing between text characters.
Line Spacing	Drag the slider to adjust the amount of spacing between lines of text.
Outline	Click the arrow to show or hide the controls for outlining text.
Outline Width	Drag the slider to specify the width of the outline.
Outline Color	Click the arrow to show or hide the outline color controls. You can use the color picker, type color values, or use the eyedropper to sample a color from your screen.
Shadow	Click the arrow to show or hide the controls for adding a shadow behind your text.
Shadow Enable	Select the check box to display a shadow behind your text.
Shadow Color	Click the arrow to show or hide the shadow color controls. You can use the color picker, type color values (or names), or use the eyedropper to sample a color from your screen.
Shadow Offset X	Drag the slider if you want to offset the shadow from the horizontal center of your text.
Shadow Offset Y	Drag the slider if you want to offset the shadow from the vertical center of your text.
Shadow Blur	Drag the slider to determine how smoothly the text shadow blends into the background.

Mixing audio

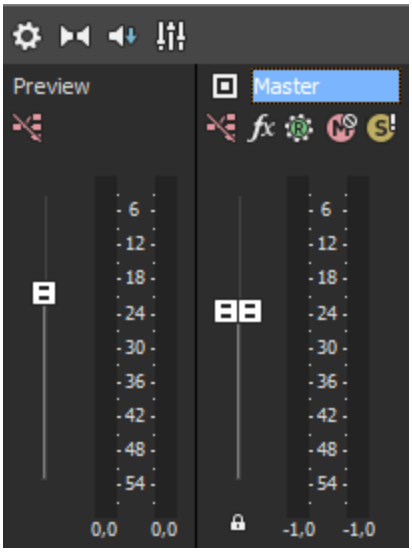
You can mix your audio tracks in three ways in VEGAS® Pro:

- The audio track controls in the track list allow you to adjust relative track volumes, panning, assignable FX send levels, and bus send levels for individual tracks.
- The Master Bus window allows you to adjust the overall level of your project.
- The Mixing Console window allows for advanced multichannel mixing using multiple busses and assignable effects using a traditional hardware-style mixer view.

Using the Master Bus Window

The Master Bus window provides you with a streamlined view of your project's master output.

Choose **View** > **Window** >**Master Bus** to toggle the display of the window.



Master Bus toolbar

Item	Description
Audio Properties	Opens the Audio tab in the Project Properties dialog. For more information, see "Setting project properties" on page 41
Downmix Output	Downmixes your audio from 5.1 surround to stereo or from stereo to mono so you can ensure your mix will sound the way you intended it--even if your audience's hardware has fewer channels than the original mix. The button represents the current playback mode: • 5.1 surround output • Stereo output • Mono output
Dim Output	Attenuates the volume of all busses that are routed to hardware outputs by 20 dB so you can check your mix at a lower level (or answer the phone or hear the pizza-delivery truck). Click again to

Item		Description
		restore volume and tune out your cantankerous assistant.
	Open Mixing Console	Click to open the Mixing Console, which provides an integrated view of all tracks and busses in your project using the appearance of a traditional hardware-based mixer. You can use the Mixing Console to add and control audio tracks, assignable effects chains, busses, and input busses. For more information, see " The Mixing Console Window" on page 37

Preview control

Controls the loudness of media played through the Project Media, Trimmer, or Explorer window.

Right-click in the Master Bus window and choose **Show Preview Fader** *to toggle the display of the preview control.*

Master Bus control

Use the bus control to adjust levels and panning, add effects, and mute or solo the bus.

Item		Description
	Master FX	Displays the Plug-In Chooser if there are no plug-ins assigned, or displays the Bus FX window if the bus has an effects chain. *Right-click the button and choose* **Post Volume** *from the shortcut menu if you want to apply the effects chain after the bus volume. This has the same effect as right-clicking the bus output fader and choosing Pre FX from the shortcut menu.*
	Automation Settings	The controls in the bus control list can function as trim controls or automation controls for bus volume, panning, and muting. Click the button and verify **Show Automation Controls** is not selected if you want the bus control to function as a trim control. Adjusting a trim control affects the entire track. Click the button and choose **Show Automation Controls** to adjust automation settings. For more information, see "Using automation" on page 236
	Mute	Excludes the bus from playback. When **Show Automation Controls** is selected, the button is displayed as a , and you can use the button to edit mute automation on the bus's bus track.
	Solo	Plays only the bus during playback.
	Output Fader	Drag to adjust the volume of the bus. Double-click the center of the thumb to reset the fader to 0.0 dB. If the right and left channels of the Master bus are set differently, you can double-click either thumb to force the other channel to match it. When **Show Automation Controls** is selected, the thumb is displayed as a , and you can use the fader to edit volume

Item		Description
		automation on the bus's bus track. *Right-click the thumb and choose* **Pre FX** *or* **Post FX** *from the shortcut menu to specify whether the bus level is applied before or after the bus effects chain.*
	Meter	Displays the playback level at the output of the bus. This is the level that will be sent to the selected audio device. Right-click the meter and choose a setting from the shortcut menu to change the resolution.
	Lock/Unlock Fader Channels	Click to lock (gang) the faders so the left and right channels will always move together. Click again to unlock the faders. *Hold Shift while dragging a fader to temporarily override the current state of the button: if the button is turned off, you can hold Shift to drag the faders in locked mode; if the button is selected, hold Shift to drag the faders independently.*

Busses - overview

You can use busses to group and mix tracks. The most common uses of busses are for routing tracks and effects outputs to specific hardware outputs or simply to use a bus as a master control for a set of tracks.

For example, if you wanted to control the master level of all your drum tracks to a relative level, you could create a bus and assign all drum tracks to that bus. After your drums are mixed, you can adjust the overall volume of the drum tracks by adjusting the bus volume.

You can also use busses to create channel mappings for rendering multichannel audio files. For more information, see "Rendering Multichannel Audio Files" on page 473

To see the audio signal flow, see "Signal flow diagram" on page 309

Adding audio busses

From the Insert menu, choose **Audio Bus** (or click the **Insert Bus** button  in the Mixing Console toolbar) to add a bus to your project.

The number of busses in your project will be determined by several factors, such as the number of outputs that your hardware supports, how you will be using and applying effects throughout your project, or how many audio channels you want to include in a channel mapping for rendering multichannel audio.

By default, all busses are assigned to the Master bus. In this configuration, you can use them for creating subgroups of tracks–for example, you could route all your drum tracks to a bus so you can adjust their levels together without changing their relative levels. However, you can also route busses to hardware outputs so you can use busses for sending tracks to external effects processors or for mixing on an external mixer. For more information, see "Routing busses" on page 307

For more information about submixing, see "Creating a cue (headphone) mix with the Mixing Console" on page 346

Adding a bus

From the Insert menu, choose **Audio Bus** to add a bus to your project. A bus channel strip is added to the

Mixing Console window.

You can assign up to 26 busses (plus the Master bus), and you can change the number of busses at any time.

If the Mixing Console window is visible, click the **Insert Bus** *button*  *in the Mixing Console toolbar.*

Renaming a bus

To rename a bus, double-click the label at the bottom of the channel strip and type a new name in the box (or press F2 to rename the selected bus). The channel strip in the Mixing Console is updated when you press Enter.

Delete all characters in a custom bus name to reset a custom bus name to its default.

Deleting a bus

Right-click a bus channel strip in the Mixing Console window and choose **Delete** from the shortcut menu, or select a channel strip and press the Delete key.

When you remove a bus from a project, any tracks assigned to that bus will be reassigned to the previous bus. For example, if you have assigned 4 busses to your project (busses A-D), and later decrease the number of busses by one, the tracks assigned to Bus D will be assigned to Bus C.

Assigning tracks to busses

Assigning tracks to busses allows you to apply settings to a series of tracks or route tracks to a hardware output.

For example, if you wanted to apply the same three effects to several tracks, you could apply the effects to a bus and assign the tracks to that bus. For more information, see "Using bus effects" on page 278 If you wanted to send several tracks to a single hardware output, you could assign the tracks to a bus and then route the bus to a hardware output. For more information, see "Routing busses" on the facing page

Assigning a track to a bus

1. Click the bus button on the track header.

   The button is displayed as a  when the track is routed to the master bus, and the bus letter is displayed ( ,  , and so on) when a track is routed to another bus.

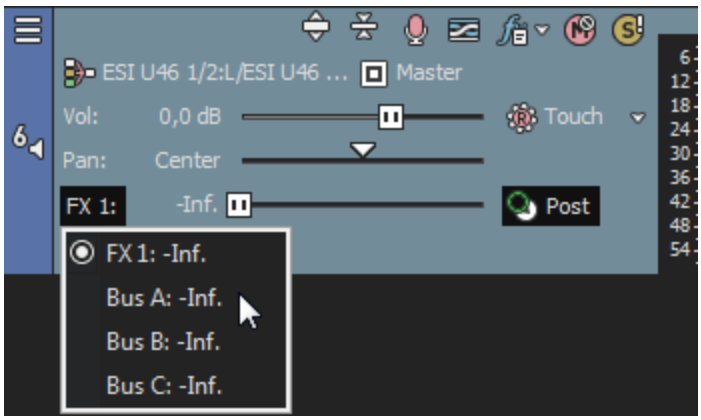
   You can also use the I/O control region on the bus channel strip to set a track's output device. For more information, see "Bus Channel Strips" on page 330

2. Select the desired bus from the menu. The **Bus** button changes to display the selected bus.

   If the **Bus** *button does not appear on the track, then you have not specified more than one bus in your project settings. For more information on specifying the number of busses for your project, see "Adding audio busses" on the previous page*

Adjusting a bus send level

1. Click the label on the multipurpose slider and choose the desired bus from the menu. The label changes to reflect the name of the bus.



If you can't see the multipurpose slider, drag the bottom edge of the track header to increase its height.

2. Drag the fader to adjust the level of the track sent to the bus.

Tips:

- You can also use the Sends control region on the bus channel strip to adjust bus send levels. For more information, see "Bus Channel Strips" on page 330
- Bus sends are pre-volume by default. When bus sends are pre-volume, you can create a cue mix that is independent of your main mix. To change to post-volume, right-click the bus fader and choose **Post Volume** from the shortcut menu. For more information, see "Creating a cue (headphone) mix with the Mixing Console" on page 346
- If you want to apply track panning to bus sends (including pan position and panning mode), right click the bus fader and choose **Link to Main Track Pan** from the shortcut menu.

  When **Link to Main Track Pan**is not selected, the track sends a center-panned stereo signal using the track's current panning mode. For more information, see "Audio panning modes" on page 407
- Select the **Use legacy track send gain** check box on the Audio page of the Preferences dialog if you want to configure audio track sends to behave as they did in VEGAS Pro 7.0 and earlier. When the check box is selected, you can open projects created with earlier versions of VEGAS Pro and be assured they will sound the same as they did in earlier versions of VEGAS Pro. For more information, see "Preferences - Audio Tab" on page 542

Using bus envelopes

Bus envelopes allow you to change the level of a track sent to a bus over time.

For more information, see "Busses - overview" on page 305 and "Audio track automation" on page 236

Routing busses

The Mixing Console window allows you to create up to 26 (plus the Master) virtual busses that you can route to hardware attached to your computer or to other busses.

By default, all busses are assigned to the Master bus. In this configuration, you can use them for creating subgroups of tracks–for example, you could route all your drum tracks to a bus so you can adjust their levels together without changing their relative levels. When you assign busses to hardware outputs, you can use busses for sending tracks to external effects processors or for mixing on an external mixer.

When you route busses to hardware outputs, the outputs from those busses will not be included in the mix when you render your project.

Routing a bus to another bus

1. Add busses to your project. For more information, see "Adding audio busses" on page 305
2. Click the **Playback Device Selector** button on the audio bus track and choose a bus from the menu. For more information, see "Audio bus tracks" on page 229
   - The button is displayed as a when a bus is routed to the master bus.
   - The bus letter is displayed (A, B, and so on) when a bus is routed to another bus.
   - The button is displayed as a when a bus is routed to a hardware output.

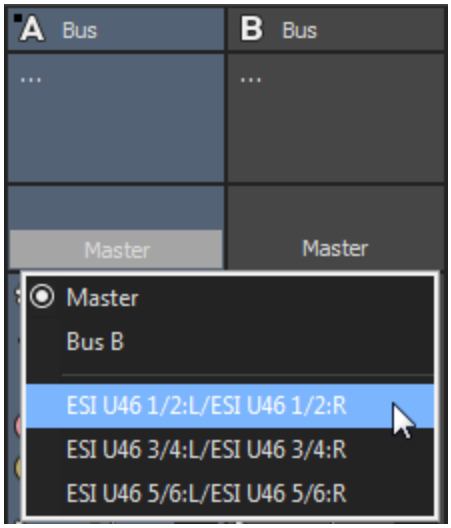
To prevent feedback, you cannot perform circular routing. For example, if your project has two busses and bus A is routed to B, bus B can only be routed to the Master bus.

You can also use the I/O control region in the bus channel strip to route busses. For more information, see "Bus Channel Strips" on page 330

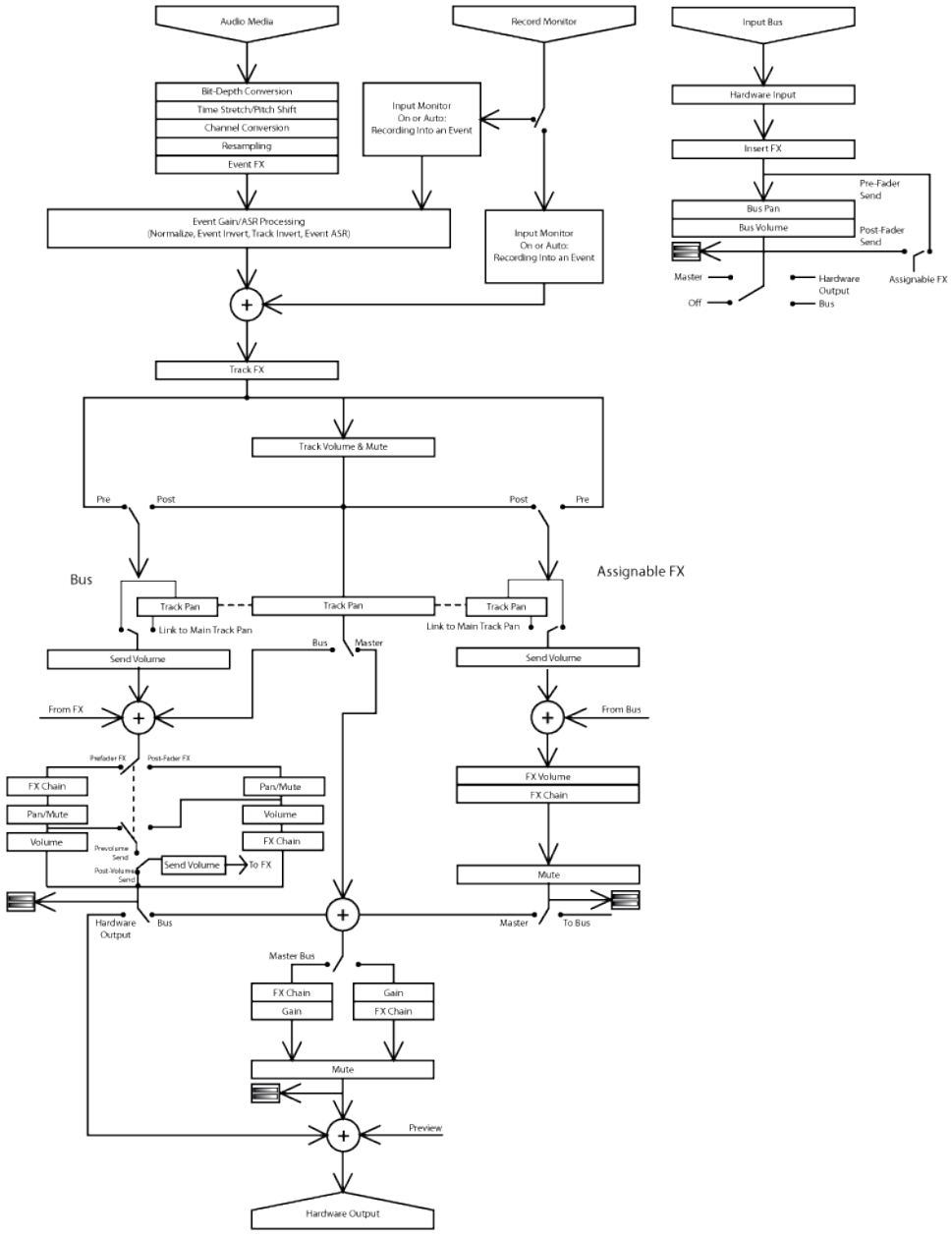
Routing a bus to a hardware output

1. Verify that you are using Windows classic wave drivers or an ASIO driver:
   a. From the Options menu, choose Preferences and click the **Audio Device** tab.
   b. From the **Audio device type** drop-down list, choose **Windows Classic Wave Driver** or an ASIO driver.
   c. Click **OK** to close the Preferences dialog.

   If you have selected **Microsoft Sound Mapper** *in the* **Audio device type** *drop-down list on the Audio tab in the Preferences dialog, you will not be able to assign the bus to a different device. For more information, see "Preferences - Audio Tab" on page 542*
2. Click the **Output** button in the I/O control region of the bus channel strip and choose another bus from the menu. For more information, see "Bus Channel Strips" on page 330



Signal flow diagram



Using input busses

You can use input busses to input, process, record, and mix external audio sources with your VEGAS Pro project. Following are some examples of how you can use input busses in your projects:

- Use an input bus as a recording input, allowing you to apply effects and record a wet signal.
- Use an input bus as a mixer input for an external device, such as a synthesizer.
- Use an input bus as a return for hardware-based effects.
- Use an input bus to monitor a source such as a talkback microphone.

Adding or deleting input busses

From the Insert menu, choose **Input Bus** (or click the **Insert Input Bus** button in the Mixing Console toolbar) to add an input bus to your project.

You can add up to 26 input busses, and you can change the number of busses at any time.

Adding a bus

From the Insert menu, choose **Input Bus**. An input bus channel strip is added to the Mixing Console window. For more information, see "Input bus channel strips" on page 335

If the Mixing Console window is visible, click **Insert Input Bus** *button in the toolbar. For more information, see " The Mixing Console Window" on page 37*

Renaming a bus

To rename a bus, double-click the label at the bottom of the channel strip and type a new name in the box (or press F2 to rename the selected bus). The channel strip in the Mixing Console is updated when you press Enter:



Delete all characters in a custom bus name to reset a custom bus name to its default.

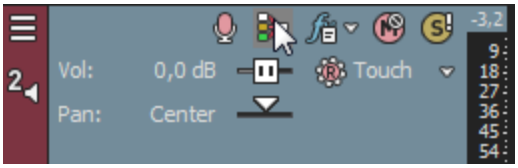
Deleting a bus

Right-click an input bus channel strip in the Mixing Console window and choose **Delete** from the shortcut menu, or select an input bus channel strip and press the Delete key.

Recording using an input bus

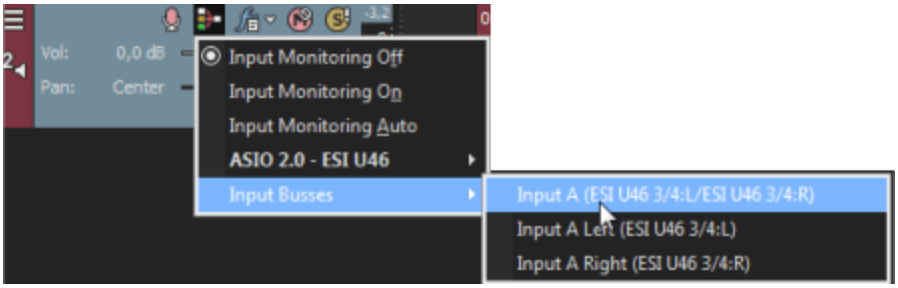
When you use an input bus to record audio, you can include input bus effects with the recorded signal. For example, imagine that you need to record an electric guitar with an amplifier-modeling plug-in.

Scenario 1: Plug your guitar into your sound card's instrument input and choose that input as your recording input:



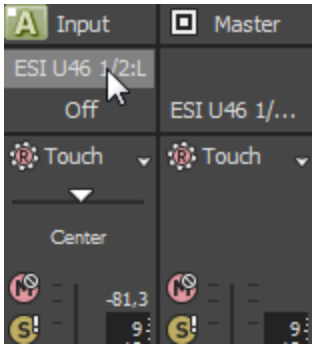
In this scenario, you could then add your amplifier-modeling plug-in as a track effect and record with input monitoring on. Your guitar would be recorded directly (without the plug-in), and the plug-in would be processed each time you play or render your project. This method allows you to adjust the plug-in settings as you work on your project.

Scenario 2: Set up an input bus that uses your amplifier-modeling plug-in as an insert effect, and choose that input bus as your recording input:



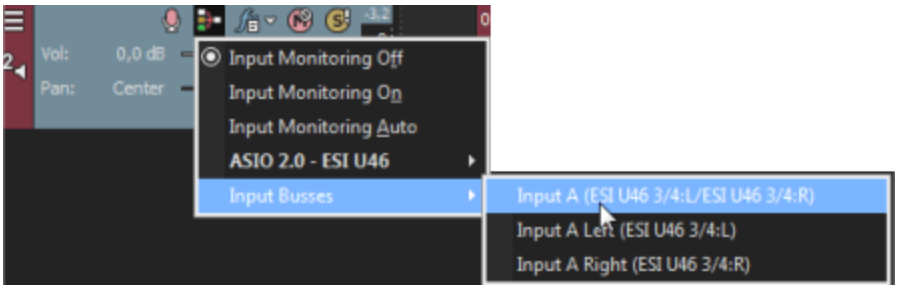
In this scenario, your amplifier-modeling plug-in is cooked into the recorded signal. This method allows you to record your processed signal but doesn't allow you to change your amplifier settings without rerecording the guitar part.

1. Add an input bus to your project. For more information, see "Adding or deleting input busses" on the previous page
2. Set up your input bus:
   a. Click the **Add New Insert FX** button … in the Insert FX control region of the input bus channel strip to add plug-ins to your input bus.
   b. In the I/O control region of the input bus channel strip, click the **Input Source** button and choose the sound card input you want to record:



   c. Click the **Output** button in the I/O control region of the input bus channel strip and choose **Off**. The bus output is left off so we can monitor the input through the track.
3. Set your track to record from your input bus:

a. Click the **Record Input** button, choose **Input Busses** from the menu, and choose your input bus.



b. Click the **Record Input** button and choose **Input Monitor Mode: On** or **Input Monitor Mode: Auto** so you can hear your input signal during recording.

- When **Auto** is selected, you will hear the input monitor signal when playback is stopped and during recording. If you're recording into selected events, you'll hear the input monitor signal only when the cursor passes over the selected events.
- When **On** is selected, the behavior is similar to **Auto** mode, but you will always hear the input monitor during recording – monitoring is not toggled on and off when recording into a selected event.

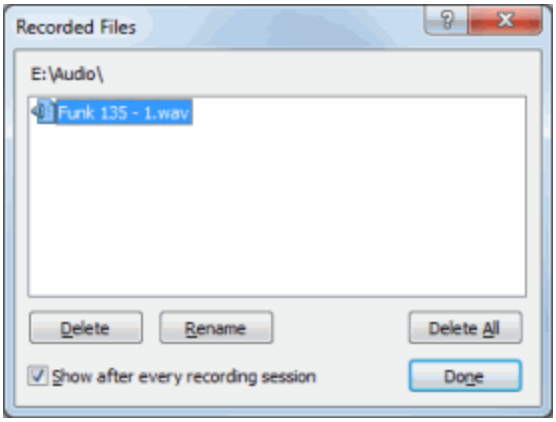
Your ability to monitor effects in real time is dependent on your computer's performance. Effect automation envelopes are bypassed during record monitoring.

4. Position the cursor where you want to start recording.
5. Select the **Arm for Record** buttons on the track where you want to record. Arming a track enables it for recording.

   When a track is armed, the track meter displays the track's level. If input monitoring is not on, the meter displays the level of your input source. If input monitoring is turned on, the meter shows the level of the input source plus the track effects chain.



6. Click the **Record** button on the Transport bar to start recording.
7. To stop recording, click the **Record** button again or click the **Stop** button on the Transport bar. The Recorded Files dialog is displayed.
8. Use the Recorded Files dialog to confirm the file name and location of your recorded audio. Click **Delete** or **Delete All** if you do not want to save the recorded files, or click **Rename** to change the file's name.

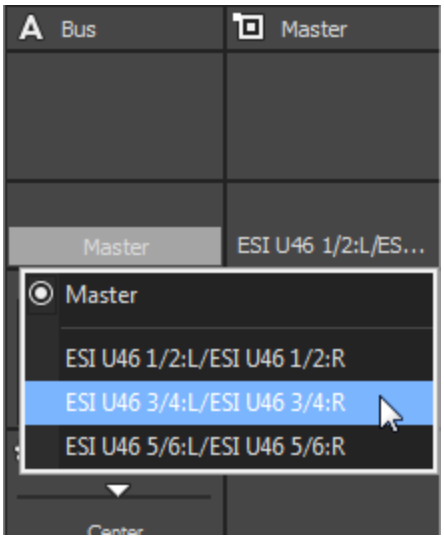


9. Click **Done** to close the Recorded Files dialog. Your recorded file is displayed as a new event in the timeline.

Using input busses with hardware-based effects

Plug-ins are great, but there are times when you may want the sound of a specific piece of hardware for your tracks. This help topic will show you how to use auxiliary busses and input busses to send a track to an external processor.

1. Connect your effects processor to your audio interface:
   a. Connect the input of your effects processor to an output from your sound card (for this example, we'll use **LineOut 1**).
   b. Connect the output of your effects processor to an input on your sound card (for this example, we'll use **Inst 1**).
2. Add a bus to your project. This bus will be used as a destination to send a track to your effects processor.
   For more information, see "Adding audio busses" on page 305
3. Configure your bus to send its output to your effects processor:
   In the I/O control region of the bus's channel strip, click the **Output** button and choose the output that is connected to your effects processor's input (the Outputs 3/4 for this example).



   This auxiliary bus provides a signal path to your effects processor's input.
4. Add an input bus to your project. This input bus will receive the signal from your effects processor.
   For more information, see "Using input busses" on page 309
5. Configure your input bus to take its input from the effects processor and send its output to your main mix:

a. In the I/O control region of the input bus's channel strip, click the **Input Source** button and choose the sound card input that is connected to your effects processor's output (Input 1/2 for this example).

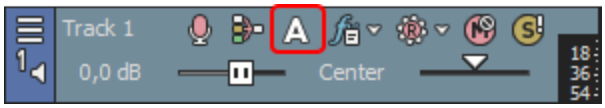
b. Click the **Output** button and choose the output where you want to send your processed signal. We'll send this signal to the master bus so it is included with your main mix and will be included when performing a real-time render.



This input bus provides a signal path from your effects processor's output to your project.

6. Send your track to the effects processor:

   Click the bus button on the track header and choose the bus you created in step 2.



   The bus button on the track header lets you send the track's audio to your effects processor.

7. Click **Play**.

   When you play your project, the track is sent to your auxiliary bus, into the effects processor, out of the effects processor into the input bus, and out to the master bus.

8. When you're ready to render your project, you can use real-time rendering to include the output from your effects processor with your project.

   For more information, see "Real-time rendering" below

Real-time rendering

From the File menu, choose **Real-Time Render** to render your project in real time.

Real-time rendering is a playback mode that renders your project to .wav format. Real-time rendering allows you to include the output from an external input source such as an effects processor with your project.

For more information, see "Using input busses" on page 309 and "Using input busses with hardware-based effects" on the previous page

Notes:

- When you start real-time rendering, any track that is armed for recording will be unarmed. You cannot arm a track for recording or start recording in real-time rendering mode.
- When rendering a project that does not use external audio hardware, real-time rendering and normal rendering will produce the same output. Real-time rendering will take longer to complete, allowing you to monitor the rendered file as it is created.
- If the metronome is enabled for playback, it will not be included in the rendered output.

1. From the File menu, choose **Real-Time Render**.
2. Choose a drive and folder from the **Save in** drop-down list, or use the browse window to locate the folder where you want to save your file.

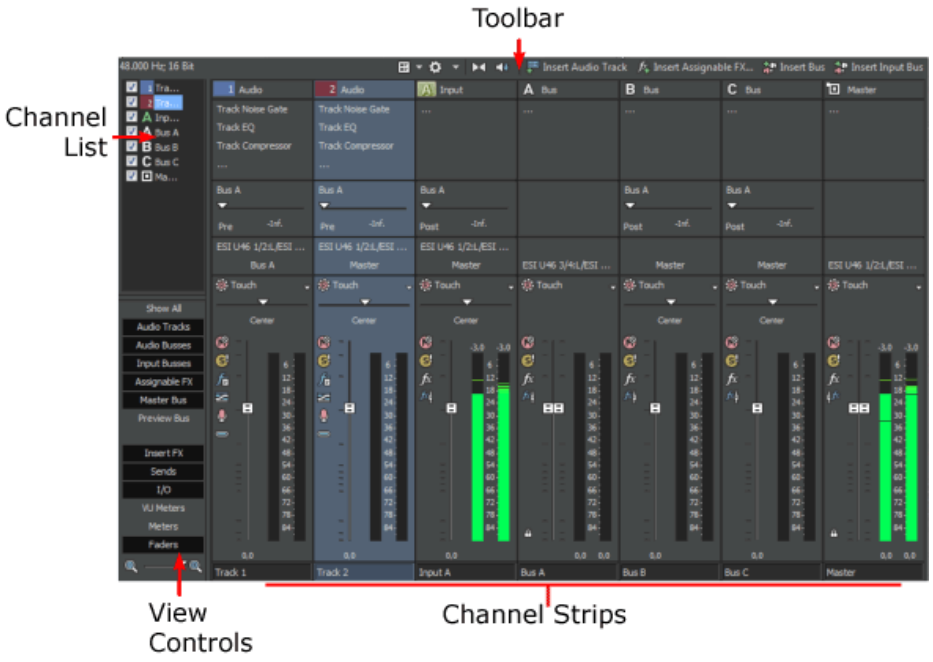
   
   When using real-time rendering, render your project to a local hard drive. Rendering to a network folder or removable drive can result in gapping.

3. Type a name in the **File name** box, or select a file in the browse window to replace an existing file.
4. Click **Save** to start rendering your project from the beginning of the timeline.

The Mixing Console

From the View menu, choose **Mixing Console** to toggle the display of the Mixing Console window in VEGAS® Pro.

The Mixing Console window provides an integrated view of all tracks and busses in your project using the appearance of a traditional hardware-based mixer.



The Mixing Console Toolbar

The Mixing Console toolbar is displayed at the top of the Mixing Console window and allows you to quickly configure the window's display; downmix audio; dim the output; or add tracks, assignable effects, or busses.

Item	Description
Views	Click the down arrow and choose a command from the menu: • **Channel List** - Displays or hides the Channel List on the left side of the Mixing Console window. Select a channel strip's check box to display it in the Mixing Console, or clear a check box to hide a channel strip without removing it from your project. For more information, see "The Channel List Pane" on page 319 • **View Controls** - Displays or hides the View Controls pane, where you can show or hide components in the Mixing Console window. For more information, see "The View Controls Pane" on page 319
Properties and Layout	Click the **Properties and Layout** button to open the Audio tab in the Project Properties dialog, or click the down arrow and choose a command from the menu: • **Audio Properties** - Displays the Audio tab in the Project Properties dialog.

Item		Description
		• **Show Channels** - Choose a command to configure which channel strips are displayed in the Mixing Console window. ◦ **Show All Channels** - Displays all channel strips in the Mixing Console. ◦ **Preview Bus** - Shows or hides the Preview bus channel strip. ◦ **Master Bus** - Shows or hides the Master bus channel strip. ◦ **Assignable FX Busses** - Shows or hides assignable FX channel strips. ◦ **Input Busses** - Shows or hides input bus channel strips. ◦ **Audio Busses** - Shows or hides auxiliary bus channel strips. ◦ **Audio Tracks** - Shows or hides audio track channel strips. • **Show Control Regions** - Choose a command to configure which portions of the channel strips are displayed in the Mixing Console window. ◦ **Show All Control Regions** - Displays all control regions. ◦ **Faders Control Region** - Shows or hides volume faders. ◦ **Peak Meters Control Region** - Shows or hides Peak Meters. ◦ **VU Meters Control Region** - Shows or hides the VU/PPM control region. ◦ **I/O Control Region** - Shows or hides the I/O control region. ◦ **Sends Control Region** - Shows or hides the Sends control region. ◦ **Insert FX Control Region** - Shows or hides the Insert FX control region. • **Show Control Region Labels** - Choose this command to show or hide control region labels in channel strips. • **Show Fader Ticks** - Choose this command to show or hide scale indicators next to fader controls. • **Channel Width** - Choose a setting to indicate whether you want to view narrow, medium (default), or wide channel strips in the Mixing Console window. • **Meter Layout** - Choose **Meter Layout**, and then choose a command from the submenu to reset clip indicators; set the display range; or display labels, peaks, or valleys in the channel meters.
	**Downmix Output**	Downmixes your audio from 5.1 surround to stereo or from stereo to mono so you can ensure your mix will sound the way you intended it –even when your audience's hardware has fewer channels than the original mix. The button represents the current playback mode: • 5.1 surround output  • Stereo output  • Mono output 
	**Dim Output**	Attenuates the volume of all busses that are routed to hardware outputs by 20 dB so you can check your mix at a lower level (or answer the phone). Click again to restore volume.
	**Insert Audio Track**	Adds an audio track to your project.
	**Insert Assignable FX**	Creates an assignable FX chain that you can route to one or more tracks in your project. To delete an assignable FX chain, right-click the assignable FX channel strip and choose **Delete** from the shortcut menu.
	**Insert Bus**	Adds a bus to your project. The Audio tab in the Project Properties dialog is updated to reflect the new number of busses.

Item	Description
	To delete a bus, right-click the channel strip for the bus and choose **Delete** from the shortcut menu.
Insert Input Bus	Adds an input bus to your project. To delete a bus, right-click the channel strip for the bus and choose **Delete** from the shortcut menu.

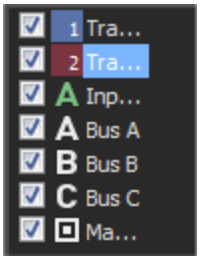
The Channel List Pane

The Channel List pane is displayed on the left side of the Mixing Console window.

To show or hide the pane, click the down arrow next to the **Views** button and choose **Channel List** (or press Shift+C).

The top of the Channel List pane displays a listing of all tracks, busses, and assignable effects chains in your project. Select a channel's check box to include it in the Mixing Console display, or clear a check box to hide the channel without removing it from your project.

Clicking a track, bus, or assignable effects chain in the Channel List pane selects that channel. You can hold Ctrl or Shift to select multiple channels to perform ganged edits.

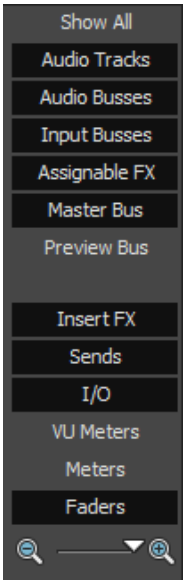


The View Controls Pane

The View Controls pane is displayed on the left side of the Mixing Console window. If the Channel List pane is visible, the View Controls Pane is displayed below the Channel List pane.

To show or hide the pane, click the down arrow next to the **Views** button and choose **View Controls** (or press Shift+R).

You can use the buttons in this pane to show or hide components in the Mixing Console.

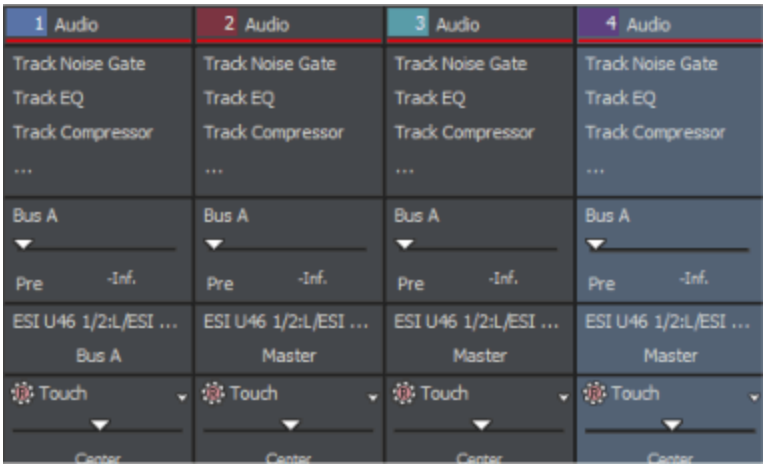


Item	Description
Show All	Click to show channel strips for all tracks, busses, and assignable effects chains.
Audio Tracks	Click to show or hide channel strips for audio tracks. If your project does not contain any audio tracks, this button is unavailable.
Audio Busses	Click to show or hide channel strips for busses. If your project does not contain any busses, this button is unavailable.
Input Busses	Click to show or hide channel strips for input busses. If your project does not contain any input busses, this button is unavailable.
Assignable FX	Click to show or hide channel strips for assignable effects chains. If your project does not contain any assignable effects chains, this button is unavailable.
Master Bus	Click to show or hide the channel strip for the Master bus.
Preview Bus	Click to show or hide the channel strip for the Preview bus.
Insert FX	Click to show or hide the insert effects control region in channel strips.
Sends	Click to show or hide the sends control region in channel strips.
I/O	Click to show or hide the I/O control region in channel strips.
VU Meters	Click to show or hide the VU/PPM control region in channel strips.
Meters	Click to show or hide the Meters control region in channel strips.
Faders	Click to show or hide the Faders control region in channel strips.
Channel Width	Drag the slider toward to decrease the width of channel strips, or drag toward to increase channel strip widths.

Channel Strips

Audio tracks, busses, input busses, and assignable effects chains are displayed as channel strips in the Mixing Console.

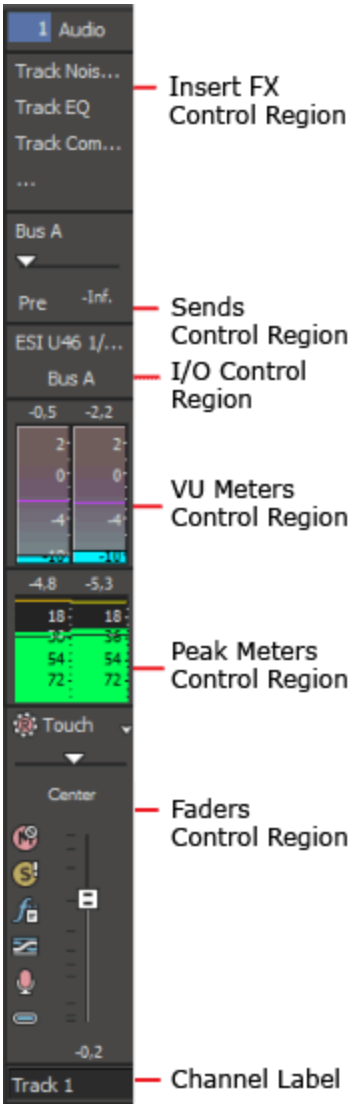
When a control surface is enabled, an indicator is displayed in the Mixing Console to indicate which channels are under external control. Multiple bars are displayed if a channel is under the control of multiple devices.



The horizontal bars at the top of channels 1-4 indicate which channels are under external control.

Tips:

- If you want to change the order in which channel strips are displayed, you can click the channel label and drag a channel strip to a new location.
- Hover over a fader and roll your mouse wheel to change its setting.
- To edit a fader value quickly, you can double-click the displayed value to type a new value.
- Hold Ctrl while dragging a fader to move it in fine increments.



The Insert FX control region displays the insert effects chain for a track or bus.

The Sends control region displays controls for routing tracks to busses or assignable effects chains. For assignable effects chains, the Send Region also displays an input fader and meter.

The I/O control region allows you to choose the recording input for a track or route a channel to a bus or hardware output.

The VU Meters control region displays volume unit (VU) and peak program (PPM) meters to help you determine the perceived loudness of your audio signal (peak program meters provide faster response times to volume increases than VU meters).

To change the range of all VU meters in the Mixing Console, right-click a meter and choose a range from the shortcut menu.

The Meters control region displays peak meters you can use to monitor instantaneous levels during playback and determine the loudest level in your audio signal.

To change the range of all meters in the Mixing Console, right-click a meter and choose a range from the shortcut menu.

The Faders control region allows you to control a channel's gain.

- Audio track channels display controls for the track automation mode, arm for record, input monitor mode, mute, solo, pan, track gain, and phase.
- Bus channels display controls for the bus automation mode, mute, solo, pan, bus gain, and pre/post fader effects processing.
- Assignable effects channels display controls for the bus automation mode, mute, solo, pan, bus gain, and pre/post fader effects processing.

If the Meters control region is not visible, the Fader control region also displays a peak meter.

The Channel Label displays the name of the track or bus. Double-click to edit the name.

Using the Mixing Console

You can use the Mixing Console to mix your project in much the same way you work with a hardware-based mixer.

Adding Track, Assignable FX, and Bus Channels

In its default configuration, the Mixing Console displays a channel for each track, bus, and assignable effects chain in your project.

You can use the buttons on "The Mixing Console Toolbar" on page 317 to add tracks, assignable effects chains, or busses to your project:

Item	Description
Insert Audio Track	Adds an audio track to your project.
Insert Assignable FX	Creates an assignable FX chain that you can route to one or more tracks in your project. For more information, see "FX send (assignable effects) channel strips" on page 341 To delete an assignable FX chain, right-click the assignable FX channel strip and choose **Delete** from the shortcut menu (or select it and press the Delete key).
Insert Bus	Adds a bus to your project. The Audio tab in the Project Properties dialog is updated to reflect the new number of busses. For more information, see "Bus Channel Strips" on page 330 To delete a bus, right-click the channel strip for the bus and choose **Delete** from the shortcut menu.
Insert Input Bus	Adds an input bus to your project. For more information, see "Input bus channel strips" on page 335 To delete an input bus, right-click the channel strip for the bus and choose **Delete** from the shortcut menu.

Audio Track Channel Strips

A separate channel strip is displayed for each audio track in your project. Each channel strip mirrors controls that are displayed in the track header.

To show or hide audio track channel strips, click the **Tracks** button in the View Controls pane.

Changing a track's name

To rename a track, double-click the track label at the bottom of the channel strip and type a new name in the

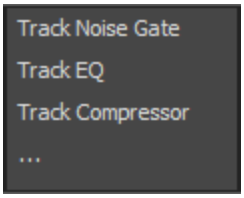
box (or press F2 to rename the selected track). The channel strip in the Mixing Console and the track header are updated when you press Enter.



Adding or editing track (insert) effects

When the Insert FX control region is visible, each track displays its effects chain at the top of the channel strip.

To show or hide the Insert FX control region, click the **Insert FX** button in the View Controls pane.



Each effect is displayed as a button. You can hover over the button to see a ToolTip that displays the full plug-in and preset name.

When the Insert FX control region isn't visible, you can click the **Track FX** *button*  *in the Faders control region to display the Audio Plug-In window for the track's effects chain.*

Adding a plug-in

Click the 

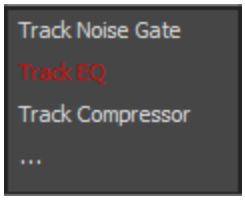
button and then choose a new plug-in from the menu to add a new plug-in to the effects chain.

Editing effects settings

Click an effect's button to display the Audio Plug-In window, where you can adjust the plug-in's settings.

When you right-click an effect's button, a shortcut a menu is displayed:

- Choose **Show <Plug-In Name>** to open the Audio Plug-In window, where you can adjust the plug-in's controls.
- Choose **Bypass <Plug-In Name>** to temporarily bypass a plug-in.
  When an effect is bypassed, its button is displayed in red text.



- Choose **Remove <Plug-In Name>** to remove a plug-in from the track effects chain.
- Choose **Presets**, and then choose a setting from the submenu to load a new preset. The current preset is indicated by a bullet (•).
- To replace the current plug-in, right-click the effect's button, and then choose a new plug-in from the menu. Plug-ins are organized in submenus by type (EQ, Dynamics, Reverbs, etc.).

Adjusting bus or assignable effects send levels

When the Sends control region is visible, each track displays controls you can use to route the track to busses and assignable effects chains.

To show or hide the Sends control region, click the **Sends** button in the View Controls pane.



When the **Automation Settings** button in the Faders control region is not selected, click the **Channel Send** button and choose a bus or assignable effects chain from the menu, and then drag the fader to adjust the send level.

When the **Automation Settings** button in the Faders control region is selected, the fader handle is displayed as a , and you can use it to edit send volume automation on the track.

The trim level is added to the automation settings so your envelope is preserved, but with a boost or cut applied. For example, setting the trim control to -3 dB has the same effect as decreasing every envelope point by 3 dB.

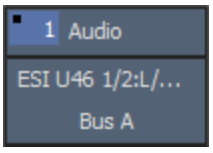
To adjust the size of the Sends control region, you can drag the bottom divider to make more or fewer sends visible.

Bus sends are pre-volume (and pre-mute) by default. When bus sends are pre-volume, you can create a cue mix that is independent of your main mix. For more information, see "Creating a cue (headphone) mix with the Mixing Console" on page 346 To change to post-volume (and post-mute), click the **Pre/Post** button to switch to **Post Volume Send** mode.

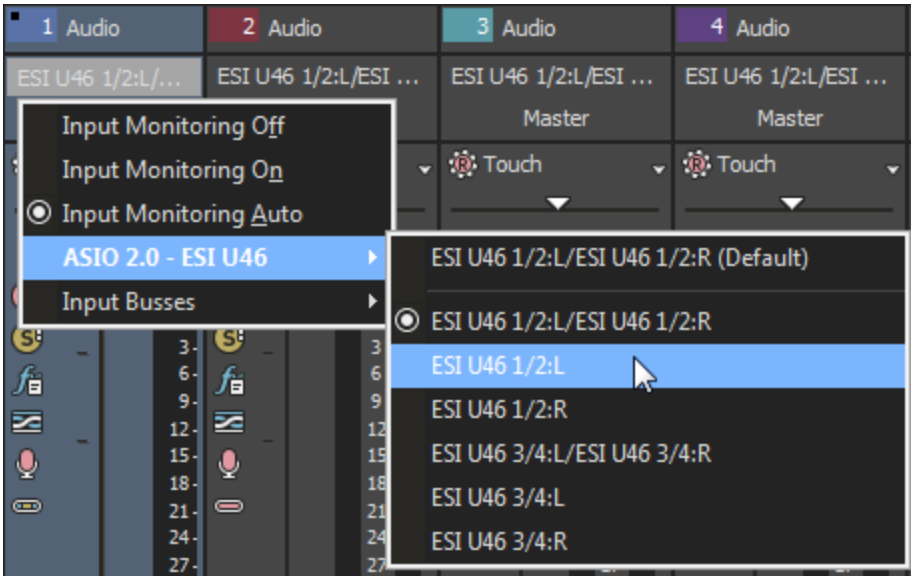
Changing a track's input or output device

When the I/O control region is visible, each track displays controls you can use to set the track's input device (for recording) and output device.

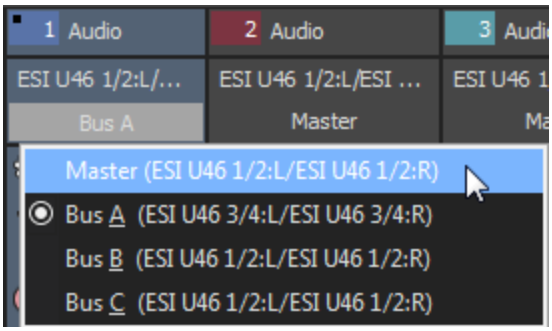
To show or hide the I/O control region, click the **I/O** button in the View Controls pane.



To choose the recording input for the track, click the Input button and choose a port from the menu:



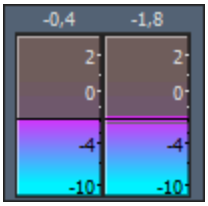
To route a track to a bus, click the Output button and choose a bus from the menu:



Monitor track levels with VU/PPM meters

When the VU Meters control region is visible, you can display volume unit (VU) and peak program (PPM) meters to help you determine the perceived loudness of your audio signal (peak program meters provide faster response times to volume increases than VU meters).

To show or hide the VU Meters control region, click the **VU Meters** button in the View Controls pane.



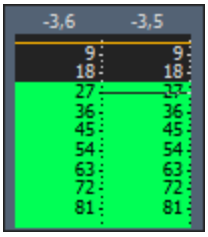
Right-click the meter and choose a setting from the shortcut menu (or hover over the meter and roll your mouse wheel) to change the resolution and display options.

Item	Description
Show VU/PPM	Use this command to show or hide meters for individual channels.
Reset Clip	Clears clipping indicators.
Traditional VU	The traditional VU meter is displayed with a scale of -10 dB to +2 dB. 0 dB on the VU meter equals 4 dBu.
Extended VU	The extended VU meter is displayed with a scale of -30 dB to +8 dB. 0 dB on the VU meter equals 4 dBu.

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Logarithmic VU</td><td>Displays the meters in a logarithmic scale (like the Sound Forge peak meters) instead of the linear scales traditionally associated with VU meters.</td></tr>
<tr><td>UK PPM</td><td>The UK peak program meter (also known as a BBC meter) is a Type II meter and is displayed with a scale of 1 to 7, which corresponds to a range of -12 to 12 dBu:
<table>
<tr><th>UK Marks</th><th>dBu</th></tr>
<tr><td>7</td><td>12</td></tr>
<tr><td>6</td><td>8</td></tr>
<tr><td>5</td><td>4</td></tr>
<tr><td>4</td><td>0</td></tr>
<tr><td>3</td><td>4</td></tr>
<tr><td>2</td><td>8</td></tr>
<tr><td>1</td><td>-12</td></tr>
</table></td></tr>
<tr><td>EBU PPM</td><td>The EBU peak program meter is a Type II meter and is displayed with a scale of -12 to +12, which corresponds to -12 dBu to 12 dBu. 0 on the EBU PPM equals 0 dBu.
The EBU PPM and UK PPM respond identically to increases in volume, but the EBU PPM decays more slowly.</td></tr>
<tr><td>DIN PPM</td><td>The DIN peak program meter is a Type I meter and is displayed with a scale of -50 dB to +5 dB, which corresponds to -44 dBu to 11 dBu. 0 dB on the DIN PPM equals 6 dBu.</td></tr>
<tr><td>Nordic PPM</td><td>The Nordic peak program meter is a Type I meter and is displayed with a scale of -42 dB to +12 dB, which corresponds to -42 dBu to 12 dBu. 0 dB on the Nordic PPM equals 0 dBu.</td></tr>
<tr><td>Show Labels</td><td>Toggles the meter level labels on and off.</td></tr>
<tr><td>Show Peaks</td><td>Toggles peak level indicators on the top of the meter.</td></tr>
<tr><td>Hold Peaks</td><td>When selected, the highest peak levels are represented by a thin line on the meter.</td></tr>
<tr><td>Hold Valleys</td><td>When selected, the lowest peak levels are represented by a thin line on the meter.</td></tr>
<tr><td>Vintage Mode</td><td>When Vintage Mode is selected, the VU meters use a different calculation method to simulate the response of analog VU meters.</td></tr>
</table>

Monitoring track levels with peak meters

When the Meters control region is visible, each track displays meters you can use to monitor track levels. To show or hide the Meters control region, click the **Meters** button in the View Controls pane.



If the Meters control region is not visible, peak meters are displayed in the Faders control region.

Right-click the meter and choose a setting from the shortcut menu (or hover over the meter and roll your mouse wheel) to change the resolution and display options.

Right-click the peak meters and choose **Show Peak Meter** *to show or hide meters for individual channels.*

Changing a track's automation mode

When the Faders control region is visible, each track displays controls you can use to adjust track panning, volume and muting. The controls can adjust static (trim) or automation levels. Use the **Automation Settings** button at the top of the Faders control region to choose the automation mode and turn automation on or off.

To show or hide the Faders control region, click the **Faders** button in the View Controls pane.



To change a track's automation recording mode, click the down arrow next to the **Automation Settings** button and choose a setting from the menu.

The track controls behave differently depending on the track's automation recording mode:

- When the track automation mode is set to **Off**, the control adjusts the level of the entire track. In this mode, the automation control acts as a second trim control.
- When the track has a volume or pan envelope and the track automation mode is set to **Read**, the control will follow the envelope during playback but cannot be adjusted.
- When the track automation mode is set to **Touch** or **Latch**, the control edits the envelope setting at the cursor position. If the track does not have an envelope, an envelope will be added when you adjust the control.

Click the button (so the **Automation Settings** button is not selected) if you want the Fader control region controls to function as trim controls. Adjusting a trim control affects the entire track. When the **Automation Settings** button is selected, you can use the buttons to edit pan, volume, and mute automation for the track.

Muting or soloing a track

When the Faders control region is visible, each track displays **Mute** and **Solo** buttons.

To show or hide the Faders control region, click the **Faders** button in the View Controls pane.

Muting a track

When the **Automation Settings** button is not selected, you can click the **Mute** button to prevent a track from being played in the mix. Click the **Mute** button on additional tracks to add them to the mute group. To unmute a track, click the **Mute** button again.

When the **Automation Settings** button is selected, the **Mute** button is displayed as , and you can use the button to edit mute automation.

Soloing a track

Click the **Solo** button to mute all unselected tracks. Click the **Solo** button on additional tracks to add them to the solo group. To remove a track from the solo group, click its **Solo** button again.

Inverting a track's phase

When the Faders control region is visible, each track displays an **Invert Track Phase** button .

To show or hide the Faders control region, click the **Faders** button in the View Controls pane.

Click the **Invert Track Phase** button to reverse the phase of all events on an audio track.

Although inverting data does not make an audible difference in a single file, it can prevent phase cancellation when mixing or crossfading audio signals.

Select multiple tracks to invert several tracks simultaneously.

If the **Invert** *event switch is selected, inverting the phase of the track will return the event to its original phase.*

Arming a track for recording or toggle input monitoring

When the Faders control region is visible, each track displays an **Arm for Record** button and an **Input Monitor Mode** button .

To show or hide the Faders control region, click the **Faders** button in the View Controls pane.

Arming tracks for recording

Select the **Arm for Record** button on the tracks where you want to record. Arming a track enables it for recording.

When a track is armed, the track meter displays the track's level. If input monitoring is not on, the meter displays the level of your input source. If input monitoring is turned on, the meter shows the level of the input source plus the track effects chain.

Toggling record input monitoring

Click the **Input Monitor Mode** button and choose a command from the menu.

This button is available only when you're using a low-latency audio device that supports input monitoring.

To turn on input monitoring, click the **Input Monitor Mode** button and then choose **Input Monitor Mode: On** or **Input Monitor Mode: Auto** from the menu. During recording, your signal will be played back with the current track effects chain, but a dry (unprocessed) signal is recorded.

- When **On** is selected, the behavior is similar to Auto mode, but you will always hear the input monitor during recording–monitoring is not toggled on and off when recording in to a selected event.
- When **Auto** is selected, you will hear the input monitor signal when playback is stopped and during recording. If you're recording into selected events, you'll hear the input monitor signal only when the cursor passes over the selected events.

Your ability to monitor effects in real time is dependent on your computer's performance. Effect automation envelopes are bypassed during record monitoring.

Adjusting track panning or volume

When the Faders control region is visible, each track displays a **Pan** slider and a **Volume** fader.

To show or hide the Faders control region, click the **Faders** button in the View Controls pane.

Adjusting panning

When the **Automation Settings** button is not selected, you can drag the **Pan** slider to control the position of the track in the stereo field: dragging to the left will place the track in the left speaker more than the right, and dragging to the right will place the track in the right speaker.

You can hold Ctrl while dragging the slider to adjust the setting in finer increments, or double-click the slider to return it to 0.

When the **Automation Settings** button is selected, the **Pan** slider handle is displayed as a , and you can use it to edit pan automation.

The trim level is added to the pan automation settings so your panning envelope is preserved, but with an offset applied. For example, setting the trim control to 9% left has the same effect as moving every envelope point 9% to the left.

Adjusting volume

When the **Automation Settings** button is not selected, you can drag the **Volume** fader to control the overall (trim) volume of the track.

You can hold Ctrl while dragging the slider to adjust the setting in finer increments, or double-click the slider to return it to 0.

When the **Automation Settings** button is selected, the **Volume** fader handle is displayed as a , and you can use it to edit volume automation.

The trim level is added to the volume automation settings so your envelope is preserved, but with a boost or cut applied. For example, setting the trim control to -3 dB has the same effect as decreasing every envelope point by 3 dB.

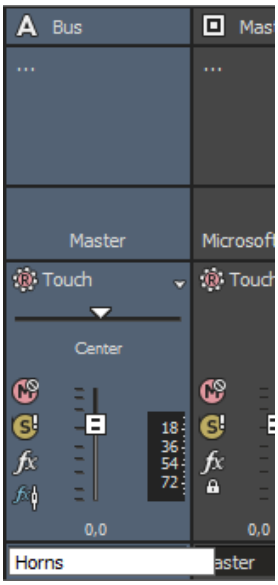
Bus Channel Strips

A separate channel strip is displayed for each bus in your project.

To show or hide channel strips for busses, click the **Busses** button in the View Controls pane.

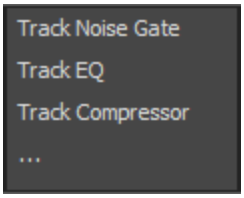
Changing a bus's name

To rename a bus, double-click the label at the bottom of the channel strip and type a new name in the box (or press F2 to rename the selected bus). The channel strip in the Mixing Console is updated when you press Enter.



Adding or editing bus (insert) effects

When the Insert FX control region is visible, each bus displays its effects chain at the top of the channel strip. To show or hide the Insert FX control region, click the **Insert FX** button in the View Controls pane.



Each effect is displayed as a button. You can hover over the button to see a ToolTip that displays the full plug-in and preset name.

When the Insert FX control region isn't visible, you can click the **Bus FX** *button*  *in the Faders control region to display the Audio Plug-In window for the bus effects chain.*

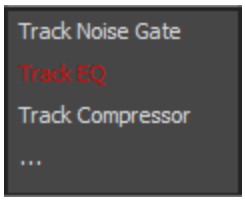
Adding a plug-in

Click the  button and then choose a new plug-in from the menu to add a new plug-in to the effects chain.

Editing effects settings

Click an effect's button to display the Audio Plug-In window, where you can adjust the plug-in's settings. When you right-click an effect's button, a shortcut a menu is displayed:

- Choose **Show <Plug-In Name>** to open the Audio Plug-In window, where you can adjust the plug-in's controls.
- Choose **Bypass <Plug-In Name>** to temporarily bypass a plug-in.
  When an effect is bypassed, its button is displayed in red text.

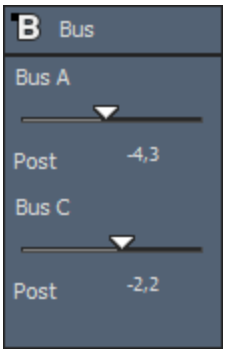


- Choose **Remove <Plug-In Name>** to remove a plug-in from the effects chain.
- Choose **Presets**, and then choose a setting from the submenu to load a new preset. The current preset is indicated by a bullet (•).
- To replace the current plug-in, right-click the effect's button, and then choose a new plug-in from the menu. Plug-ins are organized in submenus by type (EQ, Dynamics, Reverbs, etc.).

Adjusting bus send levels

When the Sends control region is visible, each bus displays controls you can use to route the bus to assignable effects chains or to busses that are routed to hardware outputs. A bus cannot send to a bus that is directly or indirectly routed to the Master bus.

To show or hide the Sends control region, click the **Sends** button in the View Controls pane.



When the **Automation Settings** button in the Faders control region is not selected, click the **Channel Send** button and choose a bus or assignable effects chain from the menu, and then drag the fader to adjust the send level.

When the **Automation Settings** button in the Faders control region is selected, the fader handle is displayed as a , and you can use it to edit send volume automation on the bus track.

The trim level is added to the automation settings so your envelope is preserved, but with a boost or cut applied. For example, setting the trim control to -3 dB has the same effect as decreasing every envelope point by 3 dB.

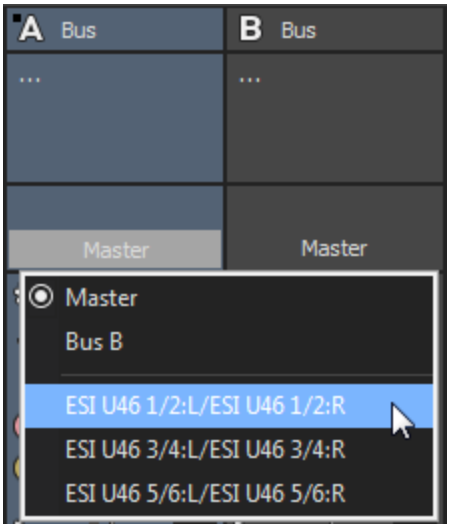
To adjust the size of the Sends control region, you can drag the bottom divider to make more or fewer sends visible.

Bus sends are post-volume (and post-mute) by default. To change to pre-volume (and pre-mute), click the **Pre/Post** button to switch to **Pre-Volume Send** mode.

Changing a bus's output device

When the I/O control region is visible, each bus displays controls you can use to set the bus's output device.

To show or hide the I/O control region, click the **I/O** button in the View Controls pane.



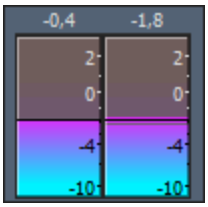
To choose an output device, click the **Output** button and choose a bus or hardware output from the menu.

When you route busses to hardware outputs, the outputs from those busses will not be included in the mix when you render your project.

Monitoring bus levels with VU/PPM meters

When the VU Meters control region is visible, you can display volume unit (VU) and peak program (PPM) meters to help you determine the perceived loudness of your audio signal (peak program meters provide faster response times to volume increases than VU meters).

To show or hide the VU Meters control region, click the **VU Meters** button in the View Controls pane.

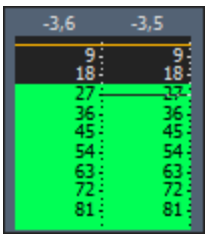


Right-click the meter and choose a setting from the shortcut menu (or hover over the meter and roll your mouse wheel) to change the resolution and display options. For more information, see "Monitor track levels with VU/PPM meters" on page 326

Monitoring bus levels with peak meters

When the Meters control region is visible, each bus displays meters you can use to monitor output levels.

To show or hide the Meters control region, click the **Meters** button in the View Controls pane.



If the Meters control region is not visible, peak meters are displayed in the Faders control region.

Right-click the meter and choose a setting from the shortcut menu (or hover over the meter and roll your mouse wheel) to change the resolution and display options.

Right-click the peak meters and choose **Show Peak Meter** *to show or hide meters for individual channels.*

Muting or solo a bus

When the Faders control region is visible, each bus displays **Mute** and **Solo** buttons.

To show or hide the Faders control region, click the **Faders** button in the View Controls pane.



Muting a bus

When the **Automation Settings** button is not selected, you can click the **Mute** button to prevent a bus from being played in the mix. Click the **Mute** button on additional busses to add them to the mute group. To unmute a bus, click the **Mute** button again.

When the **Automation Settings** button is selected, the **Mute** button is displayed as , and you can use the button to edit mute automation on the bus track.

Soloing a bus

Click the **Solo** button to mute all unselected busses. Click the **Solo** button on additional busses to add them to the solo group. To remove a bus from the solo group, click its **Solo** button again.

Adjusting bus panning or volume

When the Faders control region is visible, each bus displays a **Pan** slider and a **Volume** fader.

The **Pan** *slider is displayed only when an input bus is routed to the master bus or an auxiliary bus. It is not available when the input bus is routed directly to a hardware output.*

To show or hide the Faders control region, click the **Faders** button in the View Controls pane.

Adjusting panning

When the **Automation Settings** button is not selected, you can drag the **Pan** slider to control the position of the bus in the stereo field: dragging to the left will place the bus in the left speaker more than the right, and dragging to the right will place the bus in the right speaker.

You can hold Ctrl while dragging the slider to adjust the setting in finer increments, or double-click the slider to return it to 0.

When the **Automation Settings** button is selected, the **Pan** slider handle is displayed as a , and you can use it to edit pan automation on the bus track.

The trim level is added to the pan automation settings so your panning envelope is preserved, but with an offset applied. For example, setting the trim control to 9% left has the same effect as moving every envelope point 9% to the left.

Adjusting volume

When the **Automation Settings** button is not selected, you can drag the **Volume** fader to control the overall (trim) volume of the bus.

You can hold Ctrl while dragging the slider to adjust the setting in finer increments, or double-click the slider to return it to 0.

When the **Automation Settings** button is selected, the **Volume** fader handle is displayed as a , and you can use it to edit volume automation on the bus track.

The trim level is added to the volume automation settings so your envelope is preserved, but with a boost or cut applied. For example, setting the trim control to -3 dB has the same effect as decreasing every envelope point by 3 dB.

Changing pre/post routing

The **Pre/Post-Fader Send** button in the Sends control region and the **Pre/Post Fader Insert FX** button in the Faders control region work together to determine the signal flow for your busses.

The **Pre/Post Fader Insert FX** button allows you to indicate whether the insert FX chain is affected by the channel's gain fader. When set to **Post Fader Insert FX** , the FX chain is affected by the channel's gain. When set to **Pre Fader Insert FX** , the FX chain is not affected by the channel's gain fader, which is essential on the master bus when using plug-ins that dither the audio for final rendering.

The **Pre/Post Fader Send** button allows you to create cue mixes that are not affected by the gain (or mute/pan) stages of the bus or track. For more information, see "Creating a cue (headphone) mix with the Mixing Console" on page 346

- When **Pre Fader Insert FX** and **Pre Fader Send** are selected, your audio signal flows as follows: bus effects – bus send – bus pan – bus volume.
- When **Pre Fader Insert FX** and **Post Fader Send** are selected, your audio signal flows as follows: bus effects – bus pan – bus volume – bus send.
- When **Post Fader Insert FX** and **Pre Fader Send** are selected, your audio signal flows as follows: bus send – bus pan – bus volume – bus effects.
- When **Post Fader Insert FX** and **Post Fader Send** are selected, your audio signal flows as follows: bus pan – bus volume – bus effects – bus send.

Input bus channel strips

A separate channel strip is displayed for each input bus in your project.

To show or hide channel strips for busses, click the **Busses** button in the View Controls pane. For more information, see "The View Controls Pane" on page 319

Changing a bus's name

To rename an input bus, double-click the label at the bottom of the channel strip and type a new name in the box (or press F2 to rename the selected bus). The channel strip in the Mixing Console is updated when you

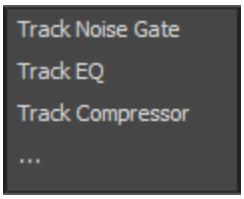
press Enter.



Adding or editing input bus (insert) effects

When the Insert FX control region is visible, each input bus displays its effects chain at the top of the channel strip.

To show or hide the Insert FX control region, click the **Insert FX** button in the View Controls pane.



Each effect is displayed as a button. You can hover over the button to see a ToolTip that displays the full plug-in and preset name.

Tips:

- When the Insert FX control region isn't visible, you can click the **Input Bus FX** button  in the Faders control region to display the Audio Plug-In window for the bus effects chain.
- Input bus insert effects are always applied pre-fader.

Adding a plug-in

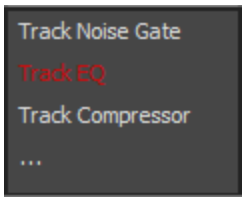
Click the  button and then choose a new plug-in from the menu to add a new plug-in to the effects chain.

Editing effects settings

Click an effect's button to display the Audio Plug-In window, where you can adjust the plug-in's settings.

When you right-click an effect's button, a shortcut a menu is displayed:

- Choose **Show <Plug-In Name>** to open the Audio Plug-In window, where you can adjust the plug-in's controls.
- Choose **Bypass <Plug-In Name>** to temporarily bypass a plug-in.
  When an effect is bypassed, its button is displayed in red text.



- Choose **Remove <Plug-In Name>** to remove a plug-in from the effects chain.
- Choose **Presets**, and then choose a setting from the submenu to load a new preset. The current preset is indicated by a bullet (•).
- To replace the current plug-in, right-click the effect's button, and then choose a new plug-in from the menu. Plug-ins are organized in submenus by type (EQ, Dynamics, Reverbs, etc.).

Adjusting input bus send levels

When the Sends control region is visible, each bus displays controls you can use to route the input bus to assignable effects chains or to busses that are routed to hardware outputs. A bus cannot send to a bus that is directly or indirectly routed to the Master bus.

To show or hide the Sends control region, click the **Sends** button in the View Controls pane.



When the **Automation Settings** button in the Faders control region is not selected, click the **Channel Send** button and choose a bus or assignable effects chain from the menu, and then drag the fader to adjust the send level.

When the **Automation Settings** button in the Faders control region is selected, the fader handle is displayed as a , and you can use it to edit send volume automation on the bus track.

The trim level is added to the automation settings so your envelope is preserved, but with a boost or cut applied. For example, setting the trim control to -3 dB has the same effect as decreasing every envelope point by 3 dB.

To adjust the size of the Sends control region, you can drag the bottom divider to make more or fewer sends visible.

Bus sends are post-volume (and post-mute) by default. To change to pre-volume (and pre-mute), click the **Pre/Post** button to switch to **Pre-Volume Send** mode.

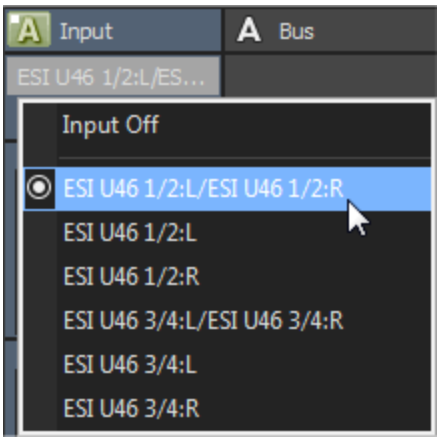
Changing an input bus's input or output port

When the I/O control region is visible, each bus displays controls you can use to set the bus's input and output device.

To show or hide the I/O control region, click the **I/O** button in the View Controls pane.

Choosing an input device

To choose an output device, click the **Input** button and choose a port from the menu.

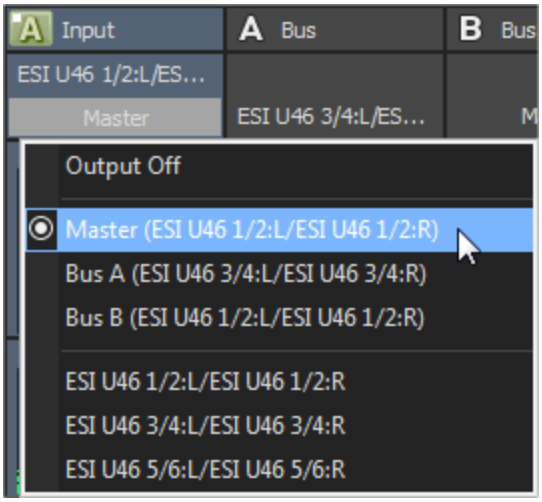


Choosing an output device

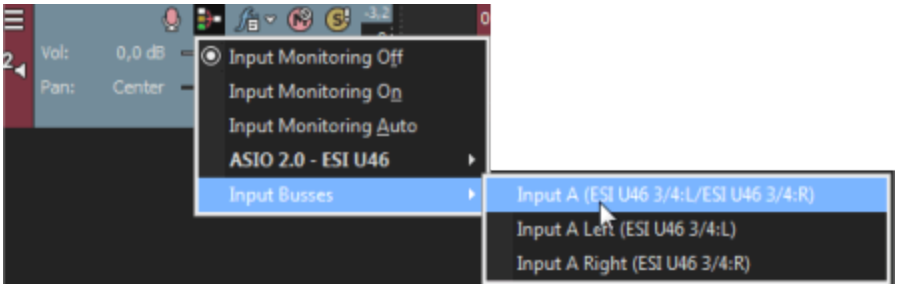
To choose an output device, click the **Output** button and choose a bus or hardware output from the menu, or choose **Output Off.**

Setting the output to **Output Off** is useful when you're using an input bus as a recording input and want to monitor the bus through the track or when using an input bus as a talkback mic.

When you route busses to hardware outputs, the outputs from those busses will not be included in the mix when you render your project.



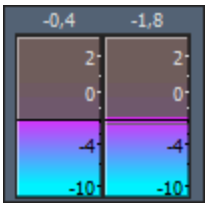
If you want to use an input bus as a track input, click the **Record Input** button on the track header, choose **Input Busses** from the menu, and choose an input bus from the submenu:



Monitoring bus levels with VU/PPM meters

When the VU Meters control region is visible, you can display volume unit (VU) and peak program (PPM) meters to help you determine the perceived loudness of your audio signal (peak program meters provide faster response times to volume increases than VU meters).

To show or hide the VU Meters control region, click the **VU Meters** button in the View Controls pane.

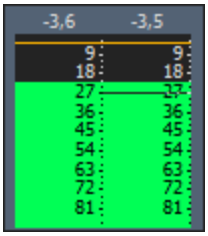


Right-click the meter and choose a setting from the shortcut menu (or hover over the meter and roll your mouse wheel) to change the resolution and display options. For more information, see "Monitor track levels with VU/PPM meters" on page 326

Monitoring bus levels with peak meters

When the Meters control region is visible, each bus displays meters you can use to monitor output levels.

To show or hide the Meters control region, click the **Meters** button in the View Controls pane.



If the Meters control region is not visible, peak meters are displayed in the Faders control region.

Right-click the meter and choose a setting from the shortcut menu to change the resolution and display options.

Right-click the peak meters and choose **Show Peak Meter** *to show or hide meters for individual channels.*

Muting or soloing a bus

When the Faders control region is visible, each bus displays **Mute** and **Solo** buttons.

To show or hide the Faders control region, click the **Faders** button in the View Controls pane.



Muting a bus

When the **Automation Settings** button is not selected, you can click the **Mute** button to prevent a bus from being played in the mix. Click the **Mute** button on additional busses to add them to the mute group. To unmute a bus, click the **Mute** button again.

When the **Automation Settings** button is selected, the **Mute** button is displayed as , and you can use the button to edit mute automation on the bus track.

Soloing a bus

Click the **Solo** button to mute all unselected busses. Click the **Solo** button on additional busses to add them to the solo group. To remove a bus from the solo group, click its **Solo** button again.

Adjusting bus volume or panning

When the Faders control region is visible, each input bus displays a **Pan** slider and a **Volume** fader.

The **Pan** *slider is displayed only when an input bus is routed to the master bus or an auxiliary bus. It is not available when the input bus is routed directly to a hardware output.*

To show or hide the Faders control region, click the **Faders** button in the View Controls pane.

Adjusting panning

When the **Automation Settings** button is not selected, you can drag the **Pan** slider to control the position of the bus in the stereo field: dragging to the left will place the bus in the left speaker more than the right, and dragging to the right will place the bus in the right speaker.

You can hold Ctrl while dragging the slider to adjust the setting in finer increments, or double-click the slider to return it to 0.

When the **Automation Settings** button is selected, the **Pan** slider handle is displayed as a , and you can use it to edit pan automation on the bus track.

The trim level is added to the pan automation settings so your panning envelope is preserved, but with an offset applied. For example, setting the trim control to 9% left has the same effect as moving every envelope point 9% to the left.

Adjusting volume

When the **Automation Settings** button is not selected, you can drag the **Volume** fader to control the overall (trim) volume of the bus.

You can hold Ctrl while dragging the slider to adjust the setting in finer increments, or double-click the slider to return it to 0.

When the **Automation Settings** button is selected, the **Volume** fader handle is displayed as a , and you can use it to edit volume automation on the bus track.

The trim level is added to the volume automation settings so your envelope is preserved, but with a boost or cut applied. For example, setting the trim control to -3 dB has the same effect as decreasing every envelope point by 3 dB.

Changing pre/post routing

Insert effects on input busses are always pre fader: the FX chain is not affected by the channel's gain fader.

The **Pre/Post Fader Send** button allows you to create cue mixes that are not affected by the gain (or mute/pan) stages of the bus or track. For more information, see "Creating a cue (headphone) mix with the Mixing Console" on page 346

- When **Pre Fader Send** is selected, your audio signal flows as follows: bus effects – bus send – bus pan – bus volume.
- When **Post Fader Send** is selected, your audio signal flows as follows: bus effects – bus pan – bus volume – bus send.

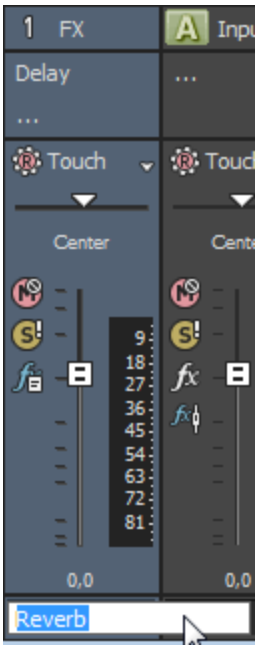
FX send (assignable effects) channel strips

A separate channel strip is displayed for each FX send (assignable effects chain) in your project.

To show or hide channel strips for assignable effects, click the **FX Sends** button in the View Controls pane.

Changing an assignable effect chain's name

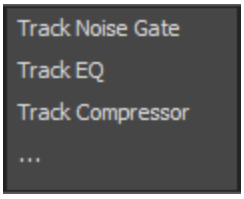
To rename an assignable effects chain, double-click the label at the bottom of the channel strip and type a new name in the box (or press F2 to rename the selected assignable effects chain). The channel strip in the Mixing Console is updated when you press Enter.



Adding or editing effects

When the Insert FX control region is visible, each assignable effects chain displays its effects at the top of the channel strip.

To show or hide the Insert FX control region, click the **Insert FX** button in the View Controls pane.



Each effect is displayed as a button. You can hover over the button to see a ToolTip that displays the full plug-in and preset name.

Adding a plug-in

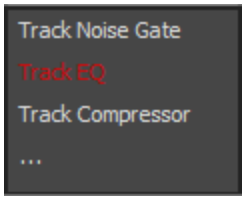
Click the 

button and then choose a new plug-in from the menu to add a new plug-in to the effects chain.

Editing effects settings

Click an effect's button to display the Audio Plug-In window, where you can adjust the plug-in's settings.

When you right-click an effect's button, a shortcut a menu is displayed:

- Choose **Show <Plug-In Name>** to open the Audio Plug-In window, where you can adjust the plug-in's controls.
- Choose **Bypass <Plug-In Name>** to temporarily bypass a plug-in.
  When an effect is bypassed, its button is displayed in red text.
  

- Choose **Remove <Plug-In Name>** to remove a plug-in from the effects chain.
- Choose **Presets**, and then choose a setting from the submenu to load a new preset. The current preset is indicated by a bullet (•).
- To replace the current plug-in, right-click the effect's button, and then choose a new plug-in from the menu. Plug-ins are organized in submenus by type (EQ, Dynamics, Reverbs, etc.)

Adjusting assignable effects input levels

When the Sends control region is visible, each assignable effects chain displays controls you can use to adjust and monitor the input volume of the effects chain.

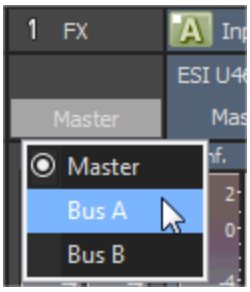
To show or hide the Sends control region, click the **Sends** button in the View Controls pane.



Changing an effects chain's output device

When the I/O control region is visible, each assignable effects chain displays controls you can use to set the chain's output device.

To show or hide the I/O control region, click the **I/O** button in the View Controls pane.

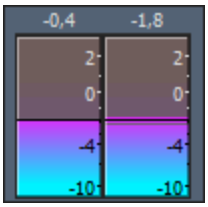


To choose an output device, click the **Output** button and choose a bus from the menu.

Monitoring output levels with VU/PPM meters

When the VU Meters control region is visible, you can display volume unit (VU) and peak program (PPM) meters to help you determine the perceived loudness of your audio signal (peak program meters provide faster response times to volume increases than VU meters).

To show or hide the VU Meters control region, click the **VU Meters** button in the View Controls pane.



Right-click the meter and choose a setting from the shortcut menu (or hover over the meter and roll your mouse wheel) to change the resolution and display options.

Item	Description
Show VU/PPM	Use this command to show or hide meters for individual channels.
Reset Clip	Clears clipping indicators.
Traditional VU	The traditional VU meter is displayed with a scale of -10 dB to +2 dB. 0 dB on the VU meter equals 4 dBu.
Extended VU	The extended VU meter is displayed with a scale of -30 dB to +8 dB. 0 dB on the VU meter equals 4 dBu.
Logarithmic VU	Displays the meters in a logarithmic scale (like the Sound Forge peak meters) instead of the linear scales traditionally associated with VU meters.
UK PPM	The UK peak program meter (also known as a BBC meter) is a Type II meter and is displayed with a scale of 1 to 7, which corresponds to a range of -12 to 12 dBu:

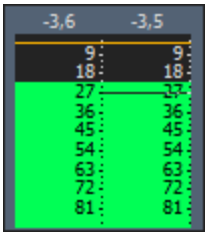
UK Marks	dBu
7	12

Item	Description	
	6	8
	5	4
	4	0
	3	4
	2	8
	1	-12
EBU PPM	The EBU peak program meter is a Type II meter and is displayed with a scale of -12 to +12, which corresponds to -12 dBu to 12 dBu. 0 on the EBU PPM equals 0 dBu. The EBU PPM and UK PPM respond identically to increases in volume, but the EBU PPM decays more slowly.	
DIN PPM	The DIN peak program meter is a Type I meter and is displayed with a scale of -50 dB to +5 dB, which corresponds to -44 dBu to 11 dBu. 0 dB on the DIN PPM equals 6 dBu.	
Nordic PPM	The Nordic peak program meter is a Type I meter and is displayed with a scale of -42 dB to +12 dB, which corresponds to -42 dBu to 12 dBu. 0 dB on the Nordic PPM equals 0 dBu.	
Show Labels	Toggles the meter level labels on and off.	
Show Peaks	Toggles peak level indicators on the top of the meter.	
Hold Peaks	When selected, the highest peak levels are represented by a thin line on the meter.	
Hold Valleys	When selected, the lowest peak levels are represented by a thin line on the meter.	
Vintage Mode	When Vintage Mode is selected, the VU meters use a different calculation method to simulate the response of analog VU meters.	

Monitoring output levels with peak meters

When the Meters control region is visible, each assignable effects chain displays meters you can use to monitor output levels.

To show or hide the Meters control region, click the **Meters** button in the View Controls pane.



If the Meters control region is not visible, peak meters are displayed in the Faders control region.

Right-click the meter and choose a setting from the shortcut menu (or hover over the meter and roll your mouse wheel) to change the resolution and display options.

Right-click the peak meters and choose **Show Peak Meter** *to show or hide meters for individual channels.*

Muting or soloing an assignable effects chain

When the Faders control region is visible, each assignable effects chain displays **Mute** and **Solo** buttons.

To show or hide the Faders control region, click the **Faders** button in the View Controls pane.



Muting an assignable effects chain

When the **Automation Settings** button is not selected, you can click the **Mute** button to prevent an assignable effects chain bus from being played in the mix. Click the **Mute** button on additional chains to add them to the mute group. To unmute a chain, click the **Mute** button again.

When the **Automation Settings** button is selected, the **Mute** button is displayed as , and you can use the button to edit mute automation on the bus track.

Soloing an assignable effects chain

Click the **Solo** button to mute all unselected assignable effects chains and busses. Click the **Solo** button on additional assignable effects chains or busses to add them to the solo group. To remove a chain from the solo group, click its **Solo** button again.

Adjusting assignable effects panning or volume

When the Faders control region is visible, each bus displays a **Pan** slider and a **Volume** fader.

To show or hide the Faders control region, click the **Faders** button in the View Controls pane.



Adjusting panning

When the **Automation Settings** button is not selected, you can drag the **Pan** slider to control the position of the bus in the stereo field: dragging to the left will place the bus in the left speaker more than the right, and dragging to the right will place the bus in the right speaker.

You can hold Ctrl while dragging the slider to adjust the setting in finer increments, or double-click the slider to return it to 0.

When the **Automation Settings** button is selected, the **Pan** slider handle is displayed as a , and you can use it to edit pan automation on the bus track.

The trim level is added to the pan automation settings so your panning envelope is preserved, but with an offset applied. For example, setting the trim control to 9% left has the same effect as moving every envelope point 9% to the left.

Adjusting volume

When the **Automation Settings** button is not selected, you can drag the **Volume** fader to control the overall (trim) volume of the bus.

You can hold Ctrl while dragging the slider to adjust the setting in finer increments, or double-click the slider to return it to 0.

When the **Automation Settings** button is selected, the **Volume** fader handle is displayed as a , and you can use it to edit volume automation on the bus track.

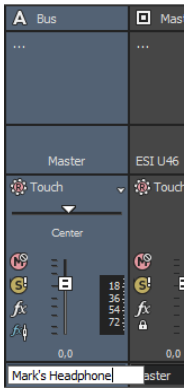
The trim level is added to the volume automation settings so your envelope is preserved, but with a boost or cut applied. For example, setting the trim control to -3 dB has the same effect as decreasing every envelope point by 3 dB.

Creating a cue (headphone) mix with the Mixing Console

When you're recording, you'll often need to create separate monitor mixes: the performer in the recording booth may need a slightly different mix than the one you're listening to in the control room. The flexibility of the Mixing Console makes it easy to create custom cue mixes.

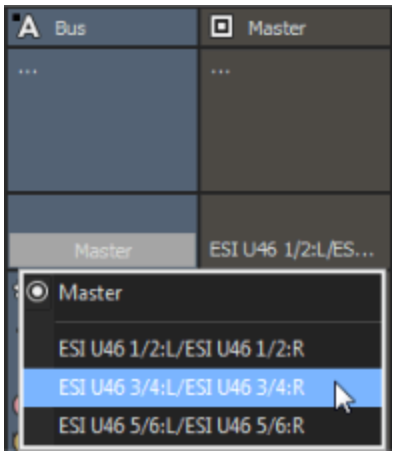
When you start a new project, all audio tracks are routed to the master bus. Let's assume that you're using the master bus for your main mix. If you have a sound card with multiple hardware outputs, you can create alternative mixes that you can send to hardware outputs without changing your main mix.

1. First, go to the Audio Device tab in the Preferences dialog and ensure you have a multiple-output device selected in the **Audio device type** drop-down list.
2. On the Audio tab of the Preferences dialog, clear the **Track prefader sends listen to mute** check box.
3. If the Mixing Console isn't already visible, choose **Window > Mixing Console** from the **View** menu.
4. First, let's click the **Insert Bus** button  in the Mixing Console window to create a new bus for our alternative mix.
5. By default, the bus is named Bus A. Let's double-click the bus label and type "Mark's Headphones" in the box to give our bus a more descriptive name.



6. Now we need to route our headphone bus to one of our sound card's outputs.
   a. In the Mixing Console, click the **Output** button in the I/O control region on the cue mix bus. A menu is displayed that lists all of our sound card's outputs.

   To show or hide the I/O control region, click the **I/O** *button in the View Controls pane.*



   b. Choose the output where you want to send the headphone mix.
   c. Connect the performer's headphones to the selected output.
7. Now we need to create our headphone mix.
   a. If the Sends control region isn't already visible, click the **Sends** button in the View Controls pane. Notice that each track now has a send for **Mark's Headphones (Bus A)**.

      If you have multiple busses in your project, you can adjust the height of the Sends control region until all sends are visible, or you can click the **Channel Send** button for each track and choose **Mark's Headphones (Bus A)** from the menu.
   b. Click the **Pre/Post** in each track's Sends control region to select **Pre Volume Send** mode. When bus sends are pre-volume, the cue mix is independent of the main mix.

c. Drag the fader on each track's channel strip to adjust the level of the track that is sent to the headphone mix bus. If multiple tracks are selected, you can adjust their bus-send levels at the same time.

   Right-click the bus send fader in the track header in the main application window and choose **Link to Main Track Pan** from the shortcut menu. When this command is selected, track panning is applied to bus sends (including pan position and panning mode). When **Link to Main Track Pan** is not selected, the track sends a center-panned stereo signal using the track's current panning mode.

   If you want to exclude a track from the headphone mix, just set its send to **-Inf**.

   You can use the channel strip for the headphone mix bus in the Mixing Console window to adjust the level of the headphone mix, add effects to the mix, or mute and solo the mix.

   If you need to create multiple mixes, you can add up to 26 busses to the Mixing Console window and repeat the procedure described in this topic.

Compositing video

Compositing is the process of mixing the tracks to create a single layered output.

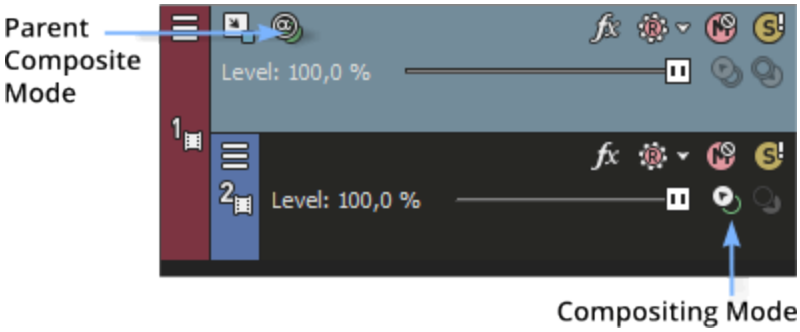
In VEGAS® Pro software you can also adjust the opacity of part or all of a clip, and you can superimpose clips on top of one another for special effects, transitions, or to add different backgrounds.

Compositing and masks

Compositing is the process of mixing video tracks to create a single layered output.

You can use compositing in conjunction with masks to cover portions of video or to limit the effects of a filter. Masks are frequently based on dark versus light areas, specific colors, or an alpha channel.

Click the **Parent Composite Mode** or **Compositing Mode** button in the track header and choose a mode from the menu to determine how the transparency in a video track is generated. Since lower tracks show through higher tracks, it is the compositing mode of the higher track that determines how much of the lower track shows though. The compositing mode of the lowest video track adjusts its transparency against the background.



To change the opacity/transparency of all events on the track, drag the **Level** slider in the track header or use a composite-level envelope to adjust the opacity/transparency over time. For more information, see "Video track controls" on page 224 and "Video track automation" on page 240

To change the opacity/transparency of a single event, you can use an event envelope. For more information, see "Event envelopes" on page 149

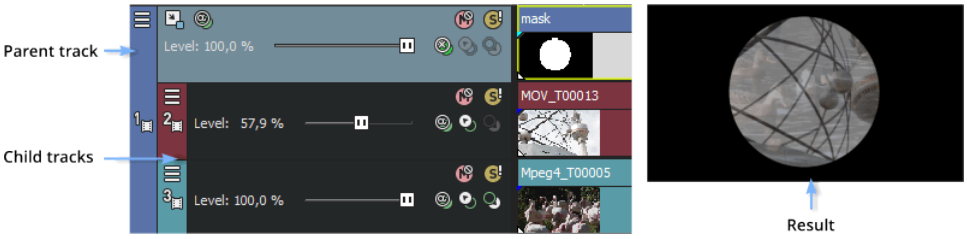
The compositing model in VEGAS Pro 6.0 and later differs significantly from the VEGAS Pro 4.0 model. To reproduce the VEGAS Pro 4.0 parent/child masking behavior, set the compositing mode of the parent track to **Multiply***, and then apply the Mask Generator plug-in as a track effect on the parent track.*

Learning more about parent and child tracks

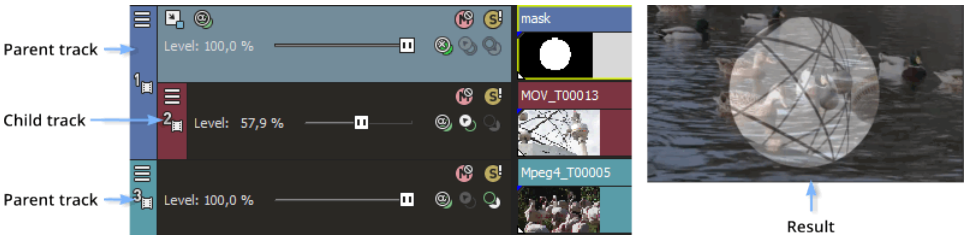
The key to understanding overlays, masks, transparency, and compositing is to understand the parent/child relationship between tracks. In general terms, the parent track is the highest track in a group of tracks (often only two) and the behavior of the child tracks (i.e. how they are composited together) is determined by the parent track.

- Click the **Make Compositing Child** button on a parent track to make a child track.
- Click the **Make Compositing Parent** button on a child track to make a parent track.

In this first example, there are three tracks. Track one contains a mask. The circular region in the mask is transparent, so the second track shows through. The third track is also a child, so it is displayed behind track two.



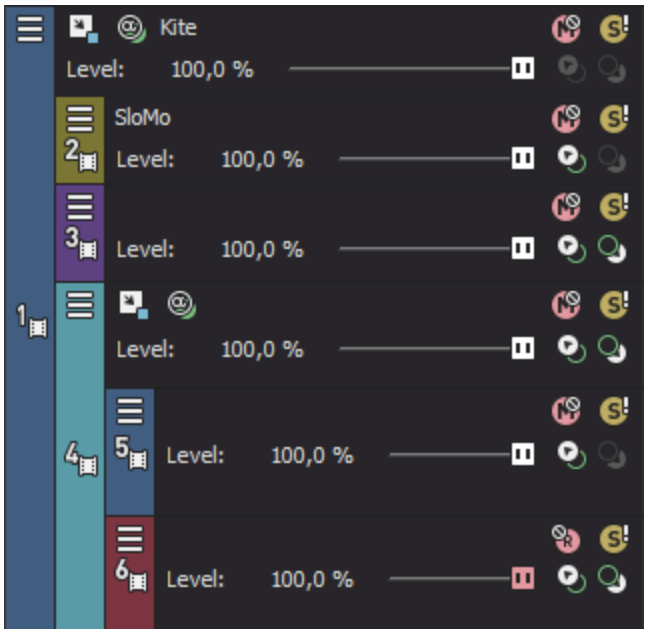
In this example, the third track is also a parent, so it is displayed behind the composite of tracks one and two.



You can also produce complex compositing by creating nested parent/child groups with compositing parents and children at various levels.

When you have multiple levels of parent and child tracks, clicking the **Make Compositing Child** button moves the track in one level and clicking the **Make Compositing Parent** button moves out one level.

Hold Ctrl while clicking the **Make Compositing Child** button to move a track and all its child tracks in one level.



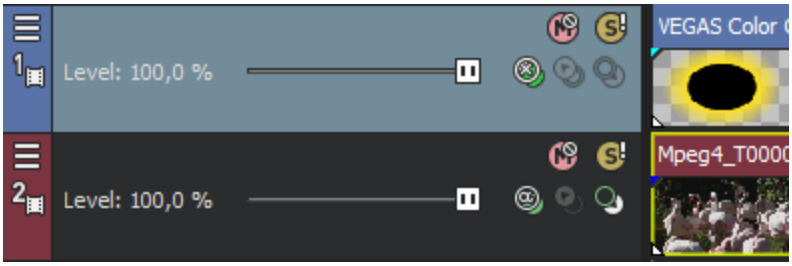
For examples of how parent/child track relationships affect 3D compositing, see "3D compositing" on page 353

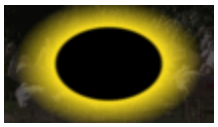
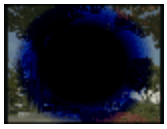
Learning more about compositing modes and transparency

The **Compositing Mode** button determines how the transparency in a video track is generated. Because lower tracks show through higher tracks, it is the compositing mode of the higher track that determines how much of the lower track shows though. The compositing mode of the lowest video track adjusts its transparency against the background.

The mode can be selected by clicking the **Compositing Mode** button and choosing a mode from the menu.

The following examples demonstrate how each of the compositing modes would affect two simple tracks. Track one is a generated media event with a transparent edge, and track two is a DV clip.



Mode	Description	Example
Multiply (Mask)	Merges the colors of the tracks.	
Source Alpha	Uses the alpha channel to determine transparency. *The compositing mode is based on the alpha channel characteristics of an event or media file. If no alpha channel is present, the* **Source Alpha** *mode has no effect.*	
Add	Combines the color values in the composite group.	
Subtract	Subtracts the overlay color values from the background.	
Cut	Cuts out the overlay color values from the background.	
Screen	Multiplies the inverse of the overlay color values with the background color values. This makes overlay colors weaker and less present and results in a lighter video image. The opposite of this mode is **Multiply**.	
Overlay	Heightens contrast by using **Multiply** mode on darker colors and **Screen** mode on lighter colors.	
Hard Light	Adds overlay colors as if the overlay were lit by a bright, focused spotlight.	
Dodge	Brightens the background based on the overlay color values.	
Burn	Darkens the background based on the overlay color values.	

Mode	Description	Example
Darken	Compares the overlay and background pixel by pixel and selects the darker color value for each pixel.	
Lighten	Compares the overlay and background pixel by pixel and selects the lighter color value for each pixel.	
Difference	Compares the overlay and background pixel by pixel and subtracts the darker color value from the lighter color to generate a new color value.	
Difference Squared	Remaps color values along a parabolic curve. The color values of the layers in the composite group are subtracted, and then the subtracted values are squared. The resulting image will have less extreme changes in color values as the colors approach black (RGB 0,0,0) and more extreme changes in color values as colors approach white (RGB 255,255,255).	

Drag the **Level** slider in a video track to control the transparency or blending of each track. Left is 100% transparent and right is 100% opaque. You can also double-click the percent to enter a specific numeric percentage.

Using a 2-to-1 transform plug-in for custom compositing

When you click the **Parent Composite Mode** or **Compositing Mode** button and choose **Custom** from the menu, you can use plug-ins to customize compositing.

The included Displacement Map, Height Map, and Bump Map plug-ins can create interesting lens, mirror, water, fire, and other light-bending effects.

Plug-In	Description
Displacement Map	Uses the parent image as a guide to offset the pixels in the composited child tracks along the horizontal and vertical axes. The X and Y offsets are independently encoded in the image color channels.
Height Map	Uses the parent image as a guide to make the pixels in the composited child tracks appear closer to or farther away from the viewer. The gradient of the image in the parent track is used to determine the amount of offset for the image displayed at that location, in much the same way light bends through a lens.
Bump Map	Uses the parent image as a guide to add texture and lighting to the composited child tracks. The texture of the bump map is applied to the composited child tracks: light sections of the map represent high areas, and dark sections represent low areas.

Compositor Window

The default compositing mode for a video track is **Source Alpha** mode.

When you apply a compositing plug-in effect (like the three mentioned above) from the Compositor window, the track will automatically switch to Custom compositing mode. The advantage of adding a compositing plug-in using the Compositor window is efficiency. When adding a compositor, such as Bump Map, as a custom mode, using the Compositor window, the "effect" applies to any and all tracks below. To accomplish the same thing with a regular effect, you'd need to specifically add bump-map to each of the tracks below one-by-one. If you later add another track below, you'd have to remember to add the bump-map effect to that track.

Creating a mask

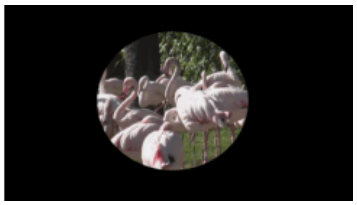
1. If you have not already done so, place and position the image or video you want to use as a mask on the top-level track in your project. For more information, see "Adding media files to your project" on page 114
2. Place video files on the tracks below the mask.
3. Ensure your mask is a compositing parent the tracks below are child tracks.
4. Click the **Compositing Mode** button on the mask track and choose **Multiply (Mask)** from the menu.

   If your mask image is grayscale, you're done. If not, continue with Step 5.
5. Add the Mask Generator plug-in as a track effect on the mask track and adjust the controls as needed to set transparency in the mask track.

You can also use the Event Pan/Crop dialog to create event-level Bézier masks. For more information, see "Panning and cropping video events" on page 252

*Like the Crop OFX is a replacement for the Panning and Cropping window with interactive adjustment directly on the video preview window, there's also a new **Bézier Masking OFX**. You can create up to five regular formed or Bézier masks in a video track or event. You can also mask an effect from the same effect chain the Bézier Masking OFX is included in, and you can track the content of the video and move and scale the mask according the content under it.*





Solid-color mask





Gradient mask

3D compositing

3D compositing is like track motion on steroids. With 3D compositing, you can move video tracks anywhere in space.

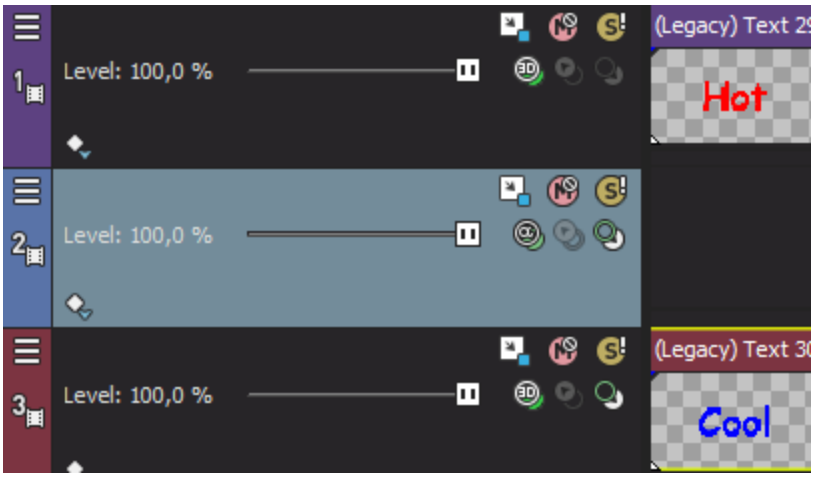
With 2D compositing (and in previous versions of VEGAS Pro), you can move video or images along the X or Y axes, and you can rotate video along the Z axis. With 3D compositing, you can move or rotate along the X, Y, or Z axes to create distance, depth, and perspective.

There are two basic rules to 3D compositing:

1. When you have a 2D track in the track list, 3D tracks below that track are rendered in 3D and then composited as a 2D image.
2. A 2D track at the root level (flush to the left of the track list) acts as a barrier to interaction between 3D tracks.

   In the following examples, both text tracks have been rotated in 3D: the "hot" track is rotated toward the user, and the "cool" track is rotated away from the user.

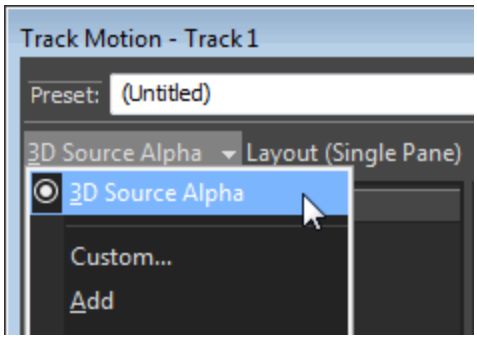
   In the first example, the two tracks intersect along their rotation axis. In the second example, adding a 2D track above the "cool" track causes it to be rotated in 3D and composited as a 2D image so the "hot" text is displayed above it without intersecting:

Tracks	Output
	
	

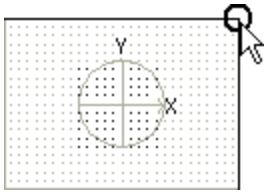
Moving a track in the 3D space

1. Click the **Track Motion** button on the track that contains the overlay you want to animate. The Track Motion window is displayed.

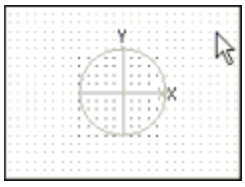
2. From **Compositing Mode** drop-down list, choose **3D Source Alpha**.



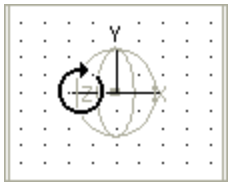
3. Choose a setting from the **Layout** drop-down list to choose the workspace display you want to use. The **Layout** setting allows you to see your track from various points of view.
4. Adjust the selection area to change the viewable area of the track and its position in space. You can use the **Position**, **Orientation**, and **Rotation** controls on the left side of the window, or you can drag the selection box in the workspace. When you drag, guides are displayed in bold to indicate how the track will be moved or rotated:



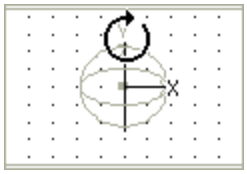
Moving closer to or farther from viewer. Drag across corners to flip the track.



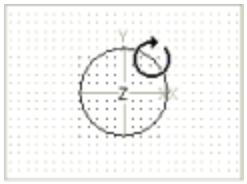
Dragging the track.



Rotating left to right around the Y axis.



Rotating forward or backward around the X axis



Rotating around the Z axis

5. Use the buttons at the top of the dialog to allow or prevent movement or scaling. See the *Change editing options* heading in this topic for more information.

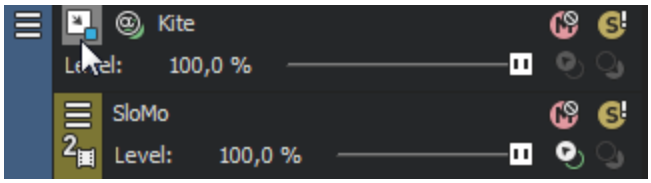
   Right-click the workspace to display a shortcut menu that displays commands to restore, center, or flip the selection box. You can also force the box to match the source media's aspect ratio or your project's output aspect ratio. Matching the output aspect ratio can prevent black bars from appearing when you use source media (such as photographs) that does not match your project's aspect ratio.

6. The 3D track motion occurs instantly, and the results are updated in the Video Preview window.
7. Use the keyframe controller at the bottom of the Track Motion window to establish distinct track motion settings throughout the duration of the track.
8. During playback, intermediate frames are interpolated to create smooth motion.

   Expand the **Keyframe interpolation** heading on the left side of the window and drag the **Smoothness** slider to adjust the interpolation. For more information about keyframe animation, see "Keyframe animation" on page 268

Moving a group of composited tracks in the 3D space (applying parent motion)

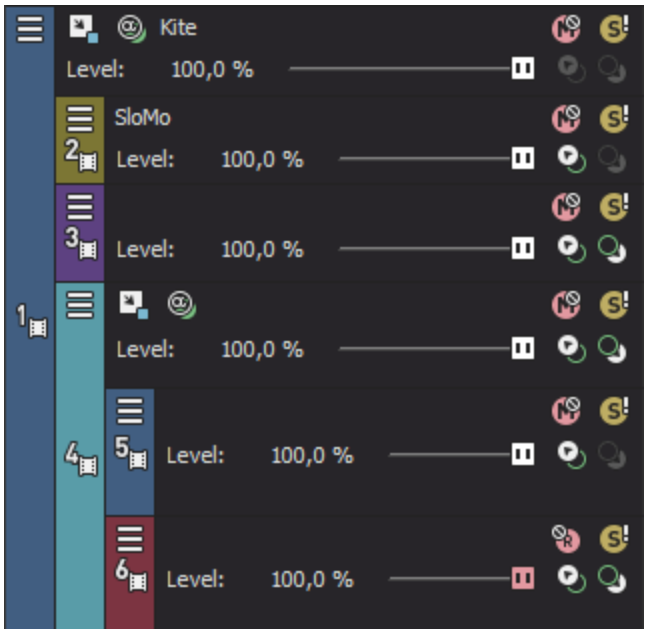
1. Click the **Make Compositing Child** button on the tracks you want to group to create a compositing group.
2. Click the **Parent Composite Mode** button on the parent track and choose **3D Source Alpha**.
3. Click the **Parent Motion** button on the parent track. The Track Motion window is displayed.



Parent track motion affects the parent track and all child tracks.

In the sample track list, parent track motion on track 1 will affect tracks 1 through 6.

Parent track motion applied to track 4 will affect only tracks 4 through 6.



4. Choose a setting from the **Layout** drop-down list to choose the workspace display you want to use. The **Layout** setting allows you to see your track from various points of view.

5. Adjust the selection area to change the viewable area of the composite group and its position in space. You can use the **Position**, **Orientation**, and **Rotation** controls on the left side of the window, or you can drag the selection box in the workspace. When you drag, guides are displayed in bold to indicate how the group will be moved or rotated.
6. Use the buttons at the top of the dialog to allow or prevent movement or scaling. For more information, see "Changing editing options" on the next page

   Right-click the workspace to display a shortcut menu that displays commands to restore, center, or flip the selection box. You can also force the box to match the source media's aspect ratio or your project's output aspect ratio. Matching the output aspect ratio can prevent black bars from appearing when you use source media (such as photographs) that does not match your project's aspect ratio.

7. The 3D track motion occurs instantly, and the results are updated in the Video Preview window.
8. Use the keyframe controller at the bottom of the Track Motion window to establish distinct motion settings throughout the duration of the tracks.
9. During playback, intermediate frames are interpolated to create smooth motion.

   Expand the **Keyframe interpolation** heading on the left side of the window and drag the **Smoothness** slider to adjust the interpolation. For more information about keyframe animation,see "Keyframe animation" on page 268

Applying a stereoscopic 3D camera

The Stereoscopic 3D Camera controls allow you to add stereoscopic depth to 3D track compositing elements.

1. Set up your project as a stereoscopic 3D project. For more information, see "Setting up your stereoscopic 3D project" on page 191
2. Add 2D media to the timeline.
3. Click the **Track Motion** button  . The Track Motion window is displayed.
4. From **Compositing Mode** drop-down list, choose **3D Source Alpha**.
5. Click the **Expand** button ⊞ next to the **Stereoscopic 3D Camera** heading on the left side of the Track Motion window. The **Lens Separation** and **Depth Adjust** controls are displayed.
6. Use the **Lens Separation** and **Depth Adjust** controls to set the depth of your media:

Item	Description
Lens Separation	Type a value in the box (or click the ▾ to display a slider you can drag) to set the distance between the lenses in your virtual stereoscopic 3D camera. The setting represents a percentage of the frame width. For presentation on a 40-inch HDTV, the value typically would not exceed 7%. For theatrical projection, the value typically would not exceed 0.5%.
Depth Adjust	Type a value in the box (or click the ▾ to display a slider you can drag) to displace the left-and right-eye images to set the depth of your 3D image. You usually want all of the action behind the screen plane, only crossing the screen plane for dramatic or special effect. However, make sure never to create divergence, where the left-eye picture would appear more than 2.5 inches to the left of the right-eye picture on the largest screen where your movie will be shown. 0 represents screen depth; positive values push action behind

Item	Description
	screen depth, and negative values push action in front of screen depth.

Changing editing options

Use the toolbar at the top of the Track Motion window to change your editing options:

Item		Description
	**Enable Rotation**	Select this button if you want to be able to rotate, or spin, the video. When the button is not selected, video is locked so you can move it along the X, Y, or Z axis, but the track cannot be rotated.
	**Enable Snapping to Grid**	Select this button if you want your editing to snap to the grid.
	**Edit in Object Space**	Select this button if you want to edit in the object's space rather than the camera's space. For example, if a track is rotated, its X axis may not correspond to the X axis of the of the Video Preview window. Selecting the **Edit in Object Space** button in conjunction with the **Prevent Movement** buttons allows you to move the object along its own X, Y, and Z axes.
	**Prevent Movement (X)**	Select this button if you want to prevent horizontal movement of the track.
	**Prevent Movement (Y)**	Select this button if you want to prevent vertical movement of the track.
	**Prevent Movement (Z)**	Select this button if you want to prevent movement of the track along the Z axis (closer to or farther from the viewer).
	**Lock Aspect Ratio**	Select this button if you want the selection box to retain its aspect ratio during resizing. When the button is not selected, the height and width can be resized independently.
	**Scale About Center**	Select this button if you want the selection box to retain its center point when you resize the box by dragging its edges. When the button is not selected, the opposite side of the selection box will remain anchored when you drag the edges to resize it.
	**Prevent Scaling (X)**	Select this button if you want to lock the horizontal dimension of the selection box.
	**Prevent Scaling (Y)**	Select this button if you want to lock the vertical dimension of the selection box.
	**Prevent Scaling (Z)**	Select this button if you want to lock the Z-axis dimension of the selection box.

Saving or recalling a keyframe preset

Keyframe presets save the settings of the selected keyframe row at the cursor position.

Presets for 2D and 3D track motion are saved separately: presets you create in this window will not be available in the 2D Track Motion window.

Saving a preset

1. Adjust your Position settings as desired to create a keyframe.
2. Type a name in the **Preset** box.
3. Click the **Save Preset** button  .

Recalling a preset

1. Click in the keyframe controller to position the cursor where you want to apply the preset.
2. Choose a setting from the **Preset** drop-down list.

   If no keyframe exists at the cursor position, one is created using the settings from the preset. If a keyframe exists at the cursor position, the keyframe's settings are replaced with the settings from the preset.

Deleting a preset

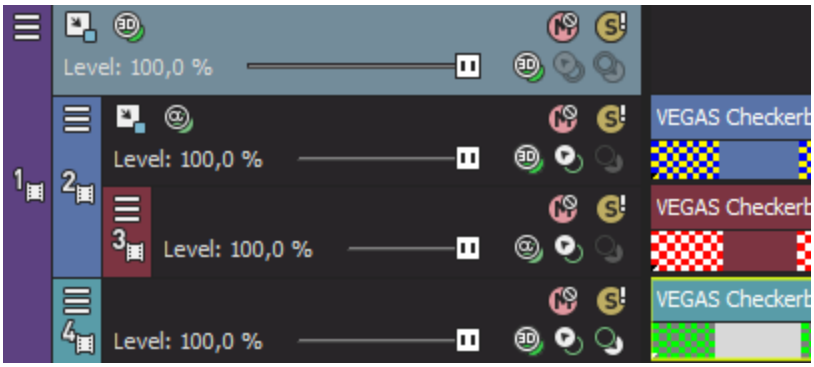
Click the **Delete Preset** button  to delete the current preset.

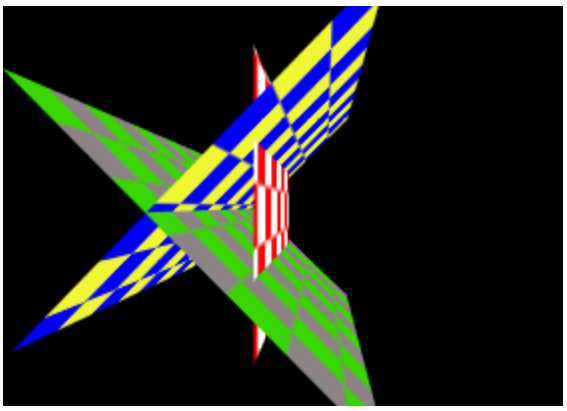
Examples of various 3D compositing scenarios

In the following examples, track two (blue-and-yellow checkerboard) is rotated forward in 3D space, track 4 (green-and-gray checkerboard) is rotated backward in 3D space, and track 3 (red-and-white checkerboard) is a 2D track.

Track 1 is used to rotate tracks 2 through 4 so you can see the compositing interaction.

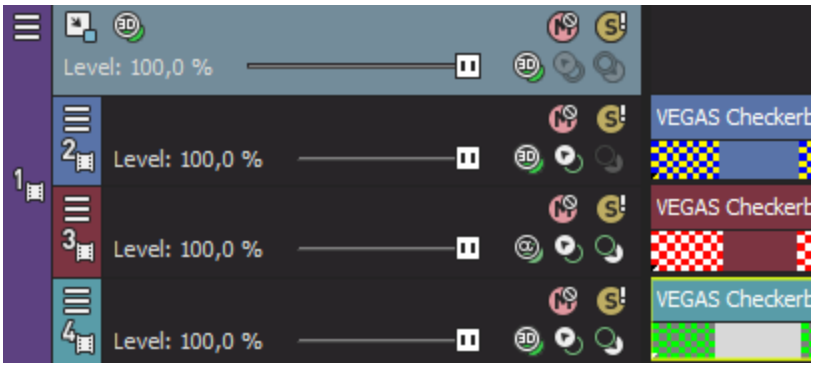
In the first example, the 2D track is a compositing child to track 2. The 2d child is inserted in the composited output at a depth of zero on the Z axis, and tracks 2 and 4 intersect in 3D space.

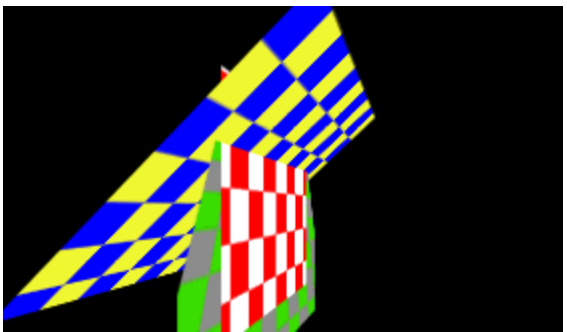




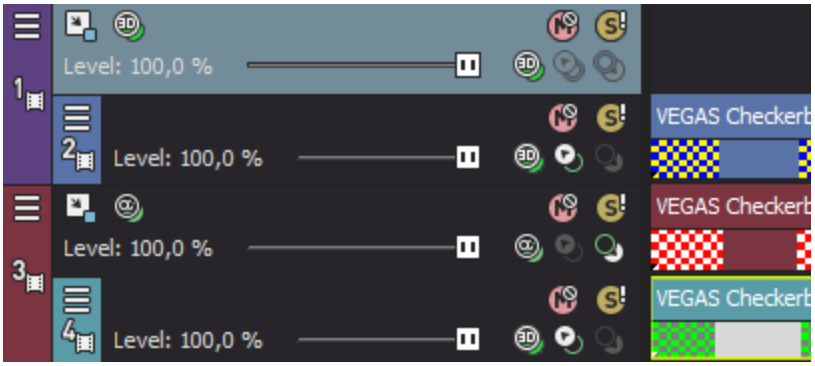
In the next example, clicking the **Make Compositing Parent** button on track 3 forces the track below (at the same compositing level) to be rendered in 3D and composited as a 2D image.

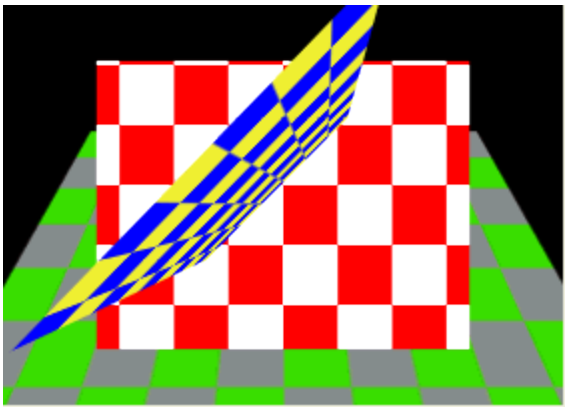
Track 4 (green-and-gray checkerboard) now has the appearance of depth—the checkerboard tapers to a vanishing point—but is inserted in the composited output as a 2D image at a depth of zero on the Z axis. Track 2 is still rotated in 3D space.



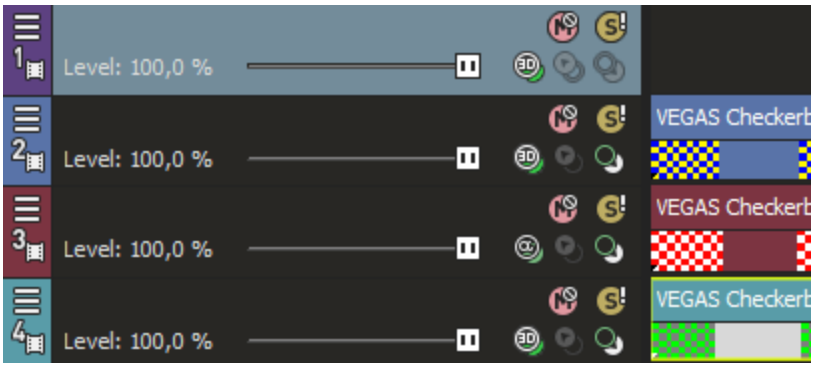


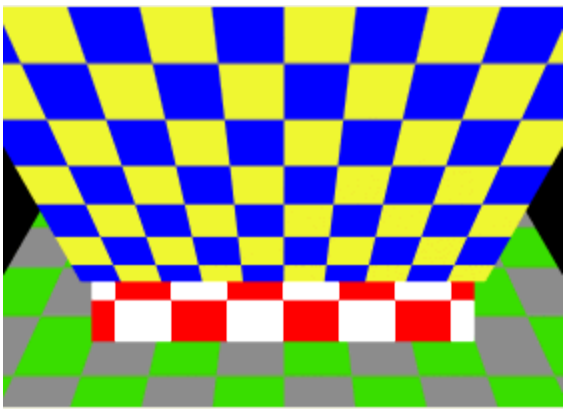
In the next example, clicking the **Make Compositing Parent** button on track 3 again forces the track below (at the same compositing level) to be rendered in 3D and composited as a 2D image. However, in this case, the 3D rotation that was applied as parent motion on track 1 is not applied to tracks 3 and 4.





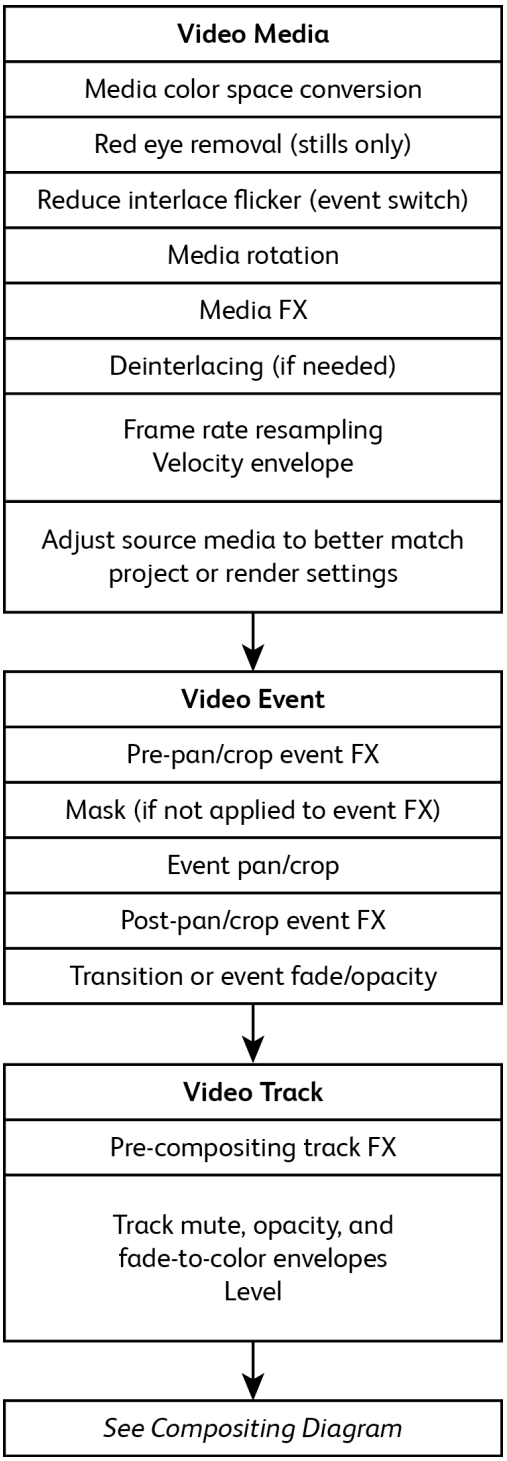
In the next example, all tracks are compositing parents. The 3D track on track 2 is on top, the 2D track in track 3 is composited below track 2, and the 3D track in track 4 is composited below tracks 3 and 4.





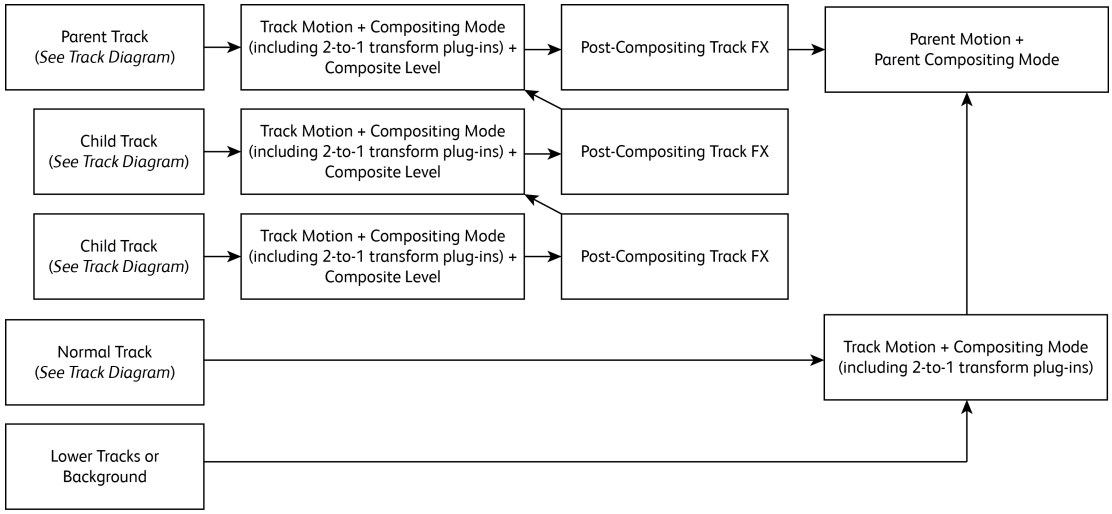
Video signal flow diagram

Signal flow for tracks



Compositing signal flow

The following diagram refers to 2D compositing only.


Parent Track
(See Track Diagram)
Track Motion + Compositing Mode
(including 2-to-1 transform plug-ins) +
Composite Level
Post-Compositing Track FX
Parent Motion +
Parent Compositing Mode
Child Track
(See Track Diagram)
Track Motion + Compositing Mode
(including 2-to-1 transform plug-ins) +
Composite Level
Post-Compositing Track FX
Child Track
(See Track Diagram)
Track Motion + Compositing Mode
(including 2-to-1 transform plug-ins) +
Composite Level
Post-Compositing Track FX
Normal Track
(See Track Diagram)
Track Motion + Compositing Mode
(including 2-to-1 transform plug-ins)
Lower Tracks or
Background

Proxy-first workflow

The VEGAS Pro proxy-first workflow allows you to fast-track your video projects.

When you're using a Wireless Adapter (such as the Sony CBK-WA100 or CBK-WA101), you can upload video proxies to the cloud or other server, start editing your project using proxy media, and relink to full-resolution media when you're ready to finalize your project.

1. Record your video with an XDCAM camera and Wireless Adapter.

   For information about setting up the Wireless Adapter, please refer to its documentation.
2. Copy your proxy files to the computer where VEGAS Pro is running.

   The Wireless Adapter can upload your media to a cloud service or to another server. Just download your files to your local drive when you need them.

   If you have access to the camera's memory card, you can also copy files directly from the memory card to your computer.
3. Create and edit your VEGAS Pro project:
   a. Start a new project.
   b. Add your proxy clips to the Project Media window.
   c. Add your proxy clips to the timeline and edit your project as usual.
4. Replace your project's proxy media with full-resolution media.
   a. Choose **Tools** > **Relink Wireless Adapter Media**. The Relink Wireless Adapter Media dialog indicates the number of proxy files that can be relinked to full-resolution media. Click **Yes** to .
   b. Browse to the folder where your full-resolution clips are saved and click **OK**.

      If your project contains full-resolution clips from multiple folders, you'll be prompted to repeat step 4b for each folder.
5. Render your project to an appropriate delivery format. For more information, see "Rendering projects (Render As)" on page 469

Working with HDV

HDV cameras record high-definition video to standard DV tapes using a highly compressed variation of the MPEG-2 format. Because of this compression, you can capture HDV clips at data rates that are no higher than DV capture.

You can use HDV files just like any other supported media type on the VEGAS® Pro timeline.

For more information about printing HDV video to tape, see "Printing video to HDV tape" on page 467

Capturing HDV clips

If you have an HDV camera, you can use VEGAS Pro to capture your clips as MPEG-2 transport streams.

If you will be delivering your project in standard definition (SD) via DVD or DV tape, you can use the camera's built-in DV downconversion (if available) to convert your HDV video to the DV format. Use the camera's Options menu to set the camera to output DV, and you can capture and edit video in the same way that you normally use DV in VEGAS Pro projects.

1. From the File menu, choose **Capture Video** (or click the arrow near the Import Media button  on the Project Media window and choose **Capture Video** from the menu.
2. Configure your HDV device in Video Capture:
   a. Click the **Capture Preferences** button  in the Capture window to open the Capture Preferences dialog.
   b. Click the **Device** tab.
   c. From the **Device type** drop-down list, choose **IEEE 1394/MPEG2-TS Device**.
   d. From the **Device** drop-down list, choose your HDV camera.
3. Capture your clip:
   a. Use the transport controls below the Video Preview window to cue your tape.
   b. Click the **Start Capture** button  to start capturing.
   c. Press the Play button on your camcorder.
   d. Click the **Stop** button  (or press Esc) to end the capture procedure.

   Your clip is saved to the folder specified on the Disk Management tab of the Capture Preferences dialog. This path is displayed in the **Capture folder** box in the Video Capture window.

   Select the **Enable HDV scene detection** *check box on the General tab of the Capture Preferences dialog if you want to create multiple files if scene changes are detected. When the check box is cleared, HDV clips will be captured to a single file.For more information, see "Capture preferences" on page 107*
4. You're ready to start editing on the timeline.For more information, see "Editing HDV video on the timeline" below

Editing HDV video on the timeline

You can use native HDV footage (called transport streams) files just like any other supported media type on the timeline.

1. Import the clips from your HDV camera to your local hard drive. For more information, see "Capturing HDV clips" on the previous page
2. Drag your captured clips from the Explorer or Project Media window to the timeline to create events.
3. Edit your project as needed. For more information, see "Editing events on the timeline" on page 114
4. Render your project or print to tape. For more information, see "Rendering projects (Render As)" on page 469 and "Printing video to HDV tape" on page 467

Working with XDCAM video

VEGAS® Pro software provides all the tools you need to edit proxy and full-resolution HD and SD XDCAM MXF files natively, with no transcoding required. VEGAS Pro supports all HD and SD XDCAM compression types, all frame rates, all aspect ratios, multichannel audio, and essence marks. All proxy and full-resolution XDCAM source file types can be mixed in a single timeline, edited, and transferred back to XDCAM.

The following sections provide workflows for efficient editing of video from an XDCAM EX camera or an XDCAM/XDCAM HD camera or deck.

XDCAM EX workflow

The following section provides a workflow for efficient editing of video from an XDCAM EX camera.

XDCAM EX differs from XDCAM/XDCAM HD in several key areas.

- XDCAM EX cameras record to SxS flash memory rather than optical disc.
- XDCAM EX cameras record full-HD video to MPEG-2 (MP4) format.
- XDCAM EX video is not visible in the XDCAM Explorer window. Use the Device Explorer window to import clips from an XDCAM EX device.

  For more information, see "Using the Device Explorer."
- When editing XDCAM EX video, you'll edit full-resolution MP4 files unless you create proxy files. For more information, see "Creating proxy files for high-definition editing" on page 90

1. Shoot your video with your XDCAM EX camera.
2. Transfer your clips from your camera to your computer.
   a. Install the SxS device driver.
   b. Connect your camera (or card reader) to your computer with a USB cable.
   c. Your camera will prompt you to **Connect USB Now?** Choose **Execute**.
   d. Use the Device Explorer window to import clips from your XDCAM EX device to the Project Media window.

   Previous versions of VEGAS Pro required you to convert XDCAM EX clips to MXF format before editing.

   This conversion is no longer required, but the workflow is still supported. If you want to wrap your XDCAM EX clips in MXF format, please use XDCAM EX Clip Browsing Software.
3. Drag your imported clips from the Project Media window to the timeline to create events.
4. Edit your project as needed.

   For more information, see "Editing events on the timeline" on page 114

5. Render your project for your destination format. You can also render to XDCAM EX format by choosing **XDCAM EX (*.MP4)** in the **Formats** box in the **Render As** dialog.

   The following notes apply when rendering XDCAM EX format files:

   - Only embedded XML metadata is included with rendered files. Embedded XML metadata supports markers and regions; title, author, and description summary information; recording date/time; and timecode in/out.
   - When you intend to transfer files back to SxS media, select the **Write segmented files if output exceeds 4 GB** check box on the Video page of the Custom XDCAM EX Settings dialog (click the Custom button in the Render As dialog and then click the Video tab). When this check box is selected, large files will be segmented at 4 GB for compatibility with the SxS file format.
   - XDCAM EX supports no-recompress rendering (smart rendering) across the following formats when the source and destination MPEG-2 video match in frame size, bit rate, profile, and level. Frames that have effects, compositing, or transitions applied will be rendered.
     - SP 18.3 Mbps CBR 1280x720p to/from XDCAM EX and HDV HD-1
     - SP 25 Mbps CBR 1440x1080i to/from XDCAM EX, XDCAM HD, and HDV HD-2
     - HQ 35 Mbps VBR 1440x1080 to/from XDCAM EX and XDCAM HD
     - HQ 35 Mbps VBR 1280x720p to/from XDCAM EX
     - HQ 35 Mbps VBR 1920x1080 to/from XDCAM EX

     The **Enable no-recompress rendering** check box on the General tab of the Preferences dialog must be selected to enable smart rendering.

XDCAM and XDCAM HD workflow

You can use MXF files from an XDCAM camera or deck just like any other supported media type. The following sections provide workflows for efficient editing.

The XDCAM deck is not available for external monitor or print to tape while in XDCAM Media Drive mode. Click the **Safely Remove Hardware** *icon in the Windows system tray and choose your XDCAM device from the menu to disconnect the device. You can then switch to AV/C mode and reconnect to enable external monitor and print to tape functionality.*

Setting up an XDCAM Device

Use the following procedure if you need to set up an XDCAM deck or camera for transferring clips, replacing proxy files with full-resolution clips, or exporting video to an XDCAM device.

1. Click the **Device** button in the Export Video to XDCAM Disc or Import XDCAM Disc dialog. The XDCAM Device Settings dialog is displayed.
   - To display the Export Video to XDCAM Disc dialog, click the **Export Video to Sony XDCAM Disc** button in the XDCAM Explorer window.
   - To display the Import XDCAM Disc dialog, click the **Import XDCAM Disc** button in the XDCAM Explorer window.
2. Choose the XDCAM device where you want to import/export clips.
   - Select the **XDCAM Media Drive** radio button if your XDCAM camera or deck is connected directly to your computer. In this mode, your camera or deck is accessible much like an external drive.

     Click the **Browse** button and choose the drive letter of the camera or deck.

     Choose the drive letter of the camera or deck only; do not navigate into the folders on the disc.

- Select the **FTP (Ethernet)** radio button if your camera or deck is connected to your network.
  Type the camera or deck's IP address in the **IP Address** box.
  In the **Username** box, type **admin**.
  In the **Password** box, type the device/model number of your camera or deck. For example, if you're exporting clips to a PDW-1500 deck, type **PDW-1500**.

  The XDCAM deck is not available for external monitor or print to tape while in XDCAM Media Drive mode. Using FTP transfers allows you to export to a remote device and use the device's XDCAM Media Drive connection in AV/C mode for external monitor previewing.

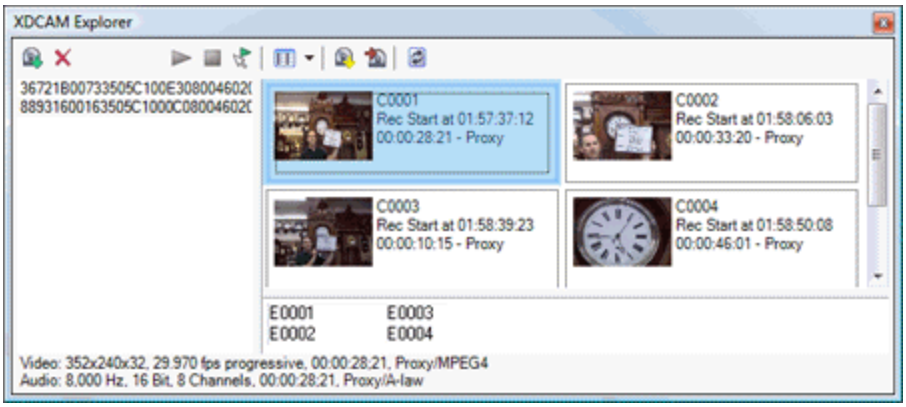
3. Click **OK**.

For information about using your camera or deck, please refer to its documentation.

Using the XDCAM Explorer Window

Choose **View** > **Window** > **XDCAM Explorer** to toggle the display of the XDCAM Explorer window.
You can use this window to import, manage, and export XDCAM clips.

XDCAM EX video is not visible in the XDCAM Explorer window. Use the Device Explorer window to import clips from an XDCAM EX device. For more information, see "The Device Explorer Window."



Item	Description
Disc List	Displays a list of all XDCAM discs from which you've imported clips. Select a disc name to display its clips in the right side of the window. The imported disc is not associated with the current project. Imported discs are available in the XDCAM Explorer window until you delete them from your computer. Right-click a disc and choose **Rename** from the shortcut menu to change a disc's name. For example, if you've written "Joe's Tire Spot" on your XDCAM disc, you can type that name so you don't have to try to identify the disc in the XDCAM Explorer window using its 32-digit identifier.
Contents Pane	Displays the clips from the selected disc. Full-resolution clips are labeled **Full**, and proxy files are labeled **Proxy**. If you've transferred proxy files only, you can right-click a proxy file and choose **Import Full Resolution Files** from the shortcut menu to transfer the full-resolution version of the proxy clip to your computer. Files are imported to the same folder where you transferred the proxy files.

Item		Description
		If you've transferred metadata only without transferring clips, no thumbnail is displayed. Right-click a metadata entry and choose **Import Full Resolution Files** or **Import Proxy Files** from the shortcut menu. If the disc contains edit lists that you created on your deck or camera, they are displayed at the bottom of the contents pane. Click the down arrow next to the **Views** button and choose **Edit Lists** from the menu to show or hide edit lists. For more information, see "Importing XDCAM Discs" on the facing page
	Import XDCAM Disc	Click to import clips from an XDCAM disc. You can choose to import proxy-resolution clips, full-resolution clips, or both.
	Delete Selected XDCAM Disc from Capture Folder	Select a disc in the left pane and click this button to delete the disc's clips from your computer.
	Play Clip	Click to play the selected clip.
	Stop	Click to stop playback.
	Auto Preview	Automatically preview media files when you click them in the Explorer window.
	Views	Click the down arrow and choose a command from the menu to change the way clips are displayed in the XDCAM Explorer. • All Essence Marks: displays a separate thumbnail for each essence marker in a clip. • Shot Marks 1 & 2: displays a separate thumbnail for each shot marker in a clip. • Clips: displays a single thumbnail for each clip. • Custom: displays the Custom Essence Mark Filter dialog. Select the check box for each essence mark you want to display as thumbnails, and then click **OK** to close the dialog. ◦ Record Start/End: Created when recording begins and stops. ◦ Shot Mark 1/2: created manually during recording. ◦ Flash: created when a sudden change in brightness occurs. ◦ Filter Change: created when the filter is changed on the camera. ◦ Gain Change: created when the gain value is changed on the camera. ◦ Shutter Speed Change: created when the shutter speed is changed on the camera. ◦ White Balance Change: created when the white balance is changed on the camera. ◦ Over Audio Limiter: created when the audio level exceeds 0 dB. • Edit Lists: if you've created an edit list on your camera or deck, you can display those edit lists in the XDCAM Explorer. Edit lists are displayed in the lower half of the XDCAM Explorer. • Right-click an edit list and choose **Add to Current Project Using Proxy Files** or **Add to Current Project Using Full Resolution Files** from the shortcut menu to add the edit list to the timeline at the cursor position.
	Conform XDCAM Media in Current	Click to replace proxy-resolution files with full-resolution files before rendering your project or exporting your video to an XDCAM disc. If the full-resolution clips are not available on your computer, the Conform XDCAM

Item		Description
	Project	Media in Current Project dialog is displayed. Insert the specified disc and click **Continue** to import the full-resolution clips to your computer. Clips are imported if necessary, and the events on the timeline are updated to use the full-resolution files. If you need to choose a different XDCAM device or transfer method, click the **Device** button. For more information, see "Setting up an XDCAM Device" on page 370
	**Export Video to XDCAM Disc**	Click to transfer video to an XDCAM disc in a camera or deck. You can choose to render the current project to MXF or export an already-rendered MXF file. For more information, see "Exporting Video to XDCAM Discs" on page 375
	**Refresh XDCAM Discs by Examining Capture Folders**	Click to examine capture folders for files that have been added since the application was started. You can use this button to view files that you copy manually from an XDCAM disc to your computer.

Importing XDCAM Discs

You can use the XDCAM Explorer window to import full- or proxy-resolution clips from XDCAM discs to your computer for editing.

Tips:

- If you delete XDCAM clips from your computer, those clips will appear offline in your projects. You can reimport the clips by right-clicking the clips in the Project Media window and choosing **Recapture** from the shortcut menu.For more information, see "Using the Project Media window" on page 68
- The XDCAM deck is not available for external monitor or print to tape while in XDCAM Media Drive mode. Click the **Safely Remove Hardware** icon in the Windows system tray and choose your XDCAM device from the menu to disconnect the device. You can then switch to AV/C mode and reconnect to enable external monitor and print to tape functionality.
- Use the Device Explorer window to import clips from an XDCAM EX camera. For more information, see "The Device Explorer Window"

1. Choose **View** > **Window** > **XDCAM Explorer** to display the XDCAM Explorer window if it isn't already visible.
2. Click the **Import XDCAM Disc** button in the XDCAM Explorer window. The Import XDCAM Disc dialog is displayed.
3. The **XDCAM Device** box displays the current XDCAM camera or deck.
   If you need to choose a different XDCAM device or transfer method, click the **Device** button. For more information, see "Setting up an XDCAM Device" on page 370

   For information about using your camera or deck, please refer to its documentation.
4. In the **Clip Resolutions** box, select check boxes to indicate which clips you want to import:
   - Clear both check boxes if you want to import clip information (metadata) only without importing clips.
     You can import clips later by right-clicking a clip in the XDCAM Explorer and choosing **Import Full Resolution Files** or **Import Proxy Files** from the shortcut menu.
   - Select the **All full resolution files** check box to import full-resolution clips.

- Select the **All proxy resolution files** check box to import low-resolution clips for quick timeline editing and preview.

  If you're working on a system with limited disk space or processing power, you can edit the smaller proxy files on the timeline and replace the proxies with full-resolution files before rendering. For more information, see "Editing XDCAM Clips on the Timeline" below

5. The **Capture Folder** box displays the path to the folder where clips will be imported. Click the **Browse** button to choose a folder.

   You can also copy XDCAM discs to the capture folder manually. Simply copy the files and folders to the specified capture folder (preserving the XDCAM disc whatfolder/file structure). The next time you start VEGAS Pro, the disc will be available in the XDCAM Explorer window.

6. Type a name in the **Optional Disc Name** box if you want to assign a friendly name to the disc.

   For example, if you've written "Joe's Tire Spot" on your XDCAM disc, you can type that name so you don't have to try to identify the disc in the XDCAM Explorer window using its 32-digit identifier.

7. Click the **OK** button to start importing clips. The disc label is added to the left pane in the XDCAM Explorer window, and the clips are displayed in the right pane.

   You're ready to start editing your XDCAM clips on the timeline. For more information, see "Editing XDCAM Clips on the Timeline" below

   Notes:

   - Select the **Import MXF as multichannel** check box on the General tab of the Preferences dialog if you want to import MXF files from XDCAM cameras and decks with multichannel audio. When the check box is cleared, audio from MXF files will be imported as stereo, but you can access the other channels by right-clicking the event and choosing **Channels** from the shortcut menu.For more information, see "Preferences - General Tab" on page 529
   - The imported disc is not associated with the current project. Imported discs are available in the XDCAM Explorer window until you delete them from your computer.
   - Imported clips are not added to the Project Media window. Drag a clip to the timeline to add it to your project or right-click a clip and choose **Add to Project Media List** from the shortcut menu.For more information, see "Using the Project Media window" on page 68

Editing XDCAM Clips on the Timeline

You can use MXF files just like any other supported media type on the timeline. Depending on your workflow, you may want to use proxy or full-resolution files on the timeline.

Proxy files are much smaller than the full-resolution versions. If you're working on a system with limited disk space or processing power, you can edit the smaller proxy files on the timeline and replace the proxies with full-resolution files before rendering.

Proxy editing is ideal for storyboarding or rough-cut editing.

1. Import the clips from your XDCAM camera or deck to your local hard drive. For more information, see "Importing XDCAM Discs" on the previous page
2. Select an imported XDCAM disc on the left side of the XDCAM Explorer window. The imported clips are displayed in the right pane.

   If the disc contains edit lists that you created on your deck or camera, they are displayed at the bottom of the contents pane. Click the down arrow next to the **Views** button and choose **Edit Lists** from the menu to show or hide edit lists.

3. Drag clips from the XDCAM Explorer window to the timeline if you want to create events, or drag them to the Project Media window to add to your project without creating events.

   Right-click an edit list and choose **Add to Current Project Using Proxy Files** or **Add to Current Project Using Full Resolution Files** from the shortcut menu to add the edit list to the timeline at the cursor position.

   Essence marks from the MXF files are displayed as named media markers (media markers are visible in the timeline events and in the Trimmer window). Choose **View > Event Media Markers > Show Markers** *to toggle their display.For more information, see "Using media markers and regions" on page 205*

4. Edit your project as needed.
5. If you're working with proxy-resolution clips, replace them with full-resolution clips before rendering your project or exporting it to an XDCAM disc:
   a. Click the **Conform XDCAM Media in Current Project** button in the XDCAM Explorer window.
   b. If the full-resolution clips are not available on your computer, the Conform XDCAM Media in Current Project dialog is displayed.
   c. Insert the specified disc.

      If the events on the timeline have been trimmed, you can select the **Trim clips to used regions when possible** check box to import only the portions of the media files required for the events.

      If you need to choose a different XDCAM device or transfer method, click the **Device** button. For more information, see "Setting up an XDCAM Device" on page 370
   d. Select the **Trim clips to used regions when possible** check box if you want to trim full-resolution clips to import only the portions used in your project.

      Some XDCAM decks may require updated firmware to support trimming clips when connecting via Ethernet (FTP).

   e. Click **Continue** to import the full-resolution clips.
   f. Repeat steps 5c and 5d as needed.

      Clips are imported to your computer if necessary, and the events on the timeline are updated to use the full-resolution files.
6. You can now render your project or export it to an XDCAM deck or camera.

Exporting Video to XDCAM Discs

Choose **File** > **Export**> **XDCAM Disc** (or click the **Export Video to XDCAM Disc** button in the XDCAM Explorer window) to save your project to a disc in an XDCAM camera or deck.

Exporting video from the timeline

Use this procedure to export the current project to an XDCAM disc.

If you are exporting a rendered file to an XDCAM disc, the file must precisely conform to the target disc format, or the export will fail.

1. If you want to export only a portion of your project, create a time selection that includes the section of your project.
2. Choose **File** > **Export**> **XDCAM Disc** (or click the **Export Video to XDCAM Disc** button in the XDCAM Explorer window). The Export Video to XDCAM Disc dialog is displayed.

3. The **XDCAM Device** box displays the current XDCAM camera or deck.

   If you need to choose a different XDCAM device or transfer method, click the **Device** button. For more information, see "Setting up an XDCAM Device" on page 370

   For information about using your camera or deck, please refer to its documentation.

4. Choose render settings:
   a. Select the **Render format** radio button.
   b. In the **File path** box, type the path to the file you want to render, or click the **Browse** button to browse to the folder you want to use and then type a file name.

      This path is used to render an MXF file to your hard drive before transferring to your XDCAM device. You can delete the file after the transfer is complete.
   c. Select the **Enable multichannel mapping** check box if you want to map render multiple channels of audio.

      You can click the **Channels** button if you want to map the busses in your project to channels in the rendered file. If you don't specify a channel mapping, VEGAS Pro will not render a multichannel file.
   d. In the Channel Mapping dialog, select the check box for each bus you want to include in the rendered file. Each stereo bus will be saved to two channels in the rendered file. If you want to save a bus to a single channel, select the **(Mono downmix)** check box for that bus.
   e. If you want to change the channel mapping for a bus, select the bus and click the **Move Up** or **Move Down** button.
   f. Click **OK** to close the Channel Mapping dialog and return to the Export Video to XDCAM Disc dialog.
5. From the **Template** drop-down list, choose the setting that matches your destination disc.

   Information about the selected rendering template is displayed in the **Description** box.

   If you choose **Default Template**, the number of channels will match the number of channels specified in the Channel Mapping dialog.
6. Select the **Render loop region only** check box if you want to export only the portion of your project that you selected in step 1.
7. Select the **Delete file after print** check box if you want to delete the rendered file from your hard drive after successfully exporting it to disc.

   If the export fails, the rendered file remains on disk so you can adjust your XDCAM device settings and export again without having to render again.
8. Select the **Use project output rotation setting** check box if you're rendering a rotated project and want to use the **Output rotation** setting from the Project Properties dialog for your rendered file.

   When the check box is cleared, the media is rotated according to its Media Properties setting, but the project itself is unrotated–you can use this setting to proof your project on an unrotated display.
9. Click **OK**. Your project is rendered and transferred to your camera or deck.

Exporting a rendered file

Use this procedure when you have a rendered MXF file that you want to save to an XDCAM disc.

If you are exporting a rendered file to an XDCAM disc, the file must precisely conform to the target disc format, or the export will fail.

1. Choose **File** > **Export**> **XDCAM Disc** (or click the **Export Video to XDCAM Disc** button in the XDCAM Explorer window). The Export Video to XDCAM Disc dialog is displayed.
2. The **XDCAM Device** box displays the current XDCAM camera or deck.

   If you need to choose a different XDCAM device or transfer method, click the **Device** button. For more information, see "Setting up an XDCAM Device" on page 370

   For information about using your camera or deck, please refer to its documentation.
3. Choose the file you want to export:
   a. Select the **Use an existing file** radio button.
   b. In the **File path** box, type the path to the file you want to print, or click the **Browse** button to choose the file you want to print.
4. Click **OK**. The selected file is transferred to your camera or deck.

Working with RED camera clips

RED ONE®, EPIC®, SCARLET®, and WEAPON® cameras record 4K footage as REDCODE™ RAW (.r3d) files that you can add directly to the VEGAS® Pro timeline and edit like any other supported media type.

Using RED camera clips in a VEGAS Pro project

1. Use the Device Explorer to browse and import clips from your RED camera's memory card or hard drive to your local hard drive.
   For more information, see "Using the Device Explorer."
2. Set your project properties to match the format of your final output:
   For more information, see "Setting project properties" on page 41
   - To output a 4K still image sequence, use the **4K 16:9 24p (4096x2304, 23.976 fps)** template.
   - To output a 2K still image sequence, use the **2K 16:9 24p (2048x1152, 23.976 fps)** template.
   - To output to Blu-ray Disc™, use the **HD 1080-24p (1920x1080, 23.976 fps)** template.
3. Drag the clips from the Explorer or Project Media window to the timeline to create events.

   RED cameras create new "rollover" files for each clip each time a file reaches 2 GB on disk. For example, a 10-minute clip recorded in 4K will be approximately 20 GB on disk, divided among 10 .r3d files. You can drag any one of these files to the timeline to place the entire clip on the timeline.
4. Edit your project as needed.
   For more information, see "Editing events on the timeline" on page 114
5. Render your project for your destination format.

Modifying R3D decode properties

You can modify the decode properties of your RED camera files in the R3D Decode Properties window. These settings are applied nondestructively to the raw .r3d file as metadata.

To access this window for one or more .r3d files, select the files in the Project Media window, right-click them, and choose **File Format Properties** from the shortcut menu.

The decode properties are stored in a .SfDecProp file that is saved using the same base name as the clip. Do not edit the contents of this file.

Modifying properties for multiple files

- When multiple files are selected, check boxes appear for slider settings that do not match across all selected files. When you drag the slider or type a new value, the check box is automatically selected, and the new value is applied to all selected files when you click **OK**. Clear the check box to leave the setting unchanged for the selected files.
- If values already match for a slider setting, no check box is displayed, and any changes made to the setting are applied to all selected files.
- If values do not match for a drop-down setting, the setting is blank. If you choose a value for a blank drop-down setting, that value is applied to all selected files.

Restoring default values

- Double-click a slider to restore the setting to the clip default.
- Click the **Clip Default** button to restore all settings to the clip default.
- Click the **Factory Default** button to restore all settings to the default settings of the camera.

For more information about the settings in the R3D Decode Properties window, refer to your RED ONE camera documentation or **http://www.red.com/support**. These settings map directly to settings on the RED cameras.

Working with AVCHD video

You can edit files recorded with AVCHD camcorders just like any other supported media type on the timeline. The following steps will guide you through the process of using AVCHD video in your VEGAS® Pro project.

5.1-channel audio will be downmixed to stereo when importing into a stereo project. When importing into a 5.1 surround project, audio will be added to separate tracks for the center, front, rear, and LFE channels.

1. Shoot your video with an AVCHD camcorder.
2. Start a new VEGAS Pro project, and set your project properties to the format that most closely matches your desired output format.

   For example, if you intend to burn the video to an NTSC DVD, choose **NTSC DV (720x480, 29.970 fps)** from the **Template** drop-down list on the Video tab of the **Project Properties** dialog. If you want to create a 4.8 Mbps high-definition Windows Media Video file, choose **HDV 720-24p (1280x720, 23.976 fps)**.

   For more information, see "Setting project properties" on page 41
3. Import your AVCHD files.

   For more information, see "The Device Explorer Window."
4. Drag your clips from the Project Media window to the timeline to create events.
5. Edit your project as needed.

   If you're working on a system with limited processing power, converting to a lower-resolution format will streamline the editing process and allow you to preview your project with higher frame rates. This process is called proxy editing.

   For more information, see "Creating proxy files for high-definition editing" on page 90
6. Render your project to any supported rendering format.

If you want to render to AVCHD format and export the rendered file to an AVCHD camera, please use the following steps:

1. Verify that your VEGAS Pro project is set to 5.1 surround mode.

   For more information, see "5.1 surround projects" on page 397
2. From the File menu, choose **Render As**.
3. In the Render As dialog, choose **Sony AVC/MVC** in the **Formats** box.
4. Use one of the following templates:
   - AVCHD 1440x1080 NTSC 5.1 Surround
   - AVCHD 1920x1080 NTSC 5.1 Surround
   - AVCHD 1440x1080 PAL 5.1 Surround
   - AVCHD 1920x1080 PAL 5.1 Surround
5. If you choose to use the Custom Template dialog to customize your rendering template, leave all settings at their default values except for the **Bit rate** control. The default **Bit rate** setting should work for most applications.
6. To save the rendered file to your camera, you'll need to use the software that was supplied with your camera.

S-Log and ACES workflow in VEGAS Pro 18

VEGAS® Pro 18 supports the expanded dynamic range of cameras using S-Log encoding, such as the Sony PMW-F3 camera. S-Log is a technique for recording the full dynamic range of the camera, and is not restricted to the limited number of stops available in display-referenced Rec. 709 encoding. S-Log encoding is not intended for direct viewing or broadcast, and requires that the shots be graded in post-production to create pleasing output for video or cinema (digital or film).

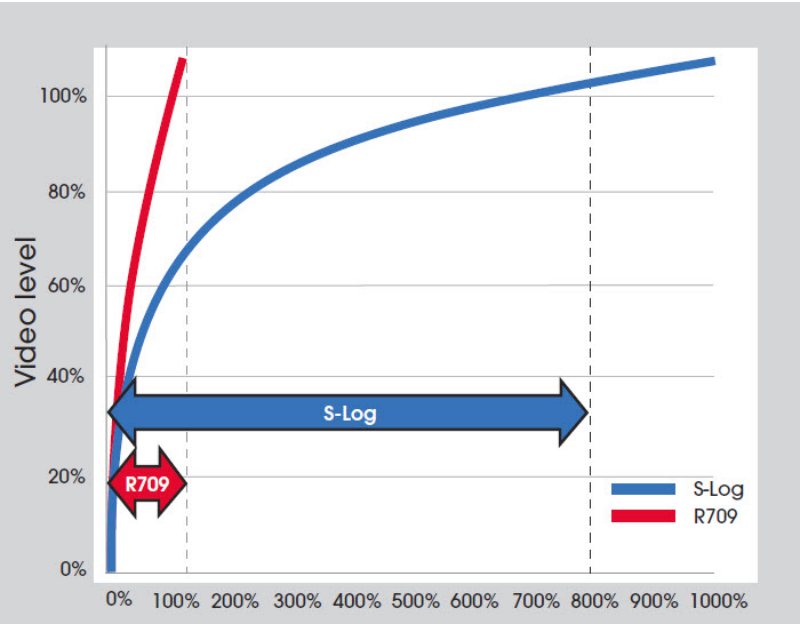
To support this higher dynamic range, VEGAS Pro supports the Academy Color Encoding System (ACES) created by the Academy of Motion Picture Arts and Sciences technology committee. The ACES color space can encode any color that can be seen and supports high dynamic range cameras and output devices made today and in the future. Various input devices (such as cameras) are transformed into the ACES color space using device-specific Input Device Transforms (IDTs).

Once transformed into the ACES color space, supported cameras can be intercut with each other and mixed with Computer Generated Imagery (CGI) in a scene-linear color space ideal for compositing and color grading. A standard Reference Rendering Transform (RRT) is applied to the final image and then various device-specific Output Device Transforms (ODTs) are applied for viewing and file output. For more information about ACES, see http://www.oscars.org/science-technology/council/projects/aces.html.

VEGAS Pro uses the OpenColorIO technology developed by Sony Pictures Imageworks. OpenColorIO is a complete color-management solution geared towards motion picture production with an emphasis on visual effects and computer animation. OpenColorIO provides a straightforward and consistent user experience across all supporting applications while allowing for sophisticated back-end configuration options suitable for high-end production usage.

Using OpenColorIO ensures that the results seen in (and output created by) VEGAS Pro are consistent with other applications supporting OpenColorIO, including Nuke, Mari, Katana, and Silhouette. Furthermore, if a particular project or editing house wants to work in a different color space, VEGAS Pro supports switching the color space, input transforms, viewing transforms, and rendering transforms simply by changing the active OpenColorIO configuration. Sample configurations for the Sony Pictures Imageworks VFX and animation pipelines, for example, can be found on the OpenColorIO Web site. For more information about OpenColorIO, see http://opencolorio.org/.

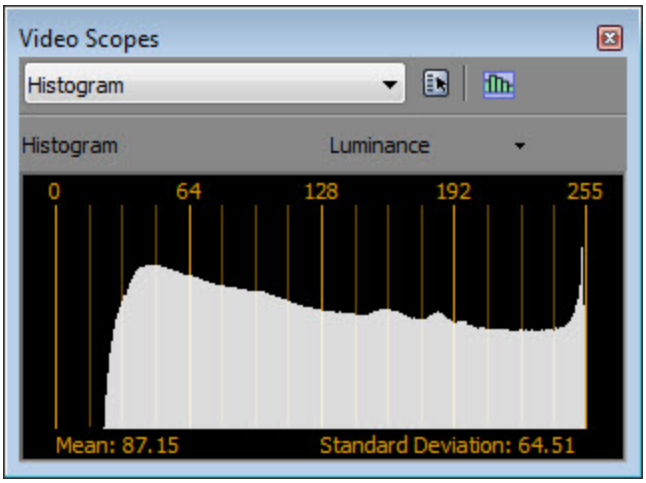
In order to capture the full dynamic range that the camera is capable of, Sony developed the S-Log encoding system, which reproportions the pixel encoding values using a logarithmic curve to capture greater dynamic range. As seen in the chart below, S-Log captures many more stops than typical video encoding:



Here is a scene shot with a Sony PMW-F3 camera without S-Log enabled:

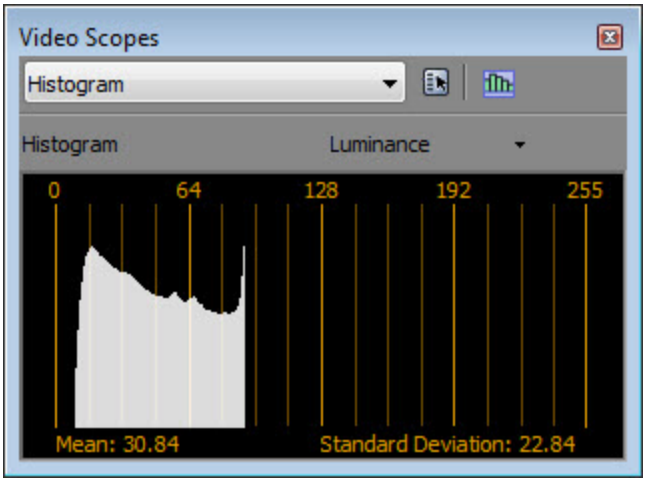


While the foreground is exposed nicely, the background is washed out. With conventional Rec. 709 video, these levels are all lost, clipped at full white, which you can see in the Video Scopes window:



You could use the image as-is, but if you wanted to do any color grading, the clipped levels would quickly become a problem. For example, if we bring the levels down in post, the water just gets darker:





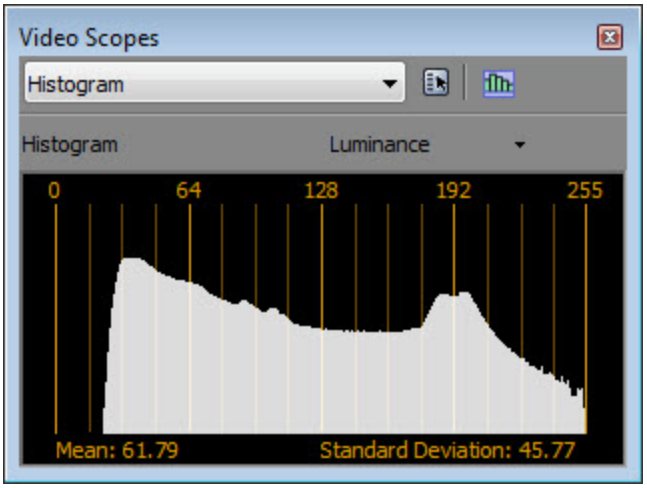
This is because traditional video is "display referenced," which means it is made to be shown directly on a display. No levels outside the monitor's range are captured.

Capturing a wider dynamic range in the scene would provide more levels to work with when we're doing color grading. That's exactly what S-Log is designed to do.

Here is the same scene shot with the same PMW-F3 camera, but this time using the **Sony S-Log1 (F35/F3)** color space (viewed here in 8-bit mode):



You can see that it doesn't have any clipping in the histogram (no telltale spike at the right):



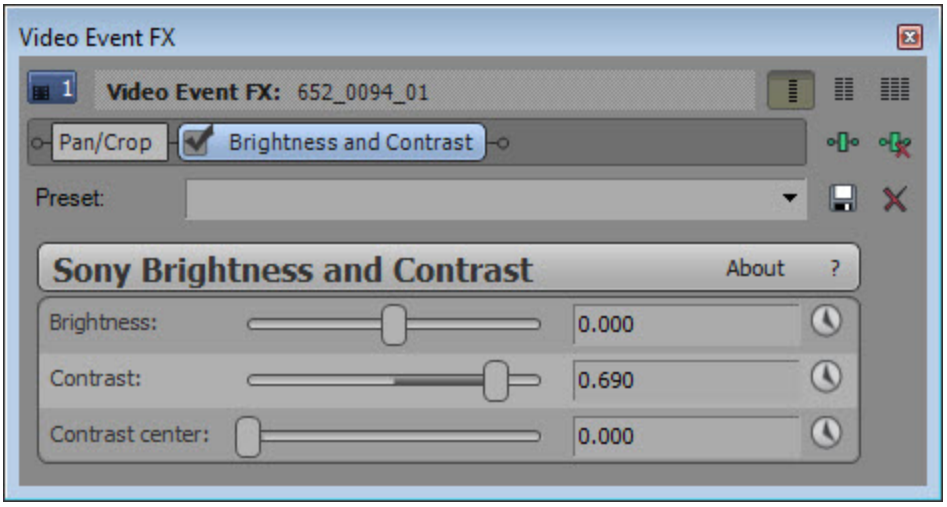
However, the picture is very low contrast and is not ready for delivery. When you shoot with S-Log, you aren't supposed to deliver that image as your final picture. You can view the image in VEGAS Pro but you must also do post-production work to create the final image for delivery.

When you unwrap the S-Log encoding into what's called a scene linear color space, you can't directly view it on a standard display. You need to run it through a reference rendering transform (RRT) that compresses the dynamic range and rolls off the highs and lows. The ACES RRT has been designed to be very film-like. When we set this source media to the **Sony S-Log1 (F35/F3)** color space and view it using the ACES RRT, it initially looks like this, which is quite a bit darker than the regular video:



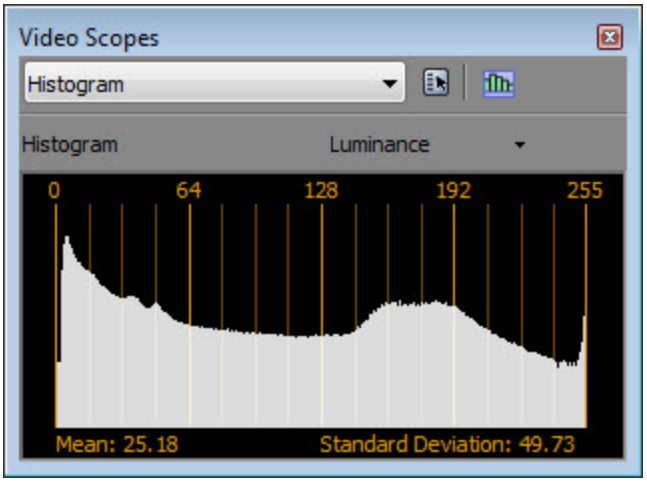
If we apply some gain to the image using the Brightness and Contrast plug-in, it starts to look like the regular video again, with a little more high-contrast film look:





In the previous image, whites are clipped. However, when we bring down the level on the shot, all of the original dynamic range is still there. In fact, if we take the level down low enough, we can even see the sun glinting off the waves, which would have been impossible with the first shot:





All of the level detail is present for color grading, film-like crossfades, fades to black, and so on. This is the beauty of S-Log and the ACES scene-linear color space.

For a deeper look at color management for cinematic workflows, see http://cinematiccolor.com/.

Enabling color management in your VEGAS Pro project

VEGAS Pro 15 supports two ACES versions

1. ACES Version 0.7 - Which is same as VEGAS 14.
2. ACES Version 1.0.3 - this is new to VEGAS 15.

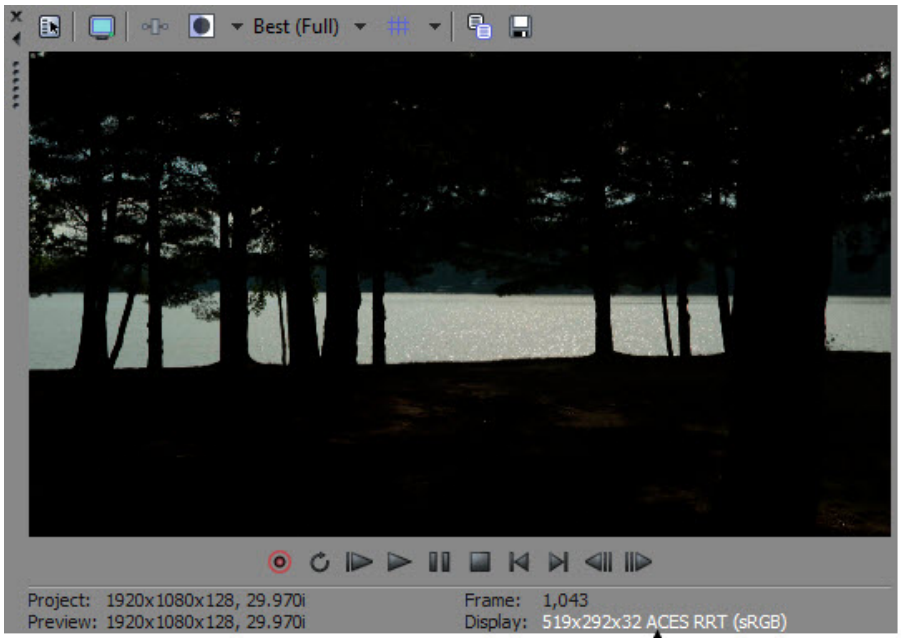
Follow these steps to enable color management for your project.

1. From the **File** menu, choose **Properties** to display the Project Properties window.
2. In the **Pixel format** list, choose **32-bit floating point (full range)** to make the **View transform** setting available.
3. ACES 1.0 is selected by default. Click the drop down arrow in the ACES version field to switch back to version 0.7 if desired. The following information is based on ACES 0.7
4. In the **View transform** list, choose the transform best suited for your display output.

Item	Description
Off	Color management is not enabled and the **32-bit floating point (full range)** mode is compatible with earlier versions of VEGAS Pro.
ACES RRT (sRGB)	This setting is best for desktop display monitors.
ACES RRT (P3 DCI)	This setting is best for digital cinema projectors.
ACES RRT (CIE XYZ)	This setting is best for digital cinema projectors.
Log (sRGB)	This setting is useful for visualizing the entire dynamic range, but should not be used for final output.

5. Click **OK**.

   When color management is active, the selected view transform is displayed in the Video Preview window.



View transform information in the Video Preview window

Specifying the color space for individual shots

The color space setting for media files is used only when color management is enabled for your project.

1. Select one or more shots in the Project Media window and click the **Media Properties** button to display the Properties window.
2. On the **Media** tab, choose a setting in the **Color space** list.

Item	Description
Default	The **Default** setting uses the Rec. 709 color space for compatibility with earlier versions of VEGAS Pro.
ACES	Use **ACES** for OpenEXR files in the ACES color space.
ADX 10-bit	Use for film scans using 10-bit Academy Density Encoding.
ADX 16-bit	Use for film scans using 16-bit Academy Density Encoding.
Sony S-Log1 (F35/F3)	Use for Sony F35 and PMW-F3 shots.
Sony S-Log2 (F65 3200K)	Use for Sony F65 3200K shots.
Sony S-Log2 (F65 5500K)	Use for Sony F65 5500K shots.
Arri Alexa Log C	Use for Arri Alexa shots with Log C encoding (V3, Exposure Index 800).
Log	A mathematically idealized log space, which spans the dynamic range currently used by the ACES RRT.

3. Click **OK**.

Specifying the color space in a custom rendering template

The color space setting for custom rendering templates is used only when color management is enabled for your project.

1. From the **File** menu, choose **Render As** to display the Render As window.
2. Specify a location and name for the file you want to save.
3. Select a format from the **Formats** box and a Template from the **Templates** box.
4. Click the **Customize Template** button to display the Custom Template window.

5. Type a name for the template in the **Template** box.
6. On the **Project** tab, choose a setting in the **Color space** list.

Item	Description
Default	The **Default** setting uses the project's **View transform** setting for 8-bit and 10-bit sRGB and Rec. 709 formats, or the reference color space for floating-point formats such as OpenEXR.
ACES	Use **ACES** for OpenEXR files in the ACES color space.
Log	A mathematically idealized log space, which spans the dynamic range currently used by the ACES RRT.
ACES RRT (sRGB)	ACES Reference Rendering Transform plus sRGB output transform for computer-based output.
ACES RRT (Rec. 709)	ACES Reference Rendering Transform plus Rec. 709 output transform for video-based output.
ACES RRT (P3 DCI)	ACES Reference Rendering Transform plus DCI P3 output transform for digital cinema projector output.
ACES RRT (P3 D60)	ACES Reference Rendering Transform plus DCI D60 output transform for digital cinema projector output.
ACES RRT (CIE XYZ)	ACES Reference Rendering Transform plus DCI XYZ output transform for digital cinema file output.
ADX 10-bit	Film out using 10-bit Academy Density Encoding.
ADX 16-bit	Film out using 16-bit Academy Density Encoding.
Sony S-Log1 (F35/F3)	Use for Sony F35 and PMW-F3 shots.
Sony S-Log2 (F65 3200K)	Use for Sony F65 3200K shots.
Sony S-Log2 (F65 5500K)	Use for Sony F65 5500K shots.
Arri Alexa Log C	Use for Arri Alexa shots with Log C encoding (V3, Exposure Index 800).

7. Click the **Save Template** button  .
8. Click **OK** to return to the Render As window.

VEGAS Pro 18 ACES 1.1 updates

ACES color space

VEGAS 15 and above supports new ACES color space variants introduced in ACES 1.0.3:

1. **ACES2065-1:** This is the original ACES color space, linear light, very wide primaries, very high dynamic range (0.0 – 65504.0). This core ACES color space is used for interchange and archival format Recommended for ACES OpenEXR files conforming to SMPTE 2065-4.. Uses AP0 primaries.
2. **ACEScg:** A Working Space for CGI Render and Compositing". Uses AP1 primaries.
3. **ACEScc:** Wide color gamut log color space, for use in color correction ("cc" for "color correction"). Also useful for any image processing which cannot handle HDR values (>>1). Uses AP1 primaries, logarithmic, can go slightly negative and a little above 1.0. Uses AP1 primaries.
4. **ACEScct:** This working color space is very similar to ACEScc , except that it adds a "toe" to make it closer to traditional "log" curves. The addition of a "toe" results in a more distinct "milking" or "fogging" of shadows when a lift operation is applied. Uses AP1 primaries.
5. **ACESproxy:** An integer log encoding for on-set preview and on-set look management. Uses AP1 primaries, logarithmic, range-limited (clipped to 0.0-1.0 code value legal range)

Project Properties

When Pixel format is set to "32-bit floating point (full range)" the **View Transform** list is populated by viewing transforms described in the configuration, in the format "View (Display)".

In ACES 1.0, the default configuration has one Display named *ACES*, which contains the following Views / color spaces:

- sRGB (ACES)
- DCDM (ACES)
- DCDM P3D60 Limited (ACES)
- DCDM P3D65 Limited (ACES)
- P3-D60(ACES)
- P3-DCI D60 simulation (ACES)
- P3-DCI D65 simulation (ACES)
- P3D65(ACES)
- P3D65 D60 simulation
- P3D65 Rec.709 Limited (ACES)
- P3D65 ST2084 108 nits (ACES)
- Rec.2020 (ACES)
- Rec.2020 P3D65 Limited (ACES)
- Rec.2020 Rec.709 Limited (ACES)
- Rec.2020 HLG 1000 nits (ACES)
- Rec.2020 ST2048 1000 nits (ACES)
- Rec.2020 ST2084 2000 nits (ACES)
- Rec.2020 ST2084 4000 nits (ACES)
- Rec.709 (ACES)
- Rec.709 D60 sim.(ACES)
- sRGB D60 sim. (ACES)
- Log(ACES)

Media Properties

The **Color space** property is populated with color spaces that can transform into the reference color space. In VEGAS 15 following color spaces are supported in Input transform.

ADX: ADX10/ADX16 Color spaces and transforms representing the ACES ADX spaces used for film scanning and printing.

ARRI: Set of ARRI input transform color spaces.

Canon: Set of Canon input transform color spaces.

GoPro: Set of GoPro input transform color spaces. As per ACES 1.0.3 documentation these are experimental and the quality and consistency of these transforms has not been verified.

Panasonic: Set of Panasonic input transform color spaces.

RED: Set of Red input transform color spaces.

Sony: Set of Sony input transform color spaces. All of the reversible Output color spaces. See below for these color space details.

HDR input device transforms

All of the reversible Output color spaces. for example Rec.709, Rec.2020 etc

Rendering custom template, Project tab

Color space is populated with color spaces that can transform from the reference color space.

These are all the output color spaces described in **Project Properties**, all of the reversible Input color spaces described in **Media Properties** and all of the ACES color spaces (including. ADX)

360° video

In a 360° video, the action is recorded in all directions simultaneously. 360° video can be shot with special cameras that contain two 180° lenses, or by creating an array of several normal cameras to record in different directions. In the simplest array, there are two cameras with super wide angle lenses that record in two directions; better setups use six or more cameras. The result is that the viewer can view "around" him or herself by determining the view direction.

To do so on a PC, drag the mouse during playback. On mobile devices, the built-in orientation sensor can be used: The view direction follows the device's rotation. In combination with VR glasses or a smartphone attachment such as Samsung Gear VR or Google Cardboard, it is possible to be completely submerged in a virtual environment with a 360° video. 360° videos are supported by the most important video platforms like YouTube and Vimeo.

Technically, 360° videos are regular, two-dimensional videos. The images of the sphere surface around the camera are displayed distorted, similarly to how the earth's surface is projected onto flat maps of the world. This results in relatively large videos in order to provide enough resolution along the strongly distorted edges after rectification.

Preparing a project for 360° movies

To create a 360° video or discover the interactive capacity of recorded video footage you have to set the project to a 360° project. To do so, select the **Properties...** option from the **File** menu or click the Project Properties button on the main toolbar  .

In the **Project Properties** dialog, on the **Video** tab, check the **360° Output** option.

This serves two purposes:

- In the Video Preview window, a special pan&scan 360° mode becomes available to change the viewpoint, the part of the 360° panorama that is shown in the video monitor.
- When rendering or uploading the video, special properties are set in the output video file to make sure the video is recognized as 360° by the player.

The Video Preview window in 360° mode

A 360° video is a normal 2-dimensional video where the content of the 360° sphere is mapped on a rectangular surface.



Click the 360° Preview Button to switch the Preview window into 360° mode, where you can interactively adjust the perspective directly in the Preview window using the mouse.



Drag with the mouse in the Preview window to change the direction. Use the moose wheel to zoom in and out the video.

*The 360° mode for the Preview Window is not automatically activated when switching a project to 360° because sometimes it is necessary to see the video in its original rectificated form for fine-tunig the **stitching**.*

Stitching

Stitching describes the process of combining images from individual cameras or lenses to create one, large image and projecting the spherical image onto the rectangular surface of the video. While more advanced cameras can perform their own stitching or come with a dedicated stitching software, most simple cameras with only two lenses create a video which needs to be stitched together to create a true 360° video.



Unstitched video image from two 180° fish eye lenses on a 360° camera

These cameras often also include stitching software, but the more elegant solution is to perform stitching directly in VEGAS Pro. The stitching is performed by the video effect plug-in **Dual-Fish-Eye-Stitching**.

This is how it works:

1. Make sure, the **360° Preview mode** is switched off (button in the Preview Window toolbar). Adjusting the view point in the preview does not work when an effect dialog is open and you will need to have a look at the whole video to adjust stitching.
2. Apply the effect on the **media** or **event** level. The video preview will now look like this:



As you can see, some fine adjustment has to be made to get a perfect result:

3. Adjust the **Field of view** slider, until the picture merges seamlessly at the edges (1).
4. As a result of the fish-eye optics the light is quite low at the border of the picture of each lens which results in a visual vignette effect at these borders (2). Click on the triangle near **Image Vignetting** and adjust the **Intensity** and **Range** sliders to minimize the effect. For a comparison, you can switch off vignette removal by deactivation the **Remove vignetting** check box. You can additionally experiment with the parameters under **Refinement** for a perfect result, but in most cases this is not necessary. The image should now look like this:



5. Switch 360° preview mode on again and enjoy your panorama.



You will find presets for several popular 360° cameras with two lenses. For other camera models, you can change the parameters below

Exporting 360° videos

To maintain the ability to watch the 360° video in a 360° capable player it is important that the **360° output** option in the **Project Properties** is activated. Upload your video to the video platforms **Youtube** or **Vimeo** to get a 360° video on the platform.

360° Video Stabilization

There is a dedicated plug-in to stabilize 360° video footage. For general usage information regarding the Video Stabilization plug-in see "Stabilizing Video Clips" on page 163. In the 360° variant of the plug-in, there are some additional parameters to control the stabilization.

Stereoscopy: You can select a preset for a stereoscopic model for VR180 3D 360° video, **None**, **Top-Bottom** and **Side-by-Side** are available.

Exclude views: You can exclude either the North or South Pole of the picture or both from the analysis, as these areas are heavily distorted by the equirectangular projection and hence will also distort the analysis.

The Professional and Expert modes are not available for 360° video stabilization

5.1 surround projects

Create a 5.1-channel mix to wrap a listener in your remixes or prepare audio for DVD-Video or 5.1-channel music projects.

5.1 surround is a standard audio format consisting of five full-range channels and a low-frequency effects (LFE) channel.

The five full-range channels are reproduced by left, right, and center speakers positioned in front of the listener and left and right surround speakers positioned behind the listener. The LFE channel can be routed to the main speakers or to a subwoofer that can be positioned almost anywhere.

The center channel is typically used to lock dialogue or sounds to a video screen. The LFE channel is generally routed to a subwoofer to enhance low audio frequencies for effects such as explosions or crashes. Audio in this channel is limited to a range of approximately 25 Hz to 120 Hz.

Setting up your 5.1 surround project

Use the Project Properties dialog to set up your project for 5.1 surround.

To preview a 5.1 surround project, you'll need the following hardware:

- A 5.1-compatible sound card.

  –or–
- A sound card with three stereo outputs.

  –or–
- Three stereo sound cards.
- Six powered speakers or six passive speakers with a six-channel amplifier.

Setting your project to 5.1 surround mode

1. From the File menu, choose **Properties**.
2. Select the Audio tab.
3. From the **Master bus mode** drop-down list, choose **5.1 Surround**.
4. Select the **Enable low-pass filter on LFE** check box if you want to apply a low-pass filter to each track that is assigned to the LFE channel. Enter a frequency in the **Cutoff frequency for low-pass filter** box to set the frequency above which audio will be ignored by the LFE channel.

   Applying a low-pass filter approximates the bass-management system in a 5.1 decoder and ensures that you're sending only low-frequency audio to the LFE channel.
5. Click **OK**.

   The track headers and Master Bus window switch to 5.1 surround mode.

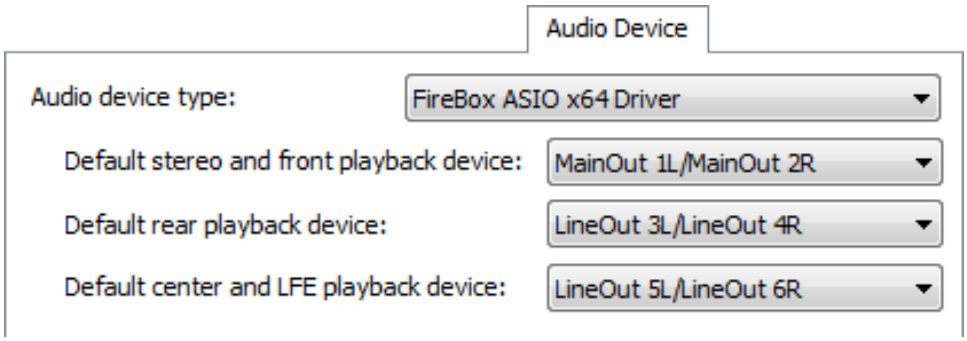
Routing the master bus outputs

When you're working in 5.1 surround mode, you'll need to indicate where to send the output from your 5.1-channel mix.

Setting your default routing

Use the Audio Device tab of the Preferences dialog to set default routing for 5.1 surround projects.For more information, see "Preferences - Audio Device Tab" on page 545

1. From the Options menu, choose **Preferences**. The Preferences dialog is displayed.
2. Select the Audio Device tab.



3. Choose a device from the **Audio device type** drop-down list. Choose a device type other than the Microsoft Sound Mapper if you want to choose specific devices for playing each of the three stereo pairs.

   Please refer to your sound card's documentation to determine the type of driver you need to use for surround output.

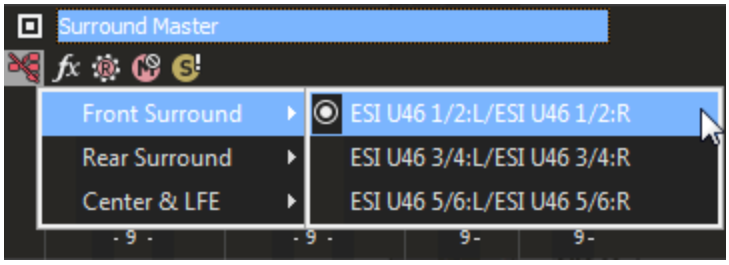
4. From the **Default Stereo and Front playback device** drop-down list, choose the device where your front speakers are connected.
5. From the **Default Rear playback device** drop-down list, choose the device where your rear speakers are connected.
6. From the **Default Center and LFE playback device** drop-down list, choose the device where your center speaker and subwoofer are connected.

Overriding default device routing

You can override the default device routing at any time using the **Audio Device Selector** button on the Surround Master control.

Please refer to your sound card's documentation to determine the type of driver you need to use for surround output.

1. Open the Master Bus window.
2. Click the **Audio Device Selector** button, choose a channel from the menu, and choose an output device from the submenu.



3. Repeat step 2 for each pair of channels.

Connecting your amplifier and speakers

Using a 5.1-compatible sound card

- Connect powered speakers to your sound card's outputs as indicated by your sound card's documentation.
- Connect your sound card's front, rear, and center/subwoofer outputs to the appropriate inputs on a 6-channel amplifier/home theater receiver. Connect front, rear, center, and LFE speakers to the amplifier.

Using a sound card with three stereo outputs

- Connect powered speakers to your sound card's outputs where you have routed each of the pairs of channels. The left channel of the Center/LFE pair is the center channel; the right channel is the LFE channel.
- Connect your sound card's outputs to the appropriate inputs on a 6-channel amplifier/home theater receiver. Connect front, rear, center, and LFE speakers to the amplifier.

The audio cables you'll need will depend on your specific hardware. For a typical application, you'll need three cables: each will have a 3.5 mm stereo plug on one end and dual RCA connectors on the other.

Using three stereo sound cards

- Connect powered speakers to your sound cards' outputs where you have routed each of the pairs of channels. The left channel of the Center/LFE pair is the center channel; the right channel is the LFE channel.
- Connect your sound cards' outputs to the appropriate inputs on a 6-channel amplifier/home theater receiver. Connect front, rear, center, and LFE speakers to the amplifier.

Multiple sound card setups may not work with ASIO drivers. You can only use a single ASIO driver at a time, and some ASIO drivers can conflict with other audio driver models (such as WDM and wave drivers).

The audio cables you'll need will depend on your specific hardware. For a typical application, you'll need three cables: each will have a 3.5 mm stereo plug on one end and dual RCA connectors on the other.

5.1 surround panning and mixing

After you've set up your project for 5.1 surround mixing, the track headers and Mixing Console switch to 5.1 surround mode, and you're ready to start panning.

Choose **View** > **Window** > **Surround Panner** to toggle the display of the Surround Panner window. Use the Surround Panner window to pan tracks, busses, and assignable effects chains.

If you have a joystick, you can use it to control surround panning. A force-feedback joystick such as the Microsoft® SideWinder® Force Feedback 2 joystick can add a tactile element to your editing sessions.For more information, see "Using a joystick for panning, adjusting controls, and color correction" on page 515

Only the Surround Master bus accepts 5.1 channel inputs. If you assign a track to another bus, the Mixing Console will send a stereo output to the bus, and you can perform surround panning at the bus level.

When you apply effects to a 5.1 surround project, you can use distinct plug-in settings for each channel (separate EQ settings for the front and surround speakers, for example) using effect automation. For more information, see "Automating audio effect parameters" on page 242 Add multiple instances of the plug-in to the track effects chain and select the **Enable** *check boxes in the FX Automation Chooser for the channels you want each instance of the plug-in to affect.*

Surround panning is not available for tracks or busses that are routed to a hardware output.

Muting or soloing channels

Muting a channel ensures that no audio will be played through that channel. For example, you could mute the center channel if you want to produce a stereo image at the center listening position, or you might want to solo the center channel when you're working with dialogue.

1. Double-click the surround panner  on the track or bus you want to pan. The Surround Panner window is displayed.
2. Click the speaker icons to mute or include channels.

   Hold Ctrl while clicking a speaker icon to solo the channel.

Adjusting volume and send levels

Adjusting track volume

You can adjust track volume using the **Vol** fader in the track header the same way you do in stereo projects.

The fader in the track header can function as a trim control that adjusts the overall volume of the track, or it can adjust track volume automation settings.

The trim level is added to the volume automation settings so your envelope is preserved, but with a boost or cut applied. For example, setting the trim control to -3 dB has the same effect as decreasing every envelope point by 3 dB.

Deselect the **Automation Settings** button  in the track header if you want to adjust trim levels, or select the button if you want to adjust volume automation.

Adjusting assignable effects send or bus send levels

You can adjust send levels for busses or assignable effects chains using the multipurpose fader in the track header the same way you do in stereo projects. Click the fader label and choose an assignable effects chain or bus from the menu. The fader in the track header can function as a trim control that adjusts the overall send level of the track, or it can adjust send level automation settings.

Deselect the **Automation Settings** button  in the track header if you want to adjust trim levels, or select the button if you want to adjust volume automation.

Adjusting channel levels

Use the Surround Master bus control in the Master Bus window to adjust the individual levels of the 5.1 channels. The faders in the Surround Master bus control can function as trim controls that adjust the overall level of each channel, or you can automate the master volume of the Surround Master bus (individual channel levels cannot be automated).

Deselect the **Automation Settings** button in the track header if you want to adjust trim levels, or select the button if you want to adjust volume automation.

Adjusting the center channel volume

Adjusting the volume of the center channel can help emphasize dialogue or balance the mix. You can adjust the center channel volume trim level or automation settings.

The trim level is added to surround panning keyframes so your keyframe settings are preserved, but with a boost or cut applied. For example, setting the trim control to -3 dB has the same effect as decreasing the center channel level by 3 dB in every keyframe.

Adjusting the center channel trim level

1. Deselect the **Automation Settings** button on the track or bus you want to adjust.
2. Double-click the surround panner on the track. The Surround Panner window is displayed.
3. Drag the **Center** fader to boost or attenuate the volume of the center channel. When the fader is set to 0.0 dB, no gain is applied.

   The **Center** *fader is not displayed if the center channel is muted. Click the center channel icon to unmute the channel.*

Automating the center channel level with keyframes

1. Select the **Automation Settings** button on the track or bus you want to adjust.
2. Double-click the surround panner on the track. The Surround Panner window is displayed.
3. Select a keyframe to adjust its center channel level or click to position the cursor where you want to create a new keyframe.
4. Drag the **Center** fader to boost or attenuate the volume of the center channel. When the fader is set to 0.0 dB, no gain is applied. The fader thumb is displayed as a in automation mode.

   The **Center** *fader is not displayed if the center channel is muted. Click the center channel icon to unmute the channel.*

Panning a track or bus

You can perform surround panning in two ways:

- Pan tracks individually using the Surround Panner window.
- Route tracks to channel strips in the Mixing Console (busses or assignable effect chains) and pan the channel strips using the Surround Panner window. For more information, see "Assigning tracks to busses" on page 306 From the View menu, choose **Show Bus Tracks** to display bus tracks at the bottom of the track view.

  When a track is routed to a bus other than the surround master, you can use the **Pan** slider on the track header to adjust the stereo track's contribution to the surround panner on the bus.

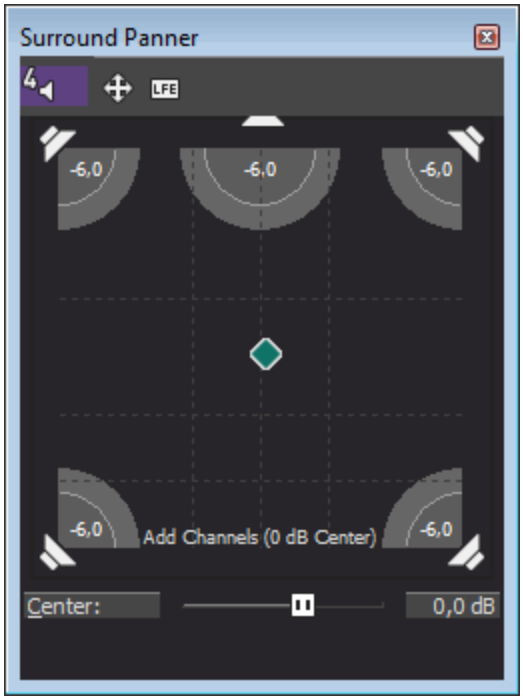
The surround panner can function as a trim control that adjusts the overall panning of the track, or it can adjust track panning automation settings. Click the **Automation Settings** button in the track or bus and select **Automation Settings** to adjust surround panning keyframes, or deselect the command to adjust trim levels. The trim level is added to the pan automation settings so your keyframes are preserved, but with a boost or cut applied. For example, setting the trim control to -9% left has the same effect as moving every keyframe 9% to the left.

Panning controls can adjust automation (dynamic) settings, or they can function as trim (nonautomated) controls. If your automation is not behaving as expected, you may have applied a trim value that is offsetting your automation settings.

When the surround panner is set to adjust trim levels, it is displayed as a . When it is set to adjust automation levels, it is displayed as a .

Adjusting panning trim levels

1. Deselect the **Automation Settings** button in the track or bus.
2. Double-click the surround panner on the track or bus to display the Surround Panner window:



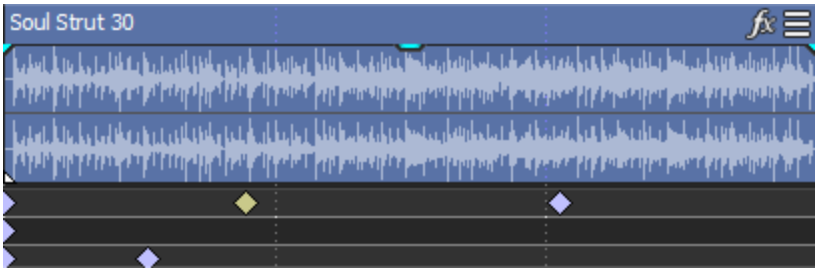
3. Drag the pan point in the Surround Panner window to position the sound within the sound field. Shading is drawn to indicate the output from each channel.

- Double-click the pan point to reset it to the front-center listening position.
- Double-click in the Surround Panner window to move the pan point to the point you click.
- To constrain the motion of the pan point, click the button to toggle through **Move freely**, **Move left/right only** and **Move front/back only** modes.

You can also use the track surround panner in the track header to pan your track. Keyboard and mouse shortcuts can help you position the pan point quickly and accurately. For more information, see *"Keyboard shortcuts" on page 563*

Automating panning with keyframes

You can automate panning by adding keyframes. Keyframes are similar to envelope points in that they mark specific locations in the track where settings change. However, unlike envelope points, keyframes are displayed below a track:



Notes:

- Use bus tracks to add panning keyframes to busses. From the View menu, choose **Show Bus Tracks** to display bus tracks at the bottom of the track view. For more information, see "Audio bus tracks" on page 229
- Center-channel gain cannot be automated.
- Muting and soloing channels cannot be automated.

1. Select the track (or bus track) you want to pan.
2. Select the **Automation Settings** button in the track or bus.
3. From the Insert menu, choose **Audio Envelopes**, and then choose **Surround Pan Keyframes** from the submenu. An additional row appears below the track with a single keyframe positioned at the beginning of the project. This keyframe represents the current panning settings for the track.

   To hide panning keyframes without removing them from your project, choose **Show Audio Envelopes** *from the View menu, and then choose* **Surround Pan Keyframes** *from the submenu.*
4. Click to position the cursor where you want to begin panning the track.
5. Pan your track:

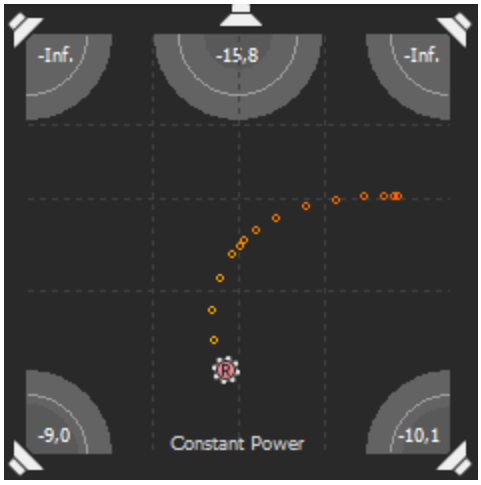
a. Double-click the surround panner on the track or bus to display the Surround Panner window:



b. Drag the pan point in the Surround Panner window to position the sound within the sound field. Shading is drawn to indicate the output from each channel, and a keyframe is added below the track.
   - Double-click the pan point to reset it to the front-center listening position.
   - Double-click in the Surround Panner window to move the pan point to the point you click.
   - To constrain the motion of the pan point, click the button to toggle through **Move freely**, **Move left/right only** and **Move front/back only** modes.

You can also use the surround panner in the track header to pan your track. Keyboard and mouse shortcuts can help you position the pan point quickly and accurately. For more information, see *"Keyboard shortcuts" on page 563*

6. Repeat steps 4 and 5 to add as many panning keyframes as necessary. The Surround Panner window draws the panning path:



7. If you have two or more keyframes, you can drag the **Smoothness** slider to adjust the interpolation curve between them. Adjusting the curve affects perceived motion of sound within the sound field: a setting of 0 produces linear motion from one keyframe to the next. Increasing the setting produces a curved path.

   If you want to adjust temporal interpolation how the pan occurs over time right-click a keyframe and choose a new keyframe type from the shortcut menu.

Adjusting panning keyframes

If you automated panning for a track or bus, a keyframe is displayed in the timeline (directly below the track) for each pan setting. You can move, copy, and change fade types from the timeline.

Panning controls can adjust automation (dynamic) settings, or they can function as trim (nonautomated) controls. If your automation is not behaving as expected, you may have applied a trim value that is offsetting your automation settings.

When the surround panner is set to adjust trim levels, it is displayed as a  . When it is set to adjust automation levels, it is displayed as a  .

Editing a keyframe

1. Double-click a keyframe to open the Surround Panner window.
2. Drag the pan point to position the sound within the sound field.
3. Adjust the **Smoothness** slider as necessary to adjust the curve between keyframes.



You can also edit a keyframe by selecting the keyframe and dragging the pan point in the track or bus surround panner.

Adding keyframes

Double-click in the keyframe bar to add a keyframe to the timeline. The new keyframe will use the same settings and interpolation curve as the previous keyframe.

Deleting keyframes

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

Moving keyframes

Drag the keyframe to a new position on the timeline.

Copy keyframes

Hold Ctrl while dragging a keyframe to copy it.

Change the fade curve between keyframes

If you want to adjust temporal interpolation–how the pan occurs over time–right-click a keyframe and choose a new keyframe type from the shortcut menu.

If you want to adjust the perceived motion of sound within the sound field, drag the **Smoothness** slider to adjust the interpolation curve between keyframes. a **Smoothness** setting of 0 simulates linear motion from one keyframe to the next. Increasing the setting produces a curved path.

Command	Description	Looks Like
Linear	Panning is interpolated in a linear path.	
Fast	Panning is interpolated in a fast logarithmic path.	
Slow	Panning is interpolated in a slow logarithmic path.	
Smooth	Panning is interpolated along a smooth, natural curve.	
Sharp	Panning is interpolated along a sharp curve.	
Hold	No interpolation will take place. The keyframe's settings will be maintained until the next keyframe.	

Routing audio to the low-frequency effects (LFE) channel

Perform either of the following actions to send audio to the low-frequency effects (LFE) channel:

- Click the LFE button in the Surround Panner window to switch to LFE mode.
- Right-click the surround panner on the track or Mixing Console channel strip and choose **LFE Only** from the shortcut menu.

To return to normal surround panning, click the LFE button in the Surround Panner window again or right-click the surround panner and choose **Surround Pan** from the shortcut menu.

Select the **Enable low-pass filter on LFE** *check box on the Audio tab of the Project Properties dialog if you want to apply a low-pass filter to each track or bus that is assigned to the LFE channel. Enter a frequency in the* **Cutoff frequency for low-pass filter** *box to set the frequency above which audio will be ignored by the LFE channel, and choose a setting from the* **Low-pass filter quality** *drop-down list to determine the sharpness of filter's rolloff curve.* **Best** *produces the sharpest curve. For more information, see* *"Setting project properties" on page 41*

Applying a low-pass filter approximates the bass-management system in a 5.1 decoder and ensures that you're sending only low-frequency audio to the LFE channel.

Before rendering your surround project, check your surround authoring application's documentation to determine its required audio format. Some encoders require a specific low-pass filter cutoff frequency and rolloff, and your encoder may require that no filter be applied before encoding.

Changing the pan mode

Right-click within the Surround Panner window (or right-click a surround panner on a track or bus), choose **Pan Type** from the shortcut menu, and then choose a pan type from the submenu. For more information about panning modes, see "Audio panning modes" on the facing page

The selected panning mode is also used for surround panning keyframes.

Using the grid to monitor panning

The grid in the Surround Panner window provides a visual indication of how your panning will sound. The grid

spacing changes to match the current panning mode.

The vertical lines represent the points where the left-to-right signal ratio is 6 dB, 0 dB, and -6 dB respectively: at the far-left line, the left channel is 6.0 dB louder than the right channel.

The horizontal lines represent the points where the front-to-rear signal ratio is 6 dB, 0 dB, and -6 dB respectively. As you adjust the **Center** fader, the lines will move forward or back to compensate for the center-channel gain.

The grid assumes that you're using a correctly set-up surround system (matched speakers and ideal positioning). Variations in your monitoring system will cause inconsistencies between the graph and perceived output.

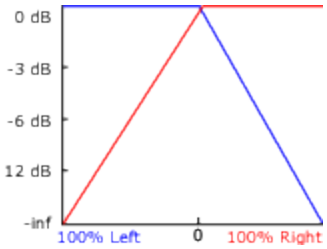
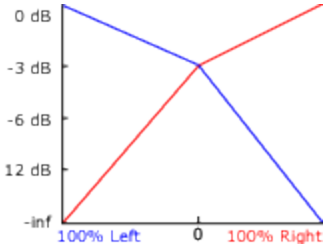
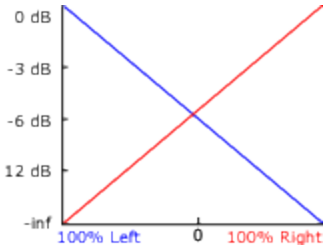
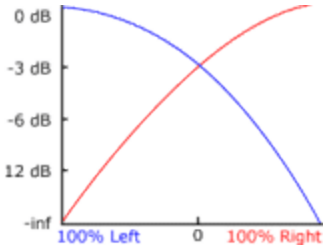
Audio panning modes

When you pan stereo audio tracks, 5.1 surround tracks, or busses, you can right-click the fader handle (or surround panner) and choose a pan type to change the panning model.

If you want to set the default pan type for new tracks, set a track's pan type, and then use the Set Default Track Properties dialog to set that track's pan type as the default. For more information, see "Setting default track properties" on page 233

The selected panning mode is also used for track-level pan envelopes. For more information, see "Audio track automation" on page 236

Mode	Description
Add Channels	This mode is most useful for panning stereo files. As you pan across the stereo field, the stereo image appears to move across the speakers. As you pan toward either side, the signal from the opposite channel is added to the channel you are panning toward until at the extreme both channels are sent to a single channel at full volume. This mode uses a linear panning curve. *You can introduce clipping when channels are added. Monitor the meters in the Master Bus window and adjust the track volume accordingly.*
Balance (0 dB center) **Balance (-3 dB center)** **Balance (-6 dB center)**	In a stereo project, this mode can help you adjust the relative signal levels of the channels in stereo source material. As you pan from the center to either side, the opposite channel begins at the specified center value (0 dB -3 dB, or -6 dB), and decays to -infinity. The signal in the side you are panning toward progresses from the specified center value (0 dB -3 dB, or -6 dB) to 0 dB. This panning mode uses a linear panning curve. For example, when you pan fully right, the right channel is played at 0 dB and the left channel is not audible. As you pan to the center, each channel is attenuated to the specified center value (0 dB -3 dB, or -6 dB). As you pan to the left, the left channel is played at 0 dB, and the right channel is not audible.

Mode	Description
	 With the **Balance (0 dB center)** setting, no gain or cut is applied when you're panned to the center, which can make the center seem louder.  With the **Balance (-3 dB center)** setting, a -3 dB cut is applied when you're panned to the center.  Panning in a 5.1 surround project follows the same rules: as you pan from the center to any channel in a 5.1 surround project, the signal in the channel you are panning toward progresses from the specified center value to 0 dB. The signal in the channel you are panning away from begins at the specified center value and decays to -infinity.
Constant Power	This mode is most useful for panning monaural source material. In this mode, sound will maintain its volume when you pan across channels. If you pan a stereo file **100% R**, only the right channel of your media file is played, and this channel is sent to both output channels. If you continue to pan to the left, the left channel is gradually added to the output, and the right channel is gradually faded out until only the left channel will be heard through both output channels when the slider is at **100% L**.  If you pan a file fully right midway between the front and rear

Mode	Description
	channels in a 5.1 surround project, only the right channel of your media file is played, and this channel is sent to the right-front and -rear output channels. If you pan to the left, the left channel is gradually added to the output, and the right channel is gradually faded out until only the left channel is sent to the left-front and -rear output channels.
Film	This mode allows you to pan between pairs of adjacent speakers in 5.1 surround projects using a constant power model. This mode is optimized for theater-style speaker placement. In stereo projects, Film mode functions identically to Constant Power. As you drag the pan point to the center speaker, the sound becomes diffused through the front and rear speakers. When the track is panned fully to the center speaker, there is no output from the front and rear speakers. Dragging the pan point to the center of the surround panner sends the signal to all speakers. If you're panning fully to a single speaker, you may notice that some signal is mixed to the opposite speaker. This is because the ideal placement for surround speakers does not match the representation in the surround panner. For example, panning to the front-left speaker produces a low-level signal in the rear-left speaker. This is because your front-left speaker should be positioned 30° left of center and the speaker in the surround panner is located 45° left of center. To produce a true 45° left-of-center pan, the signal is panned between the front- and rear-left speaker.

Rendering your 5.1 surround project

Rendering a surround project creates six mono files (AIFF, ATRAC, WAV/W64, or PCA) or a single 5.1-channel file (AC-3, WAV/W64, WMA, and WMV) that your authoring application can use to create DVD-Video or 5.1-channel music projects.

Before rendering your surround project, check your surround authoring application's documentation to determine its required audio format. Some encoders require a specific low-pass filter cutoff frequency and rolloff, and your encoder may require that no filter be applied before encoding. Use the Audio tab of the Project Properties dialog to configure a low-pass filter.

1. From the File menu, choose **Render As** to display the Render As dialog.
2. In the **Folder** box, choose the folder and file name you want to use to save your file.
3. Use the **Name** box to give the file a name.
4. In the **Templates** box, choose the multiple mono template, or choose an appropriate 5.1-channel template if the selected file type supports it.

Tips:

- When you render a 5.1 surround project to AIFF (.aif), Perfect Clarity Audio (.pca), Wave64 (.w64), or Wave (.wav) formats, you can save each of the surround master busses to a separate file by choosing the multiple mono setting from the **Template** drop-down list. For example, if you'd typed *My Film.wav* in the **File name** box, the following files would be rendered: *My Film Right.wav*, *My Film Right Surround.wav*, *My Film LFE.wav*, *My Film Left.wav*, *My Film Left Surround.wav*, and *My Film Center.wav*. For more information, see "5.1 surround projects" on page 397
- When you render a 5.1 surround project to WAV or WAV64 format using the **48,000 Hz, 16 Bit, 5.1, PCM** or **48,000 Hz, 32 Bit, 5.1, PCM** template, you can create a single 5.1 channel file. The rendered file contains channel-mapping information so that VEGAS Pro will preserve surround panning information when adding these files to 5.1 surround projects.

  Legacy Vegas applications (and third-party applications) may not be able to read these 5.1-channel files. In this case, you can render a single six-channel file by selecting the **Enable multichannel mapping** check box and creating a channel mapping using the Surround Master outputs.

  For more information about rendering multichannel audio and setting up multichannel mapping, please see "Rendering Multichannel Audio Files" on page 473

5. Select the **Render loop region only** check box if you want to save only the portion of the project that is contained within the Loop Region. **Loop Playback** does not need to be selected for this option to work.

   The check box is available only if you've created a time selection in the timeline.
6. If the selected file type supports it, you can select the **Save project markers with media file** check box to include markers, regions, and command markers in the rendered media file. If the information cannot be saved in your media file, it will create an .sfl file (using the same base name as your media file).
7. Click the **Render** button. A dialog is displayed to show rendering progress.

   When rendering is complete, click the **Open** button to play the file with its associated player, or click **Open Folder** to open the folder where you saved the file.

Exporting a VEGAS Pro project to DVD Architect

If you have DVD Architect software, you can avoid unnecessary transcoding or recompression by rendering your media files in the appropriate formats prior adding them to your DVD Architect project.

Render your audio and video separately using templates that match the required file formats for DVD or Blu-ray Disc. For more information, see "Rendering Projects for Use in DVD Architect" on page 477 and "Media File Settings for Blu-ray Disc Projects" on page 478

Should I use AC-3 or PCM audio on my DVDs?

For stereo material, you can use either AC-3 or PCM audio. Your needs will vary depending on your project, but consider the following points:

- PCM audio is uncompressed and offers higher sound quality.
- AC-3 audio is compressed and will use less space on your DVD.

If you want to use 5.1 surround audio, you must use AC-3.

Closed Captioning

VEGAS® Pro software supports adding closed captions to video files and rendering those files as XDCAM HD and XDCAM HD422 MXF files. You can also add captions to video files and render as Windows Media Video for use in Windows Media Player.

*Another way to add subtitles to your video is to create text events from *.txt or *.csv files by using* **Insert Subtitles from File** *from the* **Insert** *menu.*

Adding closed captioning to video files

Closed captions help make your video productions accessible to a wider audience. Closed captions are widely used by viewers who are deaf or hard of hearing, those who are learning to read, or who are learning a second language.

Closed captions can be turned on or off by the viewer (unlike open captions, which are always displayed). Closed captions display spoken dialogue and sound effects as on-screen text.

Notes:

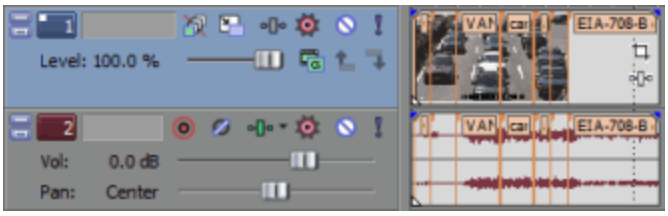
- VEGAS Pro supports CEA608 captions and CEA708 containers containing CEA608 captions.
- When rendering to XDCAM HD/HD422, CEA608 data is uplifted to CEA708 format so that CEA608 and CEA708 captions are available when playing via HD SDI. CEA608 CC1 is uplifted to CEA708 Service 1, and CEA608 CC3 is uplifted to CEA708 Service 2. Please note that caption positions can be slightly different after uplifting to CEA708.
- When you render to a format that does not support embedded captioning markers, an .SCC file is created using the base name of the rendered media file.

Importing or rendering closed captions in an MXF or MPEG-2 file

Importing captions

VEGAS Pro supports closed captioning embedded in XDCAM HD/XDCAM HD422 MXF and MPEG-2 files. ATSC and SCTE formats are supported when reading captions in MPEG-2 files.

When you add media to the timeline or Trimmer, embedded captioning markers are displayed as media markers:



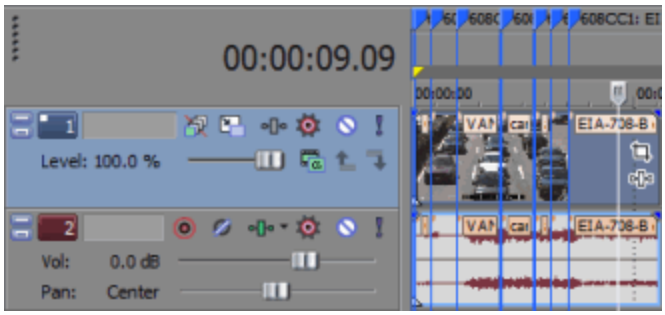
Markers are aligned with the start of captioning for paint-on captions or with the display time for pop-up style captions.

When the captioning markers are read, VEGAS Pro creates an .SCC file in the media file's folder using the same base name as the media file. The .SCC file is used when you use the media in the future so the application doesn't need to scan the media again.

When you're finished editing your project, you can promote the embedded captioning markers to the timeline:

1. Select events with captions.
2. From the Tools menu, choose **Scripting**, and then choose **Promote Media Closed Captioning**.

   The markers appear as command markers on the timeline, and you can move and edit the markers as needed:



Rendering captions

You can export captions in rendered media and in standalone .SCC files.

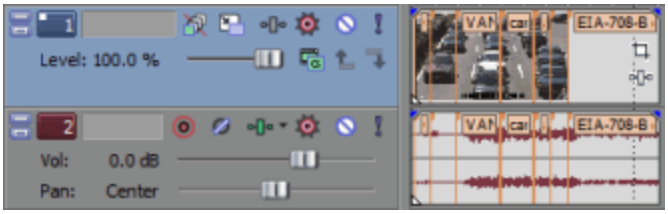
- When you render to XDCAM HD/XDCAM HD422 MXF formats, captioning markers are embedded in the media file. An .SCC file is also created using the base name of the rendered media file.
- When you render to MPEG-2 format, captioning markers are encoded in ATSC format.
- When you render to a format that does not support embedded captioning markers, an .SCC file is created using the base name of the rendered media file.

Importing or rendering Line 21 closed captions

Importing Line 21 captions

VEGAS Pro reads embedded Line 21 captions when you import a media file with a frame size of 720x486 pixels (or taller) and a frame rate of 29.97 fps.

When you add media to the timeline or Trimmer, embedded captioning markers are displayed as media markers:

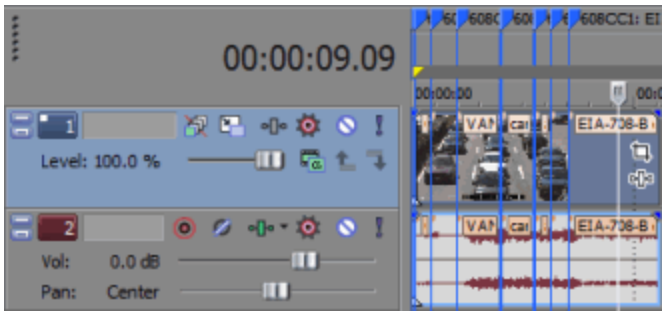


Markers are aligned with the start of captioning for paint-on captions or with the display time for pop-up style captions.

When the captioning markers are read, VEGAS Pro creates an .SCC file in the media file's folder using the same base name as the media file. The .SCC file is used when you use the media in the future so the application doesn't need to scan the media again.

When you're finished editing your project, you can promote the embedded captioning markers to the timeline:

1. Select events with captions.
2. From the Tools menu, choose **Scripting**, and then choose **Promote Media Closed Captioning**.
   The markers appear as command markers on the timeline, and you can move and edit the markers as needed:



Rendering Line 21 captions

Line 21 captions are supported during rendering when using a frame size of 720x486 pixels (or taller) and a frame rate of 29.97 fps.

Please note that encoding line 21 captions for DVD is not supported. MPEG-2 video for DVD cannot exceed 480 lines of resolution. DVD line 21 captions are embedded as metadata in the MPEG-2 video stream and are not supported.

Importing or printing captions when using HD SDI

Importing closed captions over HD SDI

VEGAS Pro reads embedded VANC closed captioning when capturing video over HD SDI.

- During capture, VEGAS Pro creates an .SCC file in the media file's folder using the same base name as the captured file.
- If capturing to XDCAM HD422 format, closed captions are also embedded in the captured file.

For more information, see "Capturing from an SDI card" on page 104

Printing closed captions to tape over HD SDI

When you print to tape over HD SDI, closed captions are included as VANC data. For more information, see "Printing video to tape from the timeline" on page 461

Importing closed captions from a closed captioning file

If your media does not contain embedded captioning markers, you can import markers from an external file. The following file types are supported:

- Scenarist Closed Caption (.SCC)
  If an .scc file matches the media file name, the captions will be read automatically when you load a file.
  For example, if your video file is wildflowers.avi, naming your captioning file wildflowers.avi.scc will allow VEGAS Pro to read the captions automatically.
- RealPlayer Captioning Files (.RT)
- SubRip Subtitles (.SRT)

- Windows Media Player Captioning Files (.SMI)
- Transcript or QuickTime Captioning Files (.TXT)
- CPC MacCaption Files (.MCC)

  If an .mcc file does not contain CEA608 captions, its CEA708 captions will be converted to CEA608 pop-up captions. Service 1 captions will be imported as 608CC1 captions, and Service 2 captions will be imported as 608CC3 captions.

- DVD Architect Subtitles (.SUB)

1. From the File menu, choose **Import**, and then choose **Closed Captioning** from the submenu.
2. In the Open dialog, browse to the file you want to use and click **Open**.

   The markers appear as command markers on the timeline, and you can move and edit the markers as needed.

   Captioning markers will be placed according to the timecode in the captioning file. If needed, you can adjust marker positions by applying a timeline ruler offset before importing the closed captioning. For more information, see "Time ruler" on page 524

Synchronizing captions with video

After you import captions, you may need to adjust timing to synchronize the markers with your video.

1. Use the procedure described earlier in this help topic to import captions.
2. Position your video events as desired in the timeline.
3. Choose **View** > **Window** > **Edit Details** to display the Edit Details window.
4. From the **Show** drop-down list, choose **Commands**. Your captioning commands are now displayed in the Edit Details window.
5. In the timeline, position the cursor where you want to start inserting captions.
6. Select a row in the Edit Details list to select the first caption you want to insert.
7. Click the **Play** button  to start playback.
8. When you're ready to insert your first caption, press Ctrl+K. The first caption is inserted at the cursor position, the **Position** setting is updated, and the next caption is selected.
9. Press Ctrl+K to insert each subsequent caption.

Adding or editing closed caption markers on the timeline

You can edit closed caption markers on the timeline to adjust caption start times, delete caption markers, edit their contents, or add new markers.

- To add a new marker, click to position the cursor on the timeline and then choose **Command** from the Insert menu (or press C).

  To create a pop-on caption quickly, type your caption text in the **Comment** *box in the Command Properties dialog. Caption markup is added automatically. You can use [BR] to indicate a line break.*

- To move a marker, drag the marker tag on the timeline.
- To delete a marker, right-click it and choose **Delete** from the shortcut menu.
- To edit a marker, double-click the marker tag.

Use the Command Properties dialog to edit the marker.

Item	Description
Command	Choose **608CC1** for primary-language captions.

Item	Description
	Choose **608CC3** for secondary-language captions. *Notes:* • VEGAS Pro also supports 608CC2 and 608CC4 commands for the CC2/CC4 channels. • When rendering to XDCAM HD/HD422, CEA608 data is uplifted to CEA708 format so that CEA608 and CEA708 captions are available when playing via HD SDI. CEA608 CC1 is uplifted to CEA708 Service 1, and CEA608 CC3 is uplifted to CEA708 Service 2.
Parameter	Displays the marker's captioning text. [BR] indicates a line break.
Comment	Type closed caption control commands here. Commands must conform to standard caption markup, and command strings are case and space sensitive. For more information about captioning markup, please see "Captioning markup and examples" in this help topic. *You can use your keyboard to create standard text and punctuation. To insert special characters and punctuation, use the Character Map (***Start > All Programs > Accessories > System Tools > Character Map***)* For minor edits, you can ignore the markup and edit the displayed text. If you change the length of the text, be aware of the following: {R14In00Wh} means Row 14, Indent 00, White text. Row (two digits) ranges from 01 to 15. Indent (two digits) ranges from 00 to 28 but only in multiples of 4. {TabOff1} means Tab offset 1. Possible values (one digit) are 1, 2, or 3. *For each row, indent (In) plus tab offset (TabOff) plus the number of content characters cannot exceed 32.*
Position	Type the time you want the command to occur in your project.

Captioning markup reference and examples

Pop-On Caption

A pop-on caption is displayed on the screen as a single element and is cleared or replaced with a new caption. Pop-on captions are most often used for prerecorded captioning.

{RCL}{ENM}{R14In00Wh}{TabOff1}First Row{R15In00Wh}{TabOff1}Second Row{EDM}{EOC}

If you type captioning text in the **Comment** *box of the Command Properties dialog and do not specify captioning markup, a pop-on caption is created. You can use [BR] to indicate a line break. Please note that each row is limited to 32 characters.*

Roll-Up Caption

A roll-up caption scrolls onto and off the screen two or three lines at a time and is most often used for live captioning.

{RU2}{CR}{R15In00Wh}{TabOff1}First Row

–or–

{RU3}{CR}{R14In00Wh}{TabOff1}First Row{R15In00Wh}{TabOff1}Second Row

–or–

{RU4}{CR}{R13In00Wh}{TabOff1}First Row{R14In00Wh}{TabOff1}Second Row{R15In00Wh}{TabOff1}Third Row

Paint-On Caption

A paint-on caption appears on screen one letter at a time and displayed like a pop-on caption. Paint-in captions are most often used at the beginning of a program.

{RDC}{R14In04Wh}{TabOff3}First Row{R15In04Wh}{TabOff3}Second Row

Captioning Markup

Caption Markup	Description	Usage Notes
{RCL}	Resume Caption Loading	Starts a pop-on caption.
{RDC}	Resume Direct Captioning	Starts a paint-in caption.
{RU2}	Roll-Up Captions-2 Rows	Starts a two-line roll-up caption.
{RU3}	Roll-Up Captions-3 Rows	Starts a three-line roll-up caption.
{RU4}	Roll-Up Captions-4 Rows	Starts a four-line roll-up caption.
{EDM}	Erase Displayed Memory	Cleans the display. Required to remove roll-up and paint-on captions from the screen.
{ENM}	Erase Nondisplayed Memory	Cleans buffered captions from memory.
{EOC}	End of Caption	In pop-up captions, EOC ends the current caption and displays the next caption.
{FlashOn}	Flash On	Causes the caption to blink until new foreground attributes are set.
{TabOff1}	Tab Offset 1	For each row, indent (In) plus tab offset (TabOff) plus the number of content characters cannot exceed 32.
{TabOff2}	Tab Offset 2	
{TabOff3}	Tab Offset 3	
{Backspace}	Backspace	Used for live captioning.
{DelEndRow}	Delete to End of Row	Used for live captioning.
{CR}	Carriage Return	
{R*yy*Wh}	Row *yy* [00 to 15], White Text	

Caption Markup	Description	Usage Notes
{R*yy*WhU}	Row *yy* [00 to 15], White Underlined	
{R*yy*Gr}	Row *yy* [00 to 15], Green Text	
{R*yy*GrU}	Row *yy* [00 to 15], Green Underlined	
{R*yy*Bl}	Row *yy* [00 to 15], Blue Text	
{R*yy*BlU}	Row *yy* [00 to 15], Blue Underlined	
{R*yyCy*}	Row *yy* [00 to 15], Cyan Text	
{R*yy*CyU}	Row *yy* [00 to 15], Cyan Underlined	
{R*yy*Rd}	Row *yy* [00 to 15], Red Text	
{R*yy*RdU}	Row *yy* [00 to 15], Red Underlined	
{R*yy*Yl}	Row *yy* [00 to 15], Yellow Text	
{R*yy*YlU}	Row *yy* [00 to 15], Yellow Underlined	
{R*yy*Ma}	Row *yy* [00 to 15], Magenta Text	
{R*yy*MaU}	Row *yy* [00 to 15], Magenta Underlined	
{R*yy*Whl}	Row *yy* [00 to 15], White Italics	
{R*yy*WhlU}	Row *yy* [00 to 15], White Italics Underlined	
{R*yy*In*xx*Wh}	Row *yy* [00 to 15], Indent *xx* [00|04|08|12|16|20|24|28], White Text	For each row, indent (In) plus tab offset (TabOff) plus the number of content characters cannot exceed 32.
{R *yy*In*xx*WhU}	Row *yy* [00 to 15], Indent xx [00|04|08|12|16|20|24|28], White Underlined	
{WhTxt}	White Text	
{WhUTxt}	White Underlined	
{GrTxt}	Green Text	
{GrUTxt}	Green Underlined	

www.vegascreativesoftware.com

Caption Markup	Description	Usage Notes
{BlTxt}	Blue Text	
{BlUTxt}	Blue Underlined	
{CyTxt}	Cyan Text	
{CyUTxt}	Cyan Underlined	
{RdTxt}	Red Text	
{RdUTxt}	Red Underlined	
{YlTxt}	Yellow Text	
{YlUTxt}	Yellow Underlined	
{MaTxt}	Magenta Text	
{MaUTxt}	Magenta Underlined	
{ITxt}	Italicized Text	
{IUTxt}	Italicized Underlined	
{BgWh}	Background White	
{BgWhSemi}	Background Semitransparent White	
{BgGr}	Background Green	
{BgGrSemi}	Background Semitransparent Green	
{BgBl}	Background Blue	
{BgBlSemi}	Background Semitransparent Blue	
{BgCy}	Background Cyan	
{BgCySemi}	Background Semitransparent Cyan	
{BgRd}	Background Red	
{BgRdSemi}	Background Semitransparent Red	
{BgYl}	Background Yellow	
{BgYlSemi}	Background Semitransparent Yellow	
{BgMa}	Background Magenta	
{BgMaSemi}	Background Semitransparent Magenta	
{BgBlk}	Background Black	
{BgBlkSemi}	Background Semitransparent Black	
{BgTran}	Background Transparent	
{BlkTxt}	Black Text	
{BlkUTxt}	Black Underlined	

Caption Markup	Description	Usage Notes
{StdCharSet}	Standard Character Set	You can use the character set commands to switch between character sets in your captions. For example, if you needed to display Korean characters in an English-captioned program, you could use {KORCharSet} to display Korean characters and then use {StdCharSet} to switch back to English captions.
{DSzCharSet}	Double Size Character Set	
{1PCharSet}	First Private Character Set	
{2PCharSet}	Second Private Character Set	
{CHNCharset}	People's Republic of China Character Set	
{KORCharSet}	Korean Character Set	
{1RgCharSet}	First Registered Character Set	
{TH}	Time Holder	Not used when creating new captions. When you're working with existing captions, captioning data can be transferred ahead of the display time, and {TH} can be used to adjust the display time.

Displaying closed captions in the Video Preview or Trimmer window

You can preview your captions by using overlays in the Video Preview window. For more information, see "Using the Video Preview window" on page 423

Overlay settings from the Video Preview window are also applied to the video monitor in the Trimmer window.

1. Click the down arrow next to the **Overlays** button  and choose a setting from the menu to turn on the caption type that you want to preview.
2. Play your project.

Exporting closed captions

Some Webcasting formats require that captions be saved in an external file. After creating your captions, you can export them to several formats.

1. Create and edit your captions as described in this help topic.
2. From the Tools menu, choose **Scripting**, and then choose a command from the submenu:

Item	Description
Export Closed Captioning for DVD Architect	Creates a subtitle (.SUB) file that can be used by DVD Architect software. The .SUB file contains timecode values and text that will be used to create subtitle events in DVD Architect.
Export Closed Captioning for QuickTime	Creates a text (.TXT) and .SMIL file for each subtitle service. The text file contains the captions and formatting, and the .SMIL file contains information that defines how captions will display on the media file. The .SMIL file links to a .MOV file that uses the same base name as your exported captions file by default. You can edit the file to refer to the desired media file name. *If you're using QuickTime Pro, you can create a QuickTime text track to embed captions in your video file.*
Export Closed Captioning for Windows Media Player	Creates a .SMI and .ASX file for each subtitle service. The .SMI file contains the captions and formatting, and the .ASX file contains information that defines how captions will display on the media file. The .ASX file links to a .WMV file that uses the same base name as your exported captions file by default. You can edit the file to refer to the desired media file name.
Export Closed Captioning for YouTube	Creates an .SRT file that can be used for YouTube captions and by some DVD authoring software. For information about adding subtitles to your YouTube videos, please see **http://www.youtube.com/t/captions_about**.

3. Use the Save dialog to specify a file name and folder for your captions file, and then click **Save**.

Editing multiple captions with the Edit Details window

The Edit Details window allows you to see all of your project's captions at once for quick editing. For more information, see "Using the Edit Details Window" on page 178

You can even edit multiple captions at once. For example, if you wanted to change your 608CC1 (primary language) captions to 608CC3 (secondary language), perform the following steps.

1. Choose **View** > **Window** > **Edit Details** to display the Edit Details window if it isn't already visible.
2. In the Edit Details window, choose **Commands** from the **Show** drop-down list. Your closed caption markers are displayed.
3. Select the captions you want to edit:
   a. Hold Shift and click in the **Command** column for the first caption you want to change.
   b. Hold Shift and click in the **Command** column for the last caption you want to change.
   All captions between the first- and last-selected rows are selected.
4. Right-click the **Command** column for any selected caption and choose **Edit** from the shortcut menu.
5. Type a new value in the box – in this case, you'd type 608CC3 – and press Enter.
   All selected captions are changed to 608CC3.

Captioning Windows Media files

Captioning increases the reach of your multimedia productions by making them accessible to a wider audience, and VEGAS Pro makes it easy for you to add captioning.

Adding captioning to a streaming Windows Media Video presentation

1. Arrange your audio and video files on the timeline to create your project.
2. Add a Text command for each line of captioning text:
   a. Position the cursor where you want to add a caption.
   b. From the Insert menu, choose **Command**. The Command Properties dialog is displayed.
   c. From the **Command** drop-down list, choose **Text**.
   d. In the **Parameter** box, enter the captioning text you want to display.
3. Repeat step 2 as necessary.
4. Render your file in Windows Media Video format. For more information, see "Rendering projects (Render As)" on page 469

   The following step is optional. If you choose not to embed the Windows Media Player in a Web page, be sure to instruct your audience to turn on captioning. In Windows Media Player 7 and 8, choose **Now Playing Tools** *from the View menu and choose* **Captions** *from the submenu.*

5. Create an HTML page with the Windows Media player embedded in it.

Entering captioning text from a script

The previous method of entering captions is fine for small projects that contain relatively few captions, but what if you're working with a large project that requires many captions? No problem. You can easily create captioning markers from a spreadsheet or other tab-delimited format.

1. Create a list of each caption you want to insert:
   a. Create a four-column, tab-delimited spreadsheet.
   b. In the first column, enter **00:00:00:00** as a placeholder. The actual time of each caption will be determined later.
   c. In the second column, enter **TEXT** to specify the command type.
   d. In the third column, enter the text that you want to display as a caption.

   Tips:

   - If you have a script, you can copy the information from the script and paste it into your spreadsheet. Each line should be pasted to its own cell.
   - The VEGAS Pro CD includes a template that you can use to create your captions. The file, **Vegas Captioning Shell.txt,** is saved in the Sample Projects folder on the CD. Open this file in

a database program (you can also use a text editor) and add your captions to the third column.

e. In the fourth column, enter a label to identify your captions. An entry such as **Line 01** will help you sort the captions in the Edit Details window.

	A	B	C	D
1	00.00.00.00	TEXT	But, soft! what light through yonder window breaks?	Line 01
2	00.00.00.00	TEXT	It is the east, and Juliet is the sun.	Line 02
3	00.00.00.00	TEXT	Arise, fair sun, and kill the envious moon,	Line 03
4	00.00.00.00	TEXT	Who is already sick and pale with grief,	Line 04
5	00.00.00.00	TEXT	That thou her maid art far more fair than she:	Line 05
6	00.00.00.00	TEXT	Be not her maid, since she is envious;	Line 06
7	00.00.00.00	TEXT	Her vestal livery is but sick and green	Line 07
8	00.00.00.00	TEXT	And none but fools do wear it; cast it off.	Line 08
9	00.00.00.00	TEXT	It is my lady, O, it is my love!	Line 09
10	00.00.00.00	TEXT	O, that she knew she were!	Line 10

2. Select the cells in your spreadsheet and copy them to the clipboard.
3. Switch to the VEGAS Pro window and choose **View** > **Window** >**Edit Details** to display the Edit Details window.
4. From the **Show** drop-down list, choose **Commands**.
5. Click the comment column heading to sort the captions in ascending order.
6. Right-click the box in the top-left corner of the Edit Details window and choose **Paste** from the shortcut menu. The clipboard data is pasted starting at this row.
7. In the timeline, position the cursor where you want to start inserting captions.
8. Select a row in the Edit Details list to select the first caption you want to insert.
9. Click the **Play** button  to start playback.
10. When you're ready to insert your first caption, press Ctrl+K. The first caption is inserted at the cursor position, the **Position** setting is updated, and the next caption is selected.
11. Press Ctrl+K to insert each subsequent caption.
12. Render your file in Windows Media format. For more information, see "Rendering projects (Render As)" on page 469

Displaying captioning

You can use one of two methods for displaying the captions when the video is played:

- Instruct your audience to turn on captioning:
  - In Windows Media Player 8: from the View menu, choose **Now Playing Tools**, and then choose **Captions** from the submenu.
  - In Windows Media Player 9 and 10: from the Play menu, choose **Captions and Subtitles**, and then choose **On if Available** from the submenu.
  - In Windows Media Player 11 and 12: from the Play menu, choose **Lyrics, captions, and subtitles**, and then choose **On** if available from the submenu.
- Create an HTML page with the Windows Media Player embedded in it.

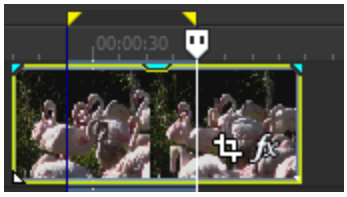
Previewing your project

VEGAS® Pro provides two options for previewing your project: you can play back in the VEGAS Pro window or prerender selected video frames for playback within the VEGAS Pro window.

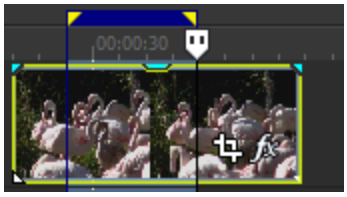
Loop Playback

From the Options menu, choose **Loop Playback** to repeatedly play back a section of your project.

1. Drag the cursor to make a timeline selection (or hold down the Shift key and use the arrow keys to make the selection).
2. From the Options menu, choose **Loop Playback**, or click the **Loop Playback** button .
   When Loop Playback is off, the loop region is gray. When Loop Playback is on, the loop region is blue.



Loop Playback = Off



Loop Playback = On

3. Click the **Play** button to hear your selection looped.

Mute All Audio

From the Options menu, choose **Mute All Audio** to exclude all audio tracks from playback.

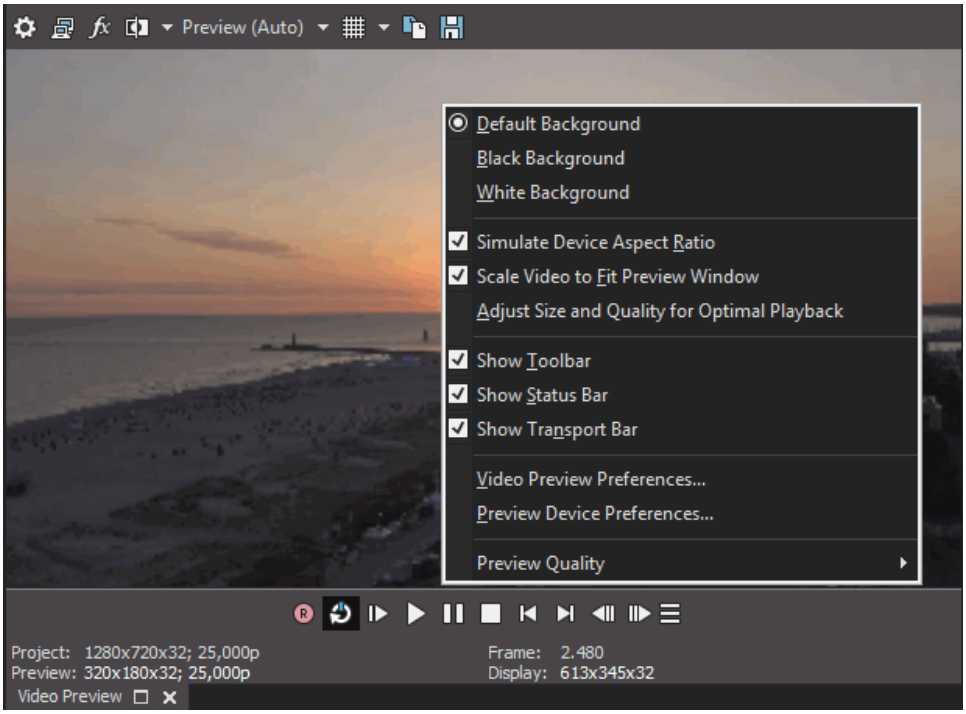
Mute All Video

From the Options menu, choose **Mute All Video** to exclude all video tracks from playback.

Using the Video Preview window

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

The Video Preview window displays a project's video output at the current cursor position during editing and playback. The playback includes any effects that you have applied to it. This window is also useful when editing frame by frame for synchronizing audio. Right-click anywhere in the window to display a shortcut menu with Video Preview window options.



Tips:

- If you want to emphasize frame rate during preview, right-click the Video Preview window and select **Adjust Size and Quality for Optimal Playback**. When the command is not selected, video quality is emphasized, and the frame rate will be reduced if necessary.
- Select the **Use project output rotation setting** check box on the **Preview Device** tab of the **Preferences** dialog if you're rendering a rotated project and want to use the **Output rotation** setting from the Project Properties dialog for previewing your project.

  When the check box is cleared, the media is rotated according to its Media Properties setting, but the Video Preview output is unrotated–you can use this setting to proof your project on an unrotated display.

  For more information, see "Creating rotated projects" on page 53 and "Preferences - Preview Device Tab" on page 536
- By default the Video Preview Transport tool bar shows the Play, Pause, Stop, and Hamburger buttons.

  To access additional buttons click the hamburger button and click the button you wish to access. To add a button to the Transport Toolbar click the Hamburger button  , click **Edit Visible Button Set**, check the box next to the button to you would like to add, and click **OK**. The button will now be visible each time you open the application. To remove a button from the Toolbar click the Hamburger button, click **Edit Visible Button Set**, uncheck the box next to the button to you would like to remove, and click **OK**

Editing video properties for your project

Click the **Project Video Properties** button  to display the Video tab in the Project Properties dialog. Use this tab to adjust the video format of your project.

For more information, see "Setting project properties" on page 41

Previewing on an external monitor

Click the **Video Preview on External Monitor** button  to send your video output to the device specified on

the Preview Device tab of the Preferences dialog.

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

Video is sent to the external monitor and the Video Preview window at the same time. If you experience dropped frames, try clearing the **Display frames in Video Preview window during playback** *check box on the Preview Device tab of the Preferences dialog.*

For more information, see "Using an External Video Monitor" on page 432 and "Preferences - Preview Device Tab" on page 536

Adding or bypassing video effects

Click the **Video Output FX** button to apply an effect to every video event in your project.

You can use the **Split-Screen View** button in the Video Preview window to create a split-screen preview that bypasses all video effects (track effects, event effects, media effects, and video output effects) without removing them from your project.

For more information, see "Adding video effects" on page 287 or "Split-screen previews" on page 429

You can right-click the button and choose a command from the shortcut menu to enable, bypass, or delete effects.

For more information about using video effects, see "Adding video effects" on page 287

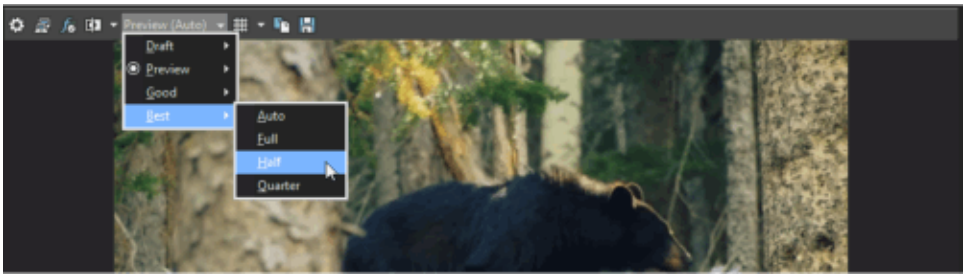
Adjusting the preview quality and resolution

Click the **Preview Quality** button and choose a setting from the menu to change the quality and resolution for rendering your video preview.

This setting is used for previewing only and has no effect on the final rendered video. Decreasing the preview resolution can allow the VEGAS Pro Video Preview window to display a higher frame rate, especially for complex projects that contain overlays, transitions, and effects.

The **Auto** setting will adjust the frame size to fit the Video Preview window size. The **Full** setting processes frames at the project frame size. The **Half** setting processes frames at half the project frame size. The **Quarter** setting processes frames at one-quarter of the project's frame size. For example, if you have an NTSC (720x480) project, **Half** creates a 360x240 preview; **Quarter** creates a 180x120 preview.

Choosing a **Quarter** *or* **Half** *setting can improve playback performance, especially when previewing high-definition source material.*



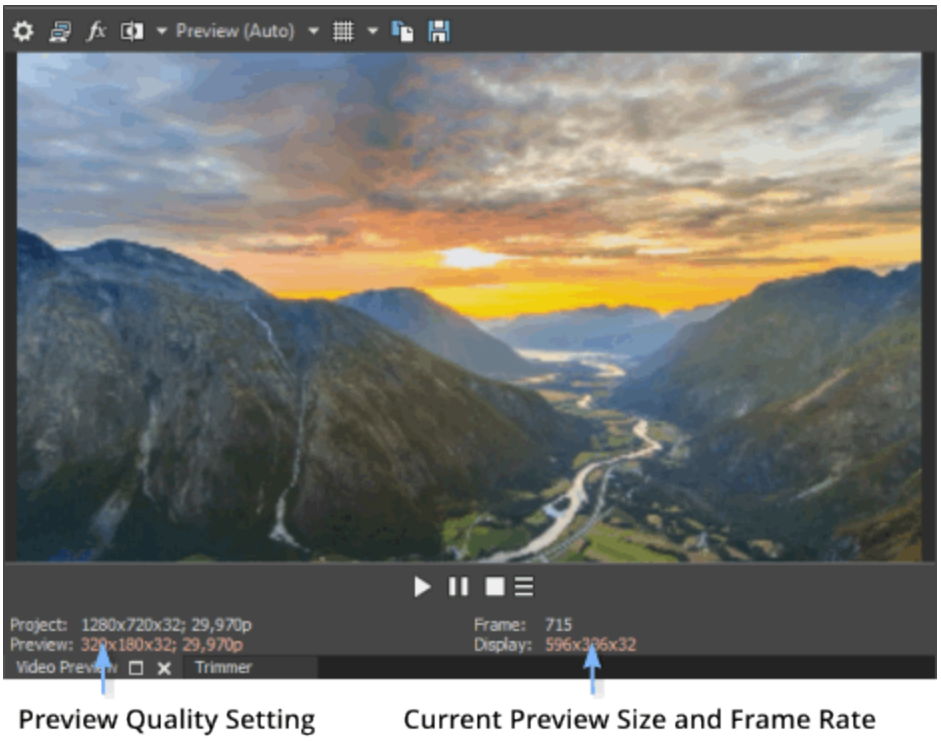
If you want to display square pixels in the Video Preview window even if the **Pixel aspect ratio** setting in the Project Properties dialog is using nonsquare pixels (DV), right-click the display and choose **Simulate Device Aspect Ratio** from the shortcut menu.

If you want the preview to fill the Video Preview window, right-click the display and choose **Scale to Fit Preview Window** from the shortcut menu.

Tips:

If you want to emphasize frame rate during preview, right-click the Video Preview window and select **Adjust Size and Quality for Optimal Playback**. *When the command is not selected, video quality is emphasized, and the frame rate will be reduced if necessary.*

Try setting the preview quality to **Preview > Full** *and enabling* **Scale to Fit Preview Window**.



Item	Description
Preview	The **Preview** indicator in the Video Preview window represents the setting of the **Video Preview Quality** button.
Display	The **Display** indicator represents the current playback properties. If you're using an **Auto** setting for preview quality, this indicator will represent the scaled frame size. If your video preview is dropping frames, you'll see the actual frame rate in this section.

Using Video Preview overlays (safe areas, grid, closed captions, and color channel isolation)

Click the down arrow next to the **Overlays** button and choose a setting from the menu to configure the display of the Video Preview menu.

Click the **Overlays** button to toggle between a standard preview and the selected preview mode.

Overlay settings from the Video Preview window are also applied to the video monitor in the Trimmer window.

Preview Mode	Description
Grid	Choose **Grid** to display vertical and horizontal lines over your video. You can use the grid to help you align objects.

Preview Mode	Description
	Set the grid spacing using the **Horizontal grid divisions** and **Vertical grid divisions** settings on the Video tab in the Preferences dialog.
Safe Areas	The Video Preview window displays the entire video frame, although most television monitors will not display all of this data. Choose **Safe Areas** to display borders around your video to represent the visible areas for action and titles. The outer border marks the area that will be visible on a television screen, and the inner border is the suggested area for titles. After verifying that your action and titles are within the safe areas, however, you should test your project on the destination television monitor. Set the grid spacing using the **Action safe area** and **Title safe area** settings on the Video tab in the Preferences dialog.
Closed Captioning CC1/2/3/4	If you're working with a video that contains closed captions, you can preview your captions by using overlays in the Video Preview window. Select CC1, CC2, CC3, or CC4 to turn on the caption type that you want to preview. For more information, see "Adding closed captioning to video files" on page 411
Color Channel Isolation	Choose a color channel to select the specific channel to be isolated and whether the channel should be displayed in grayscale only.  *Use the* **Alpha as Grayscale** *setting to isolate the Alpha channel mask and display it in grayscale.*
360° mode	Switches the Preview window into a special 360° mode to interactively set the perspective when working with 360° video. For more information, see "The Video Preview window in 360° mode" on page 393.

Toggling multicamera editing mode

From the Tools menu, choose **Multicamera**, and then choose **Enable Multicamera Editing** to enable multicamera editing mode.

In multicamera editing mode, the Video Preview window switches into multicamera mode, with a multicamera tiled view showing the contents of all takes simultaneously. The active take is highlighted with a colored border.

For more information, see "Editing multicamera video" on page 185



When multicamera editing mode is active, video envelopes, effects, and motion are bypassed in the Video Preview window to preserve your playback frame rate.

Copying the current frame to the clipboard

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

You can change the size of the image using the **Preview Quality** button: choose **Auto** or **Full** to capture the frame at its full resolution, or choose **Half** or **Quarter** to capture a smaller image.

Saving the current frame as a file

Click the **Save Snapshot to File** button to save the current frame as an image file.

You can change the size of the image using the **Preview Quality** button: choose **Auto** or **Full** to capture the frame at its full resolution, or choose **Half** or **Quarter** to capture a smaller image.

The Save Snapshot to File dialog is displayed to allow you to choose the format and location where you want to save the file. The file is automatically added to the Project Media window.

View or hide the status bar

Right-click the Video Preview window and choose **Show Status Bar** to toggle the display of the status bar at the bottom of the window.

Command	Description
Project	Displays the frame size, color bit depth, and frame rate from the Video tab in the Project Properties dialog. For more information, see "Setting project properties" on page 41
Preview	Displays the frame size, color bit depth, and frame rate that will be used for previewing. Right-click the Video Preview window and select **Display at Project Size** if you want to preview only using the project settings.
Frame	Displays the number of the current frame.
Display	Displays the current frame size, color bit depth, and frame rate of your preview. If you are unable to preview at the full frame rate, decrease the

Command	Description
	Video Preview Quality setting or use dynamic RAM previews. For more information, see "Using dynamic RAM previews" on page 431

Viewing or hiding the transport bar

Right-click the Video Preview window and choose **Show Transport Bar** to toggle the display of the transport bar at the bottom of the window.

Button		Description
	**Record**	This button starts recording on all armed tracks. If no tracks are armed, a new track will be created automatically. For more information, see "Recording audio" on page 99
	**Loop Playback**	Plays only the events in the loop region in a continuous mode.
	**Play from Start**	Starts playback from the beginning of the project regardless of the current cursor position. When you stop playback, the cursor returns to its original position.
	**Play**	Starts playback from the cursor position.  *Select the* **Make spacebar and F12 Play/Pause instead of Play/Stop** *check box in the General Preferences tab if you want the F12 and spacebar keyboard shortcuts to toggle between Play and Pause mode. In this mode, the cursor will maintain its position.*
	**Pause**	Pauses playback and leaves the cursor at its current position.
	**Stop**	Stops playback or recording and returns the cursor to its starting position.
	**Go to Start**	Moves the cursor to the beginning of the project.
	**Go to End**	Moves the cursor to the end of the project.
	**Previous Frame**	Moves the cursor one frame to the left.  *Click and hold the* **Previous Frame** *and* **Next Frame** *buttons to move the cursor multiple frames.*
	**Next Frame**	Moves the cursor one frame to the right.

Split-screen previews

Click the **Split-Screen View** button  in the Video Preview window to turn split-screen previews on or off. Split-screen previews allow you to split the Video Preview window so you can see your affected and unaffected video or your video and the contents of the clipboard at the same time. Use split-screen previews to fine-tune video effects or to match colors for color correction.

You can use split-screen previews to help match colors between clips. When the split-screen preview mode is set to **Clipboard**, *the Video Preview and Video Scopes windows will display the frame you copied to the clipboard and the current frame. For more information, see* *"Monitoring video with scopes" on page 441*

The Video Preview window temporarily enters split-screen preview mode when you perform one of the following edits: event slip, event slip-trim, event slide, or crossfade/transition slide. This temporary split-screen mode allows you to see the event's first and last frame as you trim. You can toggle this preview mode by selecting or deselecting the **Video Event Edge Frames** *command on the View menu. For more information, see* *"Adjusting an event's length" on page 142* and *"Slipping and sliding events" on page 147*

Showing affected and unprocessed video

1. Click the down arrow next to the **Split-Screen View** button and choose **FX Bypassed** from the menu.
2. Select the **Split-Screen View** button. The cursor is displayed as a +.
3. Choose a preset selection or drag in the Video Preview section to create a selection. This selection will display the unprocessed video. In the following example, the Add Noise plug-in was applied to the event, and the selection displays the original video.



Double-click in the Video Preview window to select the full window, or drag again to replace the existing selection.

Showing the video at the cursor position and the contents of the clipboard

1. Position the cursor on the timeline and click the **Copy Snapshot** button in the Video Preview window to copy a frame to the clipboard.
2. Position the cursor at another point on the timeline.
3. Click the down arrow next to the **Split-Screen View** button and choose **Clipboard** from the menu.
4. Select the **Split-Screen View** button.

5. Choose a preset selection or drag in the Video Preview section to create a selection. This selection will display the contents of the clipboard. In the following example, the snowscape is the current cursor position, and the kayak paddler was copied to the clipboard.



Double-click in the Video Preview window to select the full window, or drag again to replace the existing selection.

Changing the selection for displaying split-screen previews

Click the down arrow next to the **Split-Screen View** button and choose **Select Right Half**, **Select Left Half**, or **Select All** to indicate which portion of the Video Preview Window you want to use to display unprocessed video or the contents of the clipboard.

When the **Split-Screen View** button is selected, the cursor is displayed as a +. Drag a rectangle in the Video Preview window to create a custom selection.

Retaining the split-screen preview settings

The Split-Screen View setting in the preview window is not persisted between launches of VEGAS Proby default.

If you would like to persist this setting for further sessions,click the down arrow next to the **Split-Screen View** button and choose **Retain Split Screen Setting** from the menu.

Using dynamic RAM previews

When your project includes compositing and complex video effects, you may not be able to preview your project at its full frame rate.

If you prefer not to prerender your project, you can dedicate a portion of your RAM to cache video frames that cannot be rendered in real time.

Setting up your cache

1. From the Options menu, choose **Preferences** and select the Video tab.
2. Enter a value in the **Dynamic RAM preview (max)** box to set the amount of RAM that you want to dedicate to video previews.

   The maximum size of the RAM cache is displayed to the right of the control. If you reserve excessive amounts of RAM for your RAM cache, performance may decrease.

3. Click **OK**.

Building the preview from a selection

1. Select the region that contains the frames you want to cache.
2. From the Tools menu, choose **Build Dynamic RAM Preview** (or press Shift+B). Each frame in the selection is rendered.

   Click anywhere in the timeline to cancel.

3. After rendering is finished, click **Play** . The cached video will play back at the frame rate specified on the Video tab of the Project Properties dialog.

   If your RAM cache is not large enough to contain the entire selection, the selection is automatically adjusted to include only the cached region. You can increase the **Dynamic RAM Preview max** *setting on the Video tab of the Preferences dialog to increase the size of the cache.*

Clearing the cache or turning off dynamic RAM previewing

To clear the RAM cache during playback, you can resize the Video Preview window or choose a new setting from the **Video Preview Quality** drop-down list.

To turn off dynamic RAM previewing, enter 0 in the **Dynamic RAM preview (max)** box on the Video tab of the Preferences dialog.

Using an External Video Monitor

External video preview allows you to reclaim valuable real estate in the VEGAS Pro window, check colors and safe areas on a broadcast monitor, or just view a full-screen preview of your project.

If you want to preview on your external monitor and in the Video Preview window at the same time, select the **Display frames in Video Preview window during playback** check box on the Preview Device tab of the Preferences dialog.

For more information, see "Using the Video Preview window" on page 423 and "Preferences - Preview Device Tab" on page 536

Notes:

- VEGAS Pro allows you to use one external video device at a time. The external monitor display will be unavailable during video capture.
- When using an external video monitor, you need to enable external-monitor preview each time you start VEGAS Pro. This change was made to prevent the possibility of hiding the main VEGAS Pro window behind the secondary display when monitors are improperly configured.

External monitor via DVI (Windows Graphics Card)

If your Windows desktop is extended across multiple displays, you can use one of those displays to preview the timeline with no A/V synchronization drift – perfect for ADR and Foley work.

If you intend to deliver your project in an interlaced format, previewing on a computer monitor is not a substitute for previewing on an interlaced broadcast monitor.

Preview requirements:

- A multiple-output graphics card that supports 3D acceleration (or multiple graphics cards: you could install AGP and PCI video cards in your system, for example).

  You can also use the Windows Graphics Card device on a computer with a single monitor. When you enable the external monitor, the video preview will fill your screen.

- A CRT, LCD, or projector connected to your computer's secondary video output.

  If you have a video card with DVI outputs, you can use a DVI-to-HDMI converter to connect to an HDMI monitor.
- The **Extend my Windows desktop onto this monitor** check box must be selected on the Settings tab of the Display Properties dialog (Start > Settings > Control Panel > Display).

Notes:

- VEGAS Pro allows you to use one external video device at a time. The external monitor display will be unavailable during video capture.
- When using an external video monitor, you need to enable external-monitor preview each time you start VEGAS Pro. This change was made to prevent the possibility of hiding the main VEGAS Pro window behind the secondary display when monitors are improperly configured.

1. Use the Preview Device tab in the Preferences dialog to configure the display you want to use as a video preview monitor. For more information, see "Preferences - Preview Device Tab" on page 536
2. Select the **Preview on External Monitor** button  in the Video Preview window.

   You can turn off external preview by pressing Alt+Shift+4 or by clicking the secondary display and pressing Esc.

   Video is sent to your secondary display and the Video Preview window at the same time. If you experience dropped frames, try clearing the **Display frames in Video Preview window during playback** *check box on the Preview Device tab in the Preferences dialog.*

External monitor via IEEE-1394 (FireWire)

You can send video directly from the timeline to a television monitor. With this feature, you can make your final editing decisions on a broadcast monitor (which differs significantly from a computer monitor) before printing the project to tape.

IEEE-1394/FireWire external monitor requirements:

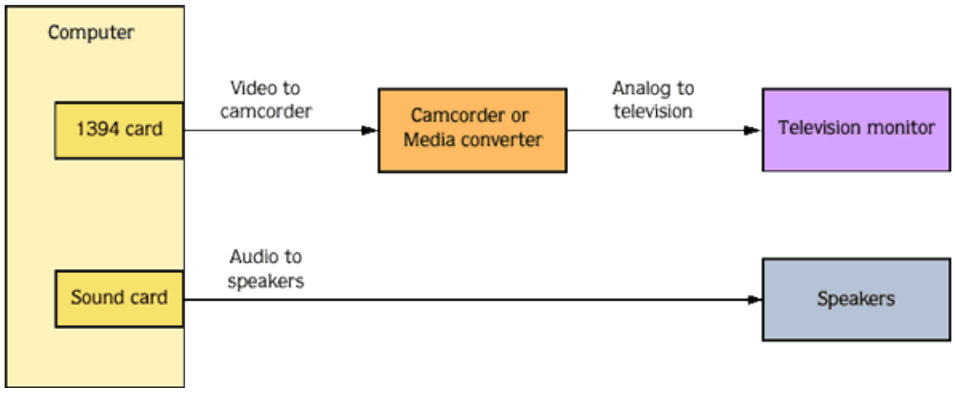
- OHCI-compliant IEEE-1394 DV card.
- DV camcorder or DV-to-analog converter.

Notes:

- VEGAS Pro allows you to use one external video device at a time. The external monitor display will be unavailable during video capture.
- When using an external video monitor, you need to enable external-monitor preview each time you start VEGAS Pro. This change was made to prevent the possibility of hiding the main VEGAS Pro window behind the secondary display when monitors are improperly configured.

Setting up an external monitor

The diagram below shows the preferred setup for sending video from the VEGAS Pro timeline to an external television monitor.



The video is converted to DV format and sent through the IEEE-1394 card to the DV device (camcorder or DV-to-analog media converter). The DV device sends analog output to the television monitor.

Use the Preview Device tab in the Preferences dialog to configure your IEEE-1394 card. For more information, see "Preferences - Preview Device Tab" on page 536

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

Previewing audio

External monitor previewing differs in one respect from printing to tape from the timeline: no audio is sent through the IEEE-1394 card. As shown in the illustration in the previous heading, audio is sent to the sound card and then on to the mixer (if present) and speakers so you can mix your audio on better speakers than are typically found in television monitors.

Before printing to tape, you may wish to preview the audio through the television monitor speakers to ensure a good "TV mix." You can use the print-to-tape feature to send the full video and audio to the external monitor. Follow the steps for printing to tape from the timeline, but do not set the camcorder to record. The video and audio streams are sent through the IEEE-1394 card to the external monitor. For more information, see "Printing video to tape from the timeline" on page 461

Turning on external-monitor preview

1. Use the Preview Device tab in the Preferences dialog to configure the display you want to use as a video preview monitor. For more information, see "Preferences - Preview Device Tab" on page 536
2. Select the **Preview on External Monitor** button in the Video Preview window.

   You can turn off external preview by pressing Alt+Shift+4.

   Video is sent to the external monitor and the Video Preview window at the same time. If you experience dropped frames, try clearing the **Display frames in Video Preview window during playback** *check box on the Preview Device tab in the Preferences dialog.*

External monitor via SDI

You can send video directly from the timeline to a video monitor connected to an SDI card.

Supported Blackmagic Design devices:

- DeckLink 4K Extreme 12G, 4K Pro, 4K Extreme, Studio 4K, SDI 4K, HD Extreme, Extreme 3D, Mini Monitor, and Mini Recorder.
- Intensity Shuttle, Pro 4K, and Pro.
- UltraStudio 4K Extreme, 4K, Pro, SDI, Express, Mini Monitor, and Mini Recorder.

Supported AJA devices: AJA Io 4K, KONA 3X, LH, LHe, LHi, LS, and LSe. Please note that AJA XENA cards are now branded as KONA cards. For more information, see **http://www.aja.com/products/kona/transition.php**.

Notes:

- VEGAS Pro allows you to use one external video device at a time. The external monitor display will be unavailable during video capture.
- When using an external video monitor, you need to enable external-monitor preview each time you start VEGAS Pro. This change was made to prevent the possibility of hiding the main VEGAS Pro window behind the secondary display when monitors are improperly configured.

1. Use the Preview Device tab in the Preferences dialog to configure your SDI card. For more information, see "Preferences - Preview Device Tab" on page 536
2. Select the **Preview on External Monitor** button  in the Video Preview window.

   You can turn off external preview by pressing Alt+Shift+4.

   Video is sent to the external monitor and the Video Preview window at the same time. If you experience dropped frames, try clearing the **Display frames in Video Preview window during playback** *check box on the Preview Device tab in the Preferences dialog.*

Selectively prerender video

From the Tools menu, choose **Selectively Prerender Video** to render temporary preview files for the sections of your project that cannot be rendered in real time. These temporary preview files are used when you play back that section of the project.

When you perform a selective prerender, a separate preview file is created for each section of your project that needs to be prerendered. Sections that contain transitions, effects, and compositing will need to be prerendered; unprocessed DV media files will not.

Selective prerendering is helpful when previewing on an external monitor. For more information, see "Using an External Video Monitor" on page 432

1. Select the area of your project that you want to preview. If there is no time selection, the entire project will be used.
2. From the Tools menu, choose **Selectively Prerender Video**. The Prerender Video dialog appears.
3. Choose a template from the **Template** drop-down list to specify the parameters that should be used for rendering your file, or click the **Custom** button to create a new template. For more information, see "Custom rendering templates" on page 481

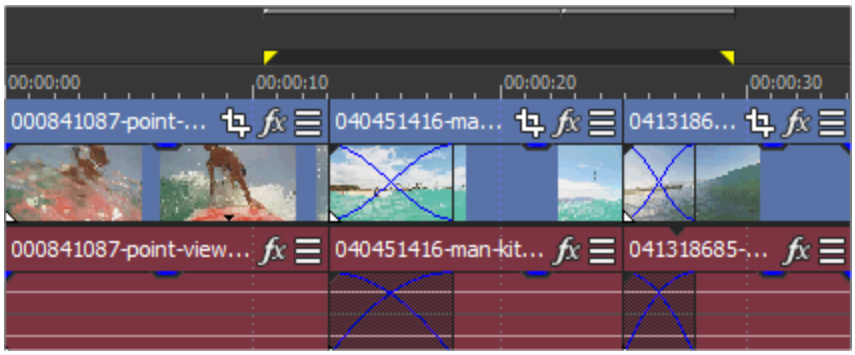
Notes:

- Select the **Stretch video to fill output frame size (do not letterbox)** check box when you are rendering to an output format with a slightly different aspect ratio than your project settings. This will prevent black bars from appearing on the top and bottom or the sides of the output.
- Select the **Use project output rotation setting** check box if you're rendering a rotated project and want to use the **Output rotation** setting from the Project Properties dialog for your rendered file.

  When the check box is cleared, the media is rotated according to its Media Properties setting, but the project itself is unrotated–you can use this setting to proof your project on an unrotated display. For more information, see "Creating rotated projects" on page 53
- You'll need to choose a rendering template that inserts pulldown fields to create a standard DV file if your project properties are set to 24p or if you selected the **Allow pulldown removal when opening 24p DV**check box on the General tab of the Preferences dialog. Use the **NTSC DV 24p (inserting 2-3-3-2 pulldown)** template if you intend to use the file on the VEGAS Pro timeline.

  If you cleared the **Allow pulldown removal when opening 24p DV** check box before adding your media and your project properties are not set to 24p, your 24p video is read as 29.97 fps interlaced video (60i), so you can choose whichever NTSC DV or PAL DV template suits your project requirements.

4. Click the **Render** button. The rendering process begins and a progress box appears. When completed, a bar appears at the top of the timeline to indicate each rendered section.



Each prerendered section will consist of no more than 300 frames (approximately 40 megabytes). Because selective prerendering creates multiple files, minor editing on the timeline will not invalidate all of your prerendered video–only the sections you modify will need to be rerendered.

Cleaning up prerendered video files

From the Tools menu, choose **Clean Up Prerendered Video** to delete the temporary files created as a result of using the **Selectively Prerender Video** command. For more information, see "Selectively prerender video" on the previous page

Use the Clean Up Prerendered Video dialog to specify which prerendered files should be deleted: you can remove only inactive files (files for media that is no longer used on the timeline), all prerendered files, or all prerendered files within a time selection.

Loudness metering and logging

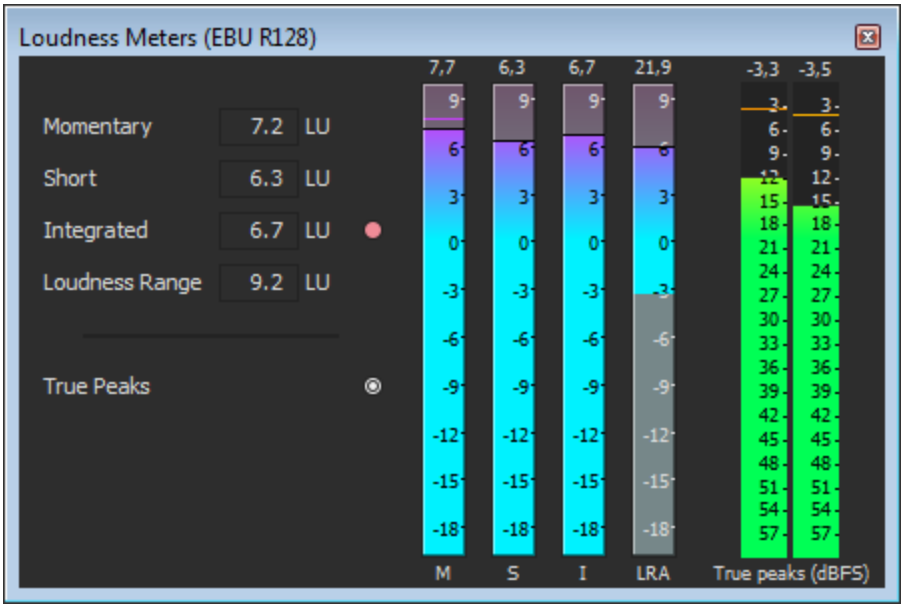
The Loudness Meters provide data about an audio file's momentary loudness, short-term loudness, integrated (overall) loudness, and loudness range. You can use these values when mastering for broadcast to ensure compliance with loudness standards (such as the CALM Act).

A loudness log is a report of the loudness of an audio file and it allows you to provide documentation that your files adhere to loudness standards.

Loudness meters

Choose **View** > **Window** > **Loudness Meters** to display the Loudness Meters window.

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



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

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

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

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

Loudness is recalculated whenever you start, stop, seek, or change playback direction. If you want to force a recalculation, right-click the window and choose **Reset Metering Engine** from the shortcut menu.

When the **Master bus mode** drop-down list on the Audio tab of the Project Properties dialog is set to **5.1 Surround**, surround processing is applied when measuring loudness (a gain of ~1.5 dB is applied to the left and right surround channels). When the **Master bus mode** drop-down list is set to **Stereo**, all channels contribute equally to the loudness measurement.

Choosing a metering mode

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

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

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

Choosing a loudness scale

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

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

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

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

Configuring peak meters

To toggle the True Peaks meters in the Loudness Meters window, choose **Options** > **Loudness Meters** > **Show True Peak Meter** (you can also right-click the meter to set its options).

Please note that true peaks are calculated using a higher sample rate than peaks in the Master Bus window for increased accuracy.

Peak levels may be miscalculated if audio signals are asymmetrical or if a DC offset is present. To enable filtering, choose **Options** > **Loudness Meters** > **True Peak Blocking Filter**. When **True Peak Blocking Filter** is selected, peaks are calculated as the maximum of the filtered and unfiltered signals.

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

Generating a loudness log

A loudness log is a report of the loudness of your project, and it allows you to provide documentation that your audio adheres to loudness standards.

The log provides data about a project's momentary loudness, short-term loudness, integrated (overall) loudness, and dynamic loudness. You can use these values when mastering for broadcast to ensure compliance with loudness standards (such as the CALM Act).

Generating a loudness log when rendering a file

1. Use the Render As dialog to save your file.

   For more information, see "Rendering projects (Render As)" on page 469
2. Click the **Render Options** button and select the **Save loudness log next to media file** check box if you want VEGAS Pro to analyze the loudness of your file and create a log file that summarizes its loudness values.

   The loudness log is created using the same folder and base name as your sound file with _loud.txt appended to the name.

   The log will record the file name, format, loudness metering mode, and loudness values throughout the file.

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

   When the **Master bus mode** drop-down list on the Audio tab of the Project Properties dialog is set to **5.1 Surround**, surround processing is applied when measuring loudness (a gain of ~1.5 dB is applied to the left and right surround channels). When the **Master bus mode** drop-down list is set to **Stereo**, all channels contribute equally to the loudness measurement. For more information about loudness values, please see "Loudness meters" on page 437

Generating a loudness log for the timeline

1. Select the data you want to analyze.

   If no data is selected, the entire timeline is analyzed.
2. Choose **Tools** > **Generate Loudness Log**.

   The loudness log is created using the same folder and base name as your project file with _loud.txt appended to the name.

   The log will record the file name, format, loudness metering mode, and loudness values throughout the selection or file.

   If the **Open editor when new loudness log is generated** check box is selected on the Audio tab in the Preferences dialog, the log will be automatically opened in your default text editor.

   When the **Master bus mode** drop-down list on the Audio tab of the Project Properties dialog is set to **5.1 Surround**, surround processing is applied when measuring loudness (a gain of ~1.5 dB is applied to the left and right surround channels). When the **Master bus mode** drop-down list is set to **Stereo**, all channels contribute equally to the loudness measurement. For more information about loudness values, please see "Loudness meters" on page 437

Monitoring video with scopes

Choose **View** > **Window** > **Video Scopes** to toggle the display of the Video Scopes window in VEGAS® Pro.

Broadcast video uses a narrower range of color than the RGB you see on your computer. When you broadcast a project that contains out-of-gamut (out-of-range) colors, you can introduce image problems or even noise into the audio stream.

Use the scopes to analyze your video and adjust accordingly with the Brightness and Contrast, Broadcast Colors, Color Corrector, Color Corrector (Secondary), and Levels plug-ins before rendering.

Choose a setting from the drop-down list to choose which scope you want to display.

You can use split-screen previews to help match colors between clips. When the split-screen preview mode is set to **Clipboard**, the Video Preview and Video Scopes windows will display the frame you copied to the clipboard and the current frame. For more information, see "Split-screen previews" on page 429

When you're working with a stereoscopic 3D project, video scopes measure the right-eye video unless your stereoscopic 3D mode for preview is set to **Left Only**. For more information, see "Setting up your stereoscopic 3D project" on page 191

The Vectorscope Monitor

The vectorscope monitor in the Video Scopes window allows you to monitor the chroma values (color content) of your video signal. The monitor plots hue and saturation on a color wheel.

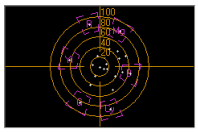
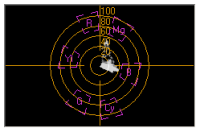
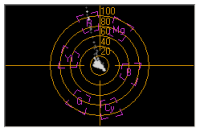
The vectorscope displays targets for broadcast-legal saturations of red (R), magenta (Mg), blue (B), cyan (Cy), green (G), and yellow (Yl). Individual colors in your video signal are displayed as dots in the vectorscope. A dot's distance from the center of the scope represents its saturation, and the angle of the line from the dot to the center of the scope represents its hue.

For example, if an image has a blue cast, the distribution of dots in the vectorscope will be concentrated toward the blue portion of the color wheel. If the image includes out-of-range blue values, the vectorscope display will extend beyond the blue target.

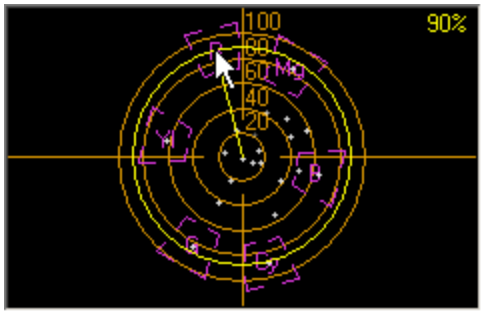
You can use the vectorscope to calibrate color between scenes. Without calibration, you may see noticeable color differences between scenes from multicamera shoots.

1. Choose **View** > **Window** > **Video Scopes** to toggle the display of the Video Scopes window.
2. Choose **Vectorscope** from the drop-down list.
3. Position the cursor in the frame you want to analyze. If the **Update Scopes While Playing** button  is selected, you can monitor your video during playback.

4. The vectorscope monitor displays the chroma values of the video signal:

Frame	Vectorscope	Description
		Colors are within legal broadcast limits. Note that the dots for each color in the test pattern are centered in the appropriate target.
		The image has too much blue. Note that the display is distributed toward the blue portion of the vectorscope.
		The red in the boat cover is out of range. Note that the display extends beyond the red target.

5. Hover over a portion of the monitor to display the chroma value at the pointer position:



The Video Waveform Monitor

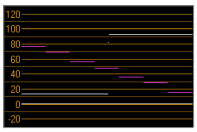
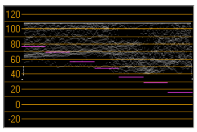
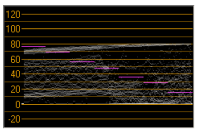
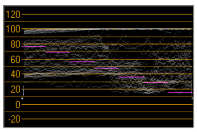
The waveform monitor in the Video Scopes window allows you to monitor the luma values (brightness or Y component) of your video signal. The monitor plots luma values on the vertical axis and the width of the current frame on the horizontal axis.

For more information, see "Monitoring video with scopes" on the previous page

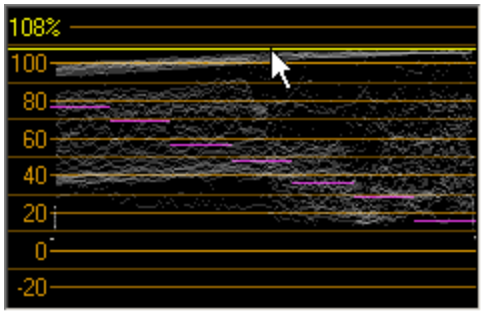
If you want to include chroma (color or C component) information in the waveform monitor, choose **Composite** *from the drop-down list at the top of the monitor window. When you choose* **Luminance**, *chroma information is omitted.*

1. Choose **View** > **Window** > **Video Scopes** to toggle the display of the Video Scopes window.
2. Choose **Waveform** from the drop-down list.
3. Position the cursor in the frame you want to analyze. If the **Update Scopes While Playing** button is selected, you can monitor the waveform during playback.

4. The waveform monitor displays the luma values of the video signal:

Frame	Waveform	Description
		The dark left half of the frame is displayed on the left of the waveform, and the light right half is displayed on the right.
		Most luma values are concentrated toward the top of the monitor, with some values exceeding the recommended peak of 110. The resulting image appears washed out.
		Most luma values are concentrated toward the bottom of the monitor. The resulting image appears too dark.
		Luma values are evenly distributed in the monitor. The resulting image appears more balanced.

5. Hover over a portion of the monitor to display the luma value at the pointer position:



The Histogram Monitor

The histogram monitor in the Video Scopes window allows you to monitor color levels and contrast of your video. Use the histogram before rendering your project to find and correct out-of-range values that could cause problems on the destination playback device.

The bar graph plots the number of pixels that exist for each color intensity. For example, when using the **Blue** setting, the vertical axis represents the number of pixels, and the horizontal axis represents the RGB color range from 0,0,0 to 0,0,255.

To get acquainted with the histogram, use an external monitor to preview your video and watch the video output and histogram as you use plug-ins to modify the colors.

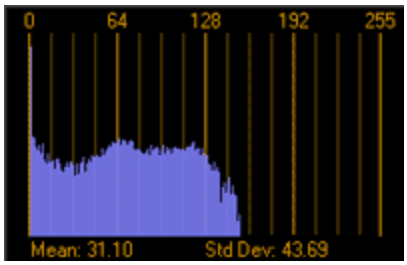
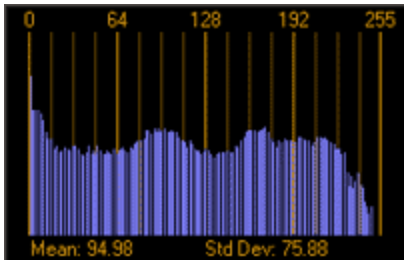
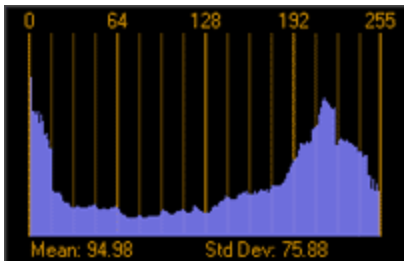
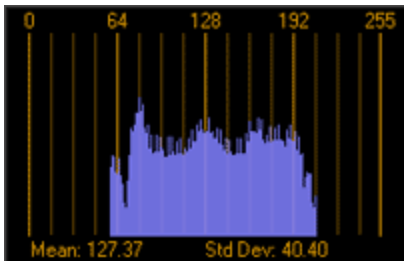
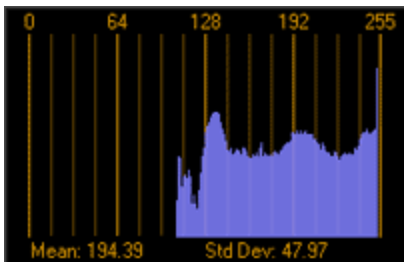
For more information, see "Using an External Video Monitor" on page 432

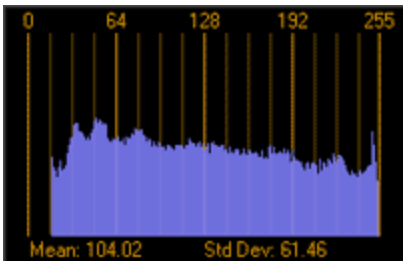
1. Choose **View** > **Window** > **Video Scopes** to toggle the display of the Video Scopes window.
2. Choose **Histogram** from the drop-down list.
3. Choose a histogram type from the menu:

Histogram	Description
Luminance	Charts the luminance or brightness of colors in your video.
Red	Charts the red tones in your video.
Green	Charts the green tones in your video.
Blue	Charts the blue tones in your video.
Alpha	Charts the alpha channel (transparency) in your video.
Luminance/R/G/B	Stacks luminance and RGB charts.
Lightness/a/b	Stacks lightness and a/b color charts, allowing you to analyze your video in the Lab (L*a*b* or L*, a*, b*) color space. This view is especially useful with the LAB Adjust video plug-in.

4. Position the cursor in the frame you want to analyze. If the **Update Scopes While Playing** button  is selected, you can monitor your video during playback.

5. Use the histogram to evaluate the colors in your video. The **Mean** value Indicates the average intensity of all pixels in the graph, and the **Standard Deviation** value indicates the average percentage by which pixels in the graph vary from the **Mean** value.

Histogram	Description
	Underexposed – pixels are concentrated on the left side of the graph, and the resulting image will appear unnaturally dark.
	Banded – there are sharp changes between the shades of the selected color. The resulting image will appear to have sharp transitions between colors instead of smooth gradients.
	High contrast – there are high concentrations of pixels in the darkest and lightest shades of the selected color with few pixels in the midtones.
	Low contrast – most pixels are concentrated in a limited range of the selected color The resulting image will appear faded.
	Overexposed or clipped – the lightest shades of the selected color exist in the video, and the resulting image will appear unnaturally bright and washed out.

Histogram	Description
	Balanced – the graph is fairly well centered within the range of the selected color, with few sharp transitions between shades.

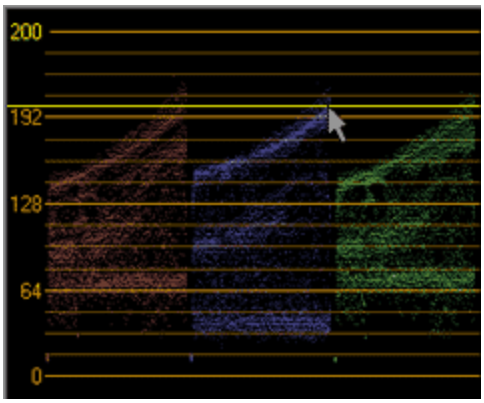
The RGB Parade Monitor

The RGB parade monitor in the Video Scopes window displays waveforms for the red, green, and blue components of your video signal. The monitor plots RGB values from 0-255.

The parade monitor helps you determine whether the individual RGB components of your video signal are within limits and whether the total video signal is clipping.

For more information, see "Monitoring video with scopes" on page 441

1. Choose **View** > **Window** > **Video Scopes** to toggle the display of the Video Scopes window.
2. Choose **RGB Parade** from the drop-down list.
3. Position the cursor in the frame you want to analyze. If the **Update Scopes While Playing** button is selected, you can monitor your video during playback.
4. The waveform monitor displays the RGB values of the video signal. Hover over the monitor to display the RGB value at the pointer position:



Video Scope Settings

Click the **Settings** button in the Video Scopes window to set your display options. These options adjust the display of data in the Video Scopes window and have no effect on your data.

Toggle 7.5 IRE setup

If your video hardware will add a 7.5 IRE setup, you can configure the Video Scopes window so the display will be consistent with an external scope connected to a device that adds 7.5 IRE setup.

NTSC video in the United States adds 7.5 IRE setup to convert black to 7.5 IRE. Consumer video hardware typically does not add 7.5 IRE setup, and most professional hardware allows you to turn 7.5 IRE setup on or off. PAL video and NTSC video in Japan do not add setup.

Refer to your video hardware documentation to determine whether your hardware adds 7.5 IRE setup.

1. Click the **Settings** button  in the Video Scopes window.
2. Select the **7.5 IRE Setup** check box in the Video Scopes Settings dialog.
   Black will be displayed as 7.5 in the waveform monitor. If your video hardware does not add 7.5 setup, clear the check box.

Toggle Studio RGB display

RGB values on your computer can range from 0 to 255. Studio RGB values range from 16 to 235. If you want to limit the display of the Video Scopes window to studio RGB standards, perform the following steps:

1. Click the **Settings** button  in the Video Scopes window.
2. Select the **Studio RGB (16 to 235)** check box in the Video Scopes Settings dialog.

Whether you need to use the **Studio RGB (16 to 235)** setting depends on the DV codec you will use to render your video before printing to tape. Suggested settings follow. Refer to the codec's documentation to determine whether the **Studio RGB (16 to 235)** check box should be selected.

Codec	Studio RGB Setting
Vegas DV	On
Microsoft DV	Off
Matrox DV	Off
MainConcept DV	Off
Canopus	On
Apple QuickTime DV	Off

You can render using a third-party DV codec by choosing a specific codec from the **Video format** drop-down list on the Video tab of the Custom Template dialog.

For more information, see "Custom rendering templates" on page 481

Timecode synchronization

VEGAS® Pro can generate MIDI timecode and MIDI clock or be triggered from MIDI timecode. These features allow you to synchronize your VEGAS Pro project with other audio applications and external audio hardware.

Generate MIDI Timecode

From the Options menu, choose **Timecode**, and choose **Generate MIDI Timecode** from the submenu if you want to generate MIDI timecode (MTC) when you click **Play** .

MIDI timecode (MTC) is a standard timecode that most applications and some hardware devices will use to synchronize themselves.

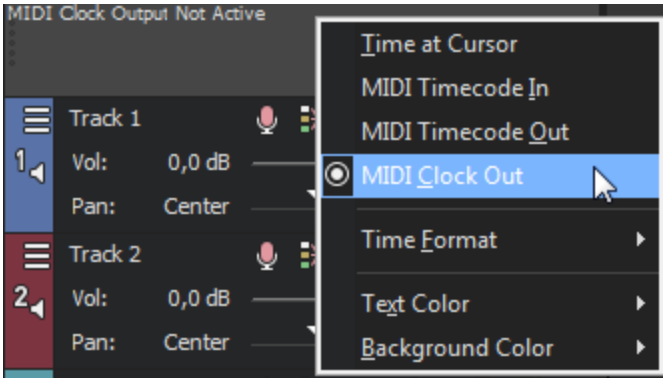
Generating MIDI timecode

1. Specify a MIDI **Output device** to which you will send the timecode and a **Frame rate** for the timecode. These options can be found on the Sync page of the Preferences dialog. For more information, see "Preferences - Sync Tab" on page 556
2. From the Options menu, choose **Timecode**, and choose **Generate MIDI Timecode** from the submenu.

   VEGAS Pro will generate MTC starting wherever you click **Play** .

Viewing outgoing timecode

To view the outgoing timecode, right-click the Time Display and choose **MIDI Timecode Out** from the shortcut menu. The text will now display the outgoing MTC time.



Generate MIDI Clock

From the Options menu, choose **Timecode**, and choose **Generate MIDI Clock** from the submenu if you want to generate MIDI clock when you click **Play** .

MIDI clock differs from MIDI timecode in that it contains tempo as well as positional information. MIDI clock is essentially measured in ticks from the beginning of the project. MIDI clock sends 24 ticks per quarter note, and the tick length is dependent on the **Measures and Beats** settings on the Ruler tab of the Project Properties dialog. For more information, see "Setting project properties" on page 41

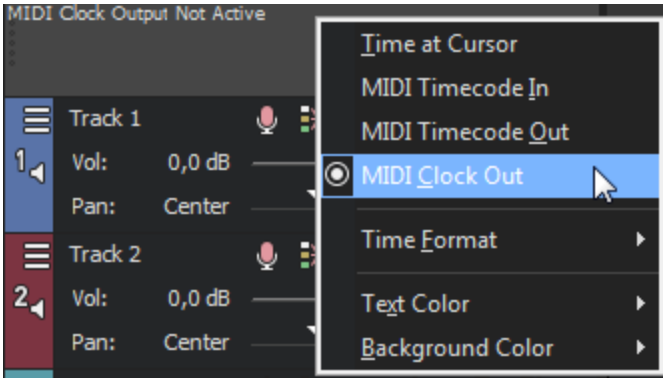
Generating MIDI clock

1. Specify a MIDI **Output device** to which you will send the clock. This option can be found on the Sync page of the Preferences dialog. For more information, see "Preferences - Sync Tab" on page 556
2. From the Options menu, choose **Timecode**, and choose **Generate MIDI Clock** from the submenu.

   VEGAS Pro will generate MIDI clock when you click **Play**.

Viewing outgoing MIDI clock

To view the outgoing clock, right-click the Time Display and choose **MIDI Clock Out** from the shortcut menu. The text will now display the outgoing MIDI clock time.



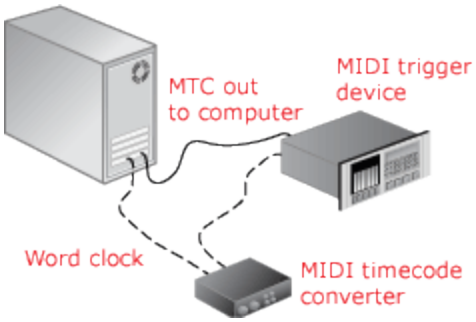
Trigger from MIDI Timecode

From the Options menu, choose **Timecode**, and then choose **Trigger from MIDI Timecode** from the submenu if you want to initiate VEGAS Pro playback by receiving timecode from another device.

To update the ruler, right-click the ruler and choose **Ruler Offset** *or edit the* **Ruler start time** *setting on the Ruler tab of the Project Properties dialog.*

Triggering playback from MIDI timecode

1. Connect a word clock signal between your computer and triggering device to lock synchronization.



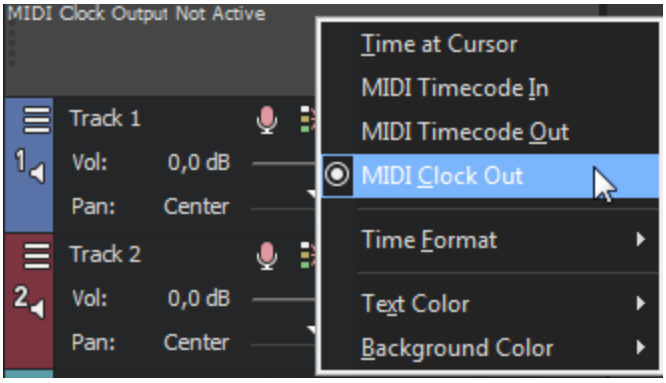
2. Configure your trigger device to send MIDI timecode (MTC) to your computer.
3. Configure VEGAS Pro to receive MTC:

a. From the Options menu, choose **Preferences** and select the Sync tab.
b. From the **Input device** drop-down list, choose the port from which you will receive MTC.
c. From the **Frame rate** drop-down list, choose the frame rate that your trigger device will use to send MTC to VEGAS Pro.
d. From the Options menu, choose **Timecode**, and choose **Trigger from MIDI Timecode** from the submenu.

   When an incoming MTC signal is received, playback will begin from the position indicated by the timecode. If VEGAS Pro software is not receiving MTC, you can play and edit normally.

Viewing incoming timecode

To view the incoming timecode, right-click the Time Displayand choose **MIDI Timecode In** from the shortcut menu. The text will now display the incoming MTC time.



This display will also show status and error information. If **Trigger from MIDI Timecode**is enabled but no MTC is detected, the display will show **Listening**... If the wrong frame rate of MTC is being detected the display will show **Wrong format**.

Burning discs

You can create several types of discs in VEGAS® Pro to archive and distribute your project:

- Track-at-once (TAO) CDs can be burned in multiple sessions over a period of time. Before you can use a TAO disc in an audio CD player, however, you must close the session. TAO CDs are convenient for sharing your projects and testing your mix, but are generally not acceptable as masters for duplication.
- Disc-at-once (DAO or Red Book) CDs are burned in a single session. Use DAO burning when creating a master disc for replication.
- A Blu-ray Disc™ can be played in a Blu-ray Disc player or on a computer with a Blu-ray Disc drive.
- DVDs can be played in a DVD player or on a computer with a DVD drive.

Track-at-once (TAO) CD burning

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

Notes:

- Track-at-once CDs contain two-second pauses between tracks. If you want to burn a CD with no pause time, burn a disc-at-once CD. For more information, see "Disc-at-once (DAO or Red Book) CD Burning" on the next page
- The entire project is written to a CD track. If your project has events on muted tracks that extend beyond the end of the audible material, the muted events burn as silence at the end of your CD track. To burn only a portion of a project, create a loop region and select the **Burn loop region only** check box.

1. From the Tools menu, choose **Burn Disc**, and choose **Track-at-Once Audio CD** from the submenu. The Burn Track-at-Once Audio CD dialog displays the length of the current file and the amount of time remaining on the disc in your CD recorder.
2. Choose a setting from the **Action** drop-down list:

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

3. Select your burning options:

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

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



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

Disc-at-once (DAO or Red Book) CD Burning

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

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

Right-click the ruler and choose **Audio CD Time** from the shortcut menu to help you arrange your project. The ruler will display hh:mm:ss:ff (hours:minutes:seconds:frames), and the Time Display window will display tt+mm:ss:ff (track number +/- minutes:seconds:frames). Audio CD time uses a frame rate of 75 fps.

If your first track region begins before 00:00:02:00, a timeline offset is automatically added so the first track begins at exactly two seconds.

From the Options menu, choose **Quantize to Frames** to turn off frame quantization before creating a CD layout. For more information, see "Quantize to frames" on page 126

Creating a new CD layout

1. From the File menu, choose **New** to create a new project.
2. From the File menu, choose **Import** to add the files that you want to use to the Project Media list.

3. Use the Project Media window to sort your media:
   a. Click the **Views** button and choose **Detailed** from the menu.
   b. Enter track numbers in the **Comment** field to assign a track order.
   c. Click the **Comment** column header to sort the comments in ascending order.
   d. In the Project Media window, select your tracks, right-click the selection, and choose **Add as CD Track** from the shortcut menu.

      When you add CD tracks from the Project Media window, tracks are inserted starting at the cursor position, and the necessary silence is added between tracks. Each track is marked on the CD layout bar and is assigned a name based on the media file name.

      If necessary, you can edit the CD track list information by dragging the track and index markers or by using the **Audio CD Track List** setting in the Edit Details window.

CD track numbering is based on the **First track number on disc** *setting on the Audio CD tab in the Project Properties dialog. For more information, see* *"Setting project properties" on page 41*

Adding CD layout regions and markers to an existing VEGAS Pro project

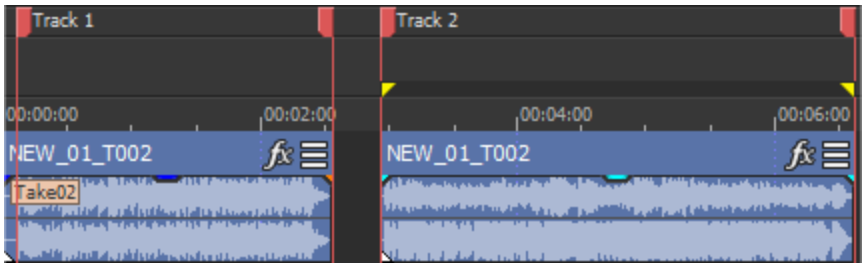
1. Arrange your audio files on the timeline.
2. Position the cursor and choose **Time** from the Insert menu to insert two seconds before each track.

   If you want to create a live CD with no silence between tracks, insert silence only before the first track.

3. On the timeline, select the length of the track and choose **Audio CD Track Region**from the Insert menu (or press N) to add track regions. A Red Book CD can contain up to 99 tracks.

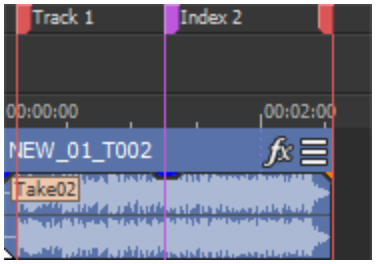
   CD track numbering is based on the **First track number on disc** *setting on the Audio CD tab in the Project Properties dialog. For more information, see* *"Setting project properties" on page 41*

   Double-click a region tag to select the duration of the track.



4. If you want to add index markers, position the cursor and choose **Audio CD Track Index** from the Insert menu (or press Shift+N).

   You can use indices to subdivide a track. For example, a track could contain a orchestral composition, and index markers could allow navigation to each of the movements. Each track on a Red Book CD can contain up to 99 index markers.



Creating tracks automatically using events on the timeline

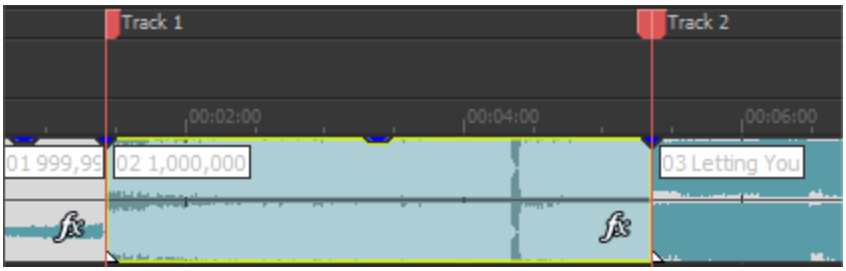
From the Tools menu, choose **Lay Out Audio CD from Events** to automatically create a CD layout for a disc-at-once audio CD. The CD layout bar is displayed and track regions are added.

If multiple events are touching, they will be treated as a single track.

Inserting hidden or bonus tracks

Adding a hidden track at the beginning of a CD

If your CD recorder supports it, you can add a hidden track by adding a track in the space before Track 1. When the CD is inserted in an audio CD player, it will automatically start at Track 1, but the user can find the hidden track by rewinding past the beginning of the first track.

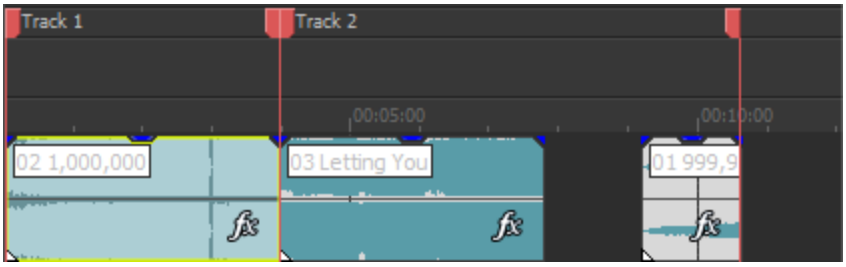


Most CD recorders require that the space before Track 1 be exactly two seconds, which eliminates the possibility of hiding tracks at the beginning of a CD. Check your CD recorder's documentation for specific information about your drive.

Adding a bonus track at the end of a CD

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

Because both events are marked by a single CD layout entry, they will be treated as one track by an audio CD player.

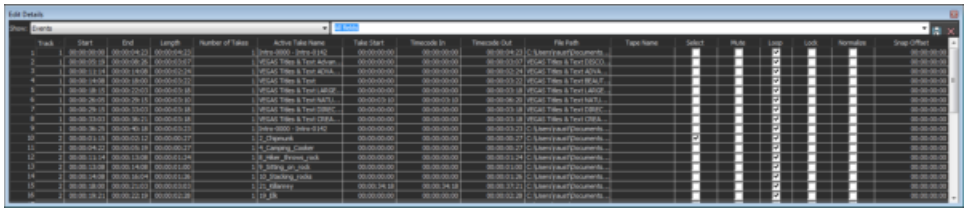


Viewing and editing the audio CD track list

The track list is the chronological reference that the CD-R device uses when writing a CD. This list contains information about tracks and indices. A track list is automatically generated when you add tracks to your CD project using any of the methods described in this topic.

Viewing the audio CD track list

1. Choose **View** > **Window** > **Edit Details** to display the Edit Details window.
2. From the **Show** drop-down list, choose **Audio CD Track List**.
   The list displays information for each of the tracks and indices in your CD layout.



Item	Description
Track	Displays the number of the track as it will appear on the CD.
Index	Displays the index value within the track. For example, if a track had two indices, they would appear as 2 and 3 (the start of the track is always Index 1).
Position	Displays the timeline position of the beginning of the track.
End	Displays the timeline position of the end of the track.
Length	Displays the length of the track (including the two-second pause between tracks).
Name	Enter a name that will be used to identify the track in the timeline.
Prot	Select the check box to add a flag to the Q subcode to prevent digital copying of your CD. In order to use copy protection, the CD player must support the copy-protection flag.
Emph	Select the check box to add a pre-emphasis flag to the Q subcode. Pre-emphasis is a simple noise-reduction process that is implemented by a CD player. Emphasis involves boosting high frequencies during CD writing and cutting those frequencies during playback. The emphasis process reduces high-frequency noise without disrupting the natural frequency of the source material. VEGAS Pro does not impart the pre-emphasis boost on a track; it can only set the flag. In order for pre-emphasis to occur, the CD recorder and player must support the flag. Check your CD drive documentation to determine whether your drive supports pre-emphasis flags.
ISRC	Enter the ISRC (International Standard Recording Code) that will be used to identify your disc. For more information about ISRC codes, see **http://www.ifpi.org/content/section_resources/isrc.html**.

Editing the list

Double-click an entry in the list to edit it. As you edit the fields, the track and indices in the timeline are updated.

Copying the list

Click the box in the top-left corner of the Edit Details window to select all rows in the list, and press Ctrl+C to copy them to the clipboard. You can then paste the list into a document to create a PQ sheet for a CD replicator.

Importing a CD Architect version 4 project

You can also work with your existing CD Architect (.cdp) version 4 projects. For more information about opening a CD Architect project, see "Opening a project or media file" on page 50

Burning your disc

After arranging your media on the timeline and adding CD layout regions and markers, you're ready to burn.

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

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

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

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

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

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

7. Select the **Automatically erase rewritable discs** check box if you're burning to rewritable media and want to erase the disc before burning.
8. Select the **Eject when done** check box if you want to eject the CD automatically when burning has completed.
9. Click **OK** to start burning.

Burning a Blu-ray Disc from the timeline

From the Tools menu, choose **Burn Disc** and choose **Blu-ray Disc** from the submenu to render your project and burn it to a Blu-ray Disc. The rendered project can be played in a Blu-ray Disc player or on any computer with a Blu-ray Disc drive.

Stereoscopic 3D projects will be burned to a Blu-ray 3D™ Disc. For more information about working with stereoscopic 3D projects, see "Stereoscopic 3D editing" on page 191

VEGAS Pro burns Blu-ray BDMV format to BD-R and BD-RE recordable media.

Tips:

- A 25 GB single-layer BD recordable disc can store approximately 3 hours, 42 minutes of AVC video (15 Mbps) or 2 hours, 15 minutes of MPEG-2 video (25 Mbps).
- A 50 GB dual-layer BD recordable disc can store approximately 7 hours, 25 minutes of AVC video (15 Mbps) or 4 hours, 31 minutes of MPEG-2 video (25 Mbps).
- You can store large amounts of standard-definition MPEG-2 video on a BD disc.
- You can create your own rendering templates if you need to adjust the bit rates. For more information, see "Custom rendering templates" on page 481

1. From the Tools menu, choose **Burn Disc** and choose **Blu-ray Disc** from the submenu. The Burn Blu-ray Disc dialog is displayed.
2. Select a radio button to choose what you want to do:
   - **Render image and burn**: renders your current project as a Blu-ray Disc compliant file and burns it to disc.
   - **Render image only**: renders your current project as a Blu-ray Disc compliant file that you can burn at a later time.
   - **Burn existing image file**: burns an already-rendered file to Blu-ray Disc.
3. If you selected the **Render image and burn** or **Render image only** radio button, choose your rendering settings:

   For more information about the media settings required to create compliant media files, see "Media File Settings for Blu-ray Disc Projects" on page 478

   a. Choose a setting from the **Video format** drop-down list to indicate whether you want to burn AVC/MVC or MPEG-2 video.
   b. Choose a setting from the **Video template** drop-down list to specify the parameters that should be used for rendering your video stream.

      Video for Blu-ray Disc can use MPEG-2 or AVC encoding. Blu-ray 3D Disc projects use MVC encoding:
      - The VEGAS Pro Blu-ray MPEG-2 video templates have an average bit rate of 25 Mbps.
      - The VEGAS Pro Blu-ray AVC video templates have an average bit rate of 15 Mbps.
      - The VEGAS Pro Blu-ray MVC video templates for stereoscopic 3D projects have an average bit rate of 10 Mbps.
4. Choose a setting from the **Audio format** drop-down list to indicate whether you want to burn AC-3 or Wave64 (PCM) audio.
5. Choose a setting from the **Audio template** drop-down list to specify the parameters that should be used for rendering your audio stream.

   AC-3 audio for Blu-ray Disc uses Dolby Digital 2.0- or 5.1-channel encoding at 192 Kbps or 448 Kbps respectively.

   Wave64 (PCM) audio for Blu-ray Disc can use any of the following formats:

- 48 kHz, 16 or 24-bit, stereo or 5.1 surround (available only for 5.1 surround projects)
- 96 kHz, 16 or 24-bit, stereo or 5.1 surround (available only for 5.1 surround projects)

6. Select the **Render loop region only** check box if you want to use only a portion of your project. If the check box is cleared, the entire project will be rendered and saved to the disc.

   The check box is available only if you've created a time selection in the timeline.
7. Select the **Use project output rotation setting** check box if you're rendering a rotated project and want to use the **Output rotation** setting from the Project Properties dialog for your rendered file.

   When the check box is cleared, the media is rotated according to its Media Properties setting, but the project itself is unrotated–you can use this setting to proof your project on an unrotated display.

   For more information, see "Creating rotated projects" on page 53
8. Select the **Insert chapter points at markers** check box if you want to use markers from the timeline as chapter points in your rendered file.
9. Select the **Stretch video to fill output frame** check box if you want to reformat your video so it fills the output frame size listed in the **Description** box. When the check box is cleared, the current aspect ratio is maintained, and black borders are added to fill the extra frame area (letterbox). This option is useful when the desired output format does not match the frame aspect ratio of your project.
10. If you selected the **Render image and burn** or **Render image only** radio button, the **File path** box displays the folder and file that will be used to render your project.

    If you selected the **Burn existing image file** radio button, type the path to the file you want to burn in the **File path** box (or click the **Browse** button to locate the file).
11. Select recording options for your Blu-ray Disc drive:
    a. Choose a drive from the **Burn drive** drop-down list to specify the drive you want to use.
    b. From the **Burn speed** drop-down list, choose the speed at which you want to record. **Max** will record using the fastest speed possible with your drive; decrease the speed if you have difficulty recording.
    c. Select the **Eject when done** check box if you want to eject the disc automatically when burning has completed.
12. Click **OK** to start rendering your image file and burning your disc.

Burning a DVD from the timeline

From the Tools menu, choose **Burn Disc**, and then choose **DVD** from the submenu to render your project and burn it to a DVD.

The rendered project can be played in a DVD player or on any computer with a DVD drive.

1. From the Tools menu, choose **Burn Disc**, and then choose **DVD** from the submenu to display the Burn DVD dialog.
2. Choose a setting from the **Video format** drop-down list to specify the parameters that should be used for rendering your video stream.

   The **Audio format** box displays the parameters that should be used for rendering your audio stream.
3. Select recording options for your DVD burner:
   a. Choose a drive from the **Burn drive** drop-down list to specify the drive you want to use.
   b. From the **Burn speed** drop-down list, choose the speed at which you want to record. **Max** will record using the fastest speed possible with your drive; decrease the speed if you have difficulty recording.
   c. Select the **Eject when done** check box if you want to eject the disc automatically when burning has completed.
4. Click **OK** to start rendering your image file and burning your disc.

Printing video to tape

VEGAS® Pro provides two methods for printing your final movie to tape: you can print to tape directly from the VEGAS Pro timeline, or you can use Vegas Video capture to print an existing rendered file to DV tape.

Printing video to tape from the timeline

From the Tools menu, choose **Print Video to Tape** to print your project to a camera or deck.

Important:

- Prerendered files can require significant drive space. On the Video tab of the Project Properties dialog, select a **Prerendered files folder** on an a/v-capable drive with ample free space: DV requires approximately 228 MB per minute.
- HDMI print to tape is supported on the Blackmagic Design DeckLink HD Extreme/Intensity Pro/HD Extreme 3D, AJA Io 4K and AJA KONA LHi cards. Please note that AJA XENA cards are now branded as KONA cards: **http://www.aja.com/products/kona/transition.php**.

Printing to a DV device

1. If you want to print only a portion of your project, create a time selection that includes the section of your project.
2. From the Tools menu, choose **Print Video to Tape**. The Device Setup dialog is displayed.
3. Use the Device Setup dialog to configure your camera or deck:
   a. From the **Device type** drop-down list, choose **OHCI-Compliant IEEE 1394/DV**.
   b. From the **Video** drop-down list, choose the setting that matches your destination format.

      You'll need to choose a rendering template that inserts pulldown fields to create a standard DV file if your project properties are set to 24p or if you selected the **Allow pulldown removal when opening 24p DV** check box on the General tab of the Preferences dialog. Use the **NTSC DV 24p (inserting 2-3-3-2 pulldown)** template if you intend to bring the file back into the timeline as source material. For more information, see "Preferences - General Tab" on page 529

      If you cleared the **Allow pulldown removal when opening 24p DV** check box before adding your media and your project properties are not set to 24p, your 24p video is read as 29.97 fps interlaced video (60i), so you can choose whichever NTSC DV or PAL DV template suits your project requirements.
   c. From the **Audio** drop-down list, choose the setting that matches your destination format.
   d. If necessary, drag the **Record engage delay** control to specify the number of frames it takes your camera or deck to switch from Record Pause to Record mode. If you're missing frames from the beginning of your file after printing to tape, increase the setting. If you see duplicated frames at the beginning of your video, decrease the setting.
   e. Click the **Next** button. The Render Settings dialog is displayed.
4. Use the Render Settings dialog to choose the format you want to use to print your video to tape.
   a. Select the **Enable multichannel mapping** check box if you're working with multichannel source files and need to specify which channels to use in the stereo file when printing to tape. Click the **Channels** button to choose which channels you want to render.

      For example, if your video source contained 6-channel audio, you could route each channel's track to a separate bus. Then, when printing to tape, you could click the **Channels** button and choose which bus should be printed to tape.

      For more information, see "Rendering Multichannel Audio Files" on page 473

Multichannel audio is not supported when printing to a DV device.

b. Select the **Use project output rotation setting** check box if you're rendering a rotated project and want to use the **Output rotation** setting from the Project Properties dialog for your rendered file.

When the check box is cleared, the media is rotated according to its Media Properties setting, but the project itself is unrotated–you can use this setting to proof your project on an unrotated display.

For more information, see "Creating rotated projects" on page 53

c. Select the **Render loop region only** check box if you want to print only the portion of your project that you selected in step 1.

The check box is available only if you've created a time selection in the timeline.

d. Select the **Prerender audio to proxy file** check box if you want to prerender the audio portion of your project before printing to tape.

The **Prerendered files folder** box displays the path to the folder where prerendered files are saved. Video files are saved to this folder so that you don't need to rerender the project every time you view it.

If you want to change the location of the folder, click the **Browse** button and choose a new location. Changing the setting here will update the setting on the Video tab of the Project Properties dialog.

e. Click **Next**. The Leader and Trailer dialog is displayed.

5. Use the Leader and Trailer dialog to set up the data that will be printed before and after your project:
   a. Select the **Add test pattern leader** check box if you want to print a test pattern before your video.
   b. From the **Test pattern style** drop-down list, choose a test pattern type and video format.
   c. Type a value in the **Duration** box to determine the length of the test pattern.
   d. Select the **Play 1 kHz tone with test pattern** check box to add an audio test tone that will play along with the test pattern.
   e. Select the **Add black leader** check box and type a value in the **Duration** box if you want to print black frames before your video.
   f. Select the **Add black trailer** check box and type a value in the **Duration** box if you want to print black frames after your video.
   g. Click **Next**. The Device Control dialog is displayed.
6. Use the Device Control dialog to indicate whether VEGAS Pro will have control of your DV recorder and how you want to print to tape:

Setting	Description
Manual	Select this radio button if the application is unable to obtain device control of your deck. You will need to cue the tape and press the Record button on your deck before recording.
Crash Recording	Select this radio button if the application can perform basic device control of your deck. You will need to cue the tape to the location where you want to begin printing. The device's timecode location is displayed in the **Device timecode** box. When you click **Finish**, recording will begin automatically and will stop after reaching the end of the selection or project.
Auto Edit	Select this radio button if your deck supports Auto Edit/Insert Edit mode.

Setting	Description
	When using Auto Edit mode, use a striped tape to ensure continuous timecode over the portion of the tape where you plan to record. a. Select the **Preview only** check box if you want to preview your print-to-tape operation without engaging the deck's record head. Use **Preview only** mode to double-check and adjust your **Start printing at** timecode setting as needed. b. The **Start printing at** box displays the current device timecode location. You can cue the tape or type a value to indicate where you want to begin recording. The **End at** box displays the frame where recording will end (much like punch-in audio recording). c. When you click **Next**, the Select Channels page is displayed. d. On the Select Channels page, select a radio button to choose which channels you want to print to tape: • **Write all rendered channels**: select this radio button to print video and all audio channels to tape • **Write only selected channels**: select this radio button if you want to choose which channels you want to print to tape. Select the check box for each channel you want to print.

7. Click **Finish**. If you have not already prerendered, portions of your project that cannot be rendered and printed to tape in real time will be selectively prerendered. For more information, see "Selectively prerender video" on page 435
   - If you're using **Manual** mode, a dialog will be displayed after rendering is finished. You can specify a delay time in the **Delay playback countdown timer** box and select the **Beep each second during countdown** check box if you want to count down before sending video to your device.
   - If you're using **Crash recording** mode, your DV recorder will start and begin recording after rendering is finished.
   - If you're using **Auto Edit** mode, recording will begin and end automatically at the specified timecode positions.

Printing to a tape deck connected to an SDI card

1. If you want to print only a portion of your project, create a time selection that includes the section of your project.

2. From the Tools menu, choose **Print Video to Tape**. The Device Setup dialog is displayed.
3. Use the Device Setup dialog to configure your camera or deck:
   a. From the **Device type** drop-down list, choose **AJA Video Device** or **Blackmagic Design DeckLink**.
   b. From the **Output** drop-down list, choose **SDI** or **HDMI** (if your devices supports HDMI output).
   c. From the **Video** drop-down list, choose the setting that matches your destination format.

      You'll need to choose a rendering template that inserts pulldown fields to create a standard interlaced file if your project properties are set to 24p or if you selected the **Allow pulldown removal when opening 24p DV** check box on the General tab of the Preferences dialog. For more information, see "Preferences - General Tab" on page 529

      If you cleared the **Allow pulldown removal when opening 24p DV** check box before adding your media and your project properties are not set to 24p, your 24p video is read as 29.97 fps interlaced video (60i), so you can choose whichever template suits your project requirements.
   d. From the **Audio** drop-down list, choose the setting that matches your destination format.
   e. Select the **Use progressive segmented frame (psf) video formats** check box if your project properties are set to a progressive-scan format and you want to preview on a device that stores and transfers progressive-scan frames by dividing fields (AJA SDI cards only).
   f. Select the **Use 10-bit encoding** check box if you want to print 10-bit source material for increased color resolution. Source material with gradients in the background can benefit from 10-bit encoding.

      When you use 10-bit video in your project, choose **32-bit floating point (video levels)** from the **Pixel format** setting on the Video tab of the Project Properties dialog. For more information, see "Setting project properties" on page 41
   g. If necessary, use the **Record Engage Delay** control to specify the number of frames it takes your camera or deck to switch from Record Pause to Record mode. If you're missing frames from the beginning of your file after printing to tape, increase the setting. If you see duplicated frames at the beginning of your video, decrease the setting.
   h. Choose a setting from the **Genlock** drop-down list if you want to synchronize your video output with a reference signal (AJA SDI cards only).

Setting	Description
Video In	Synchronizes to the SDI input when **SDI** is selected in the **Output** drop-down list or synchronizes to the HDMI output when **HDMI** is selected in the **Output** drop-down list.
Ref In	Synchronizes to an external reference input signal.
Free Run	Ignores all input signals and uses internal timing.

   i. Click the **Next** button. The Render Settings dialog is displayed.

4. Use the Render Settings dialog to choose the format you want to use to print your video to tape.
   a. Select the **Enable multichannel mapping** check box if you want to render a file with multiple audio channels.

      For more information about rendering multichannel audio and setting up multichannel mapping, see "Rendering Multichannel Audio Files" on page 473
   b. Select the **Use project output rotation setting** check box if you're rendering a rotated project and want to use the **Output rotation** setting from the Project Properties dialog for your rendered file.

      When the check box is cleared, the media is rotated according to its Media Properties setting, but the project itself is unrotated–you can use this setting to proof your project on an unrotated display.

      For more information, see "Creating rotated projects" on page 53
   c. Select the **Render loop region only** check box if you want to print only the portion of your project that you selected in step 1.

      The check box is available only if you've created a time selection in the timeline.
   d. Select the **Prerender audio to proxy file** check box if you want to prerender the audio portion of your project before printing to tape.

      The **Prerendered files folder** box displays the path to the folder where prerendered files are saved. video files are saved to this folder so that you don't need to rerender the project every time you view it.

      If you want to change the location of the folder, click the **Browse** button and choose a new location. Changing the setting here will update the setting on the Video tab of the Project Properties dialog.
   e. Click **Next**. The Leader and Trailer dialog is displayed.
5. Use the Leader and Trailer dialog to set up the data that will be printed before and after your project:
   a. Select the **Add test pattern leader** check box if you want to print a test pattern before your video.
   b. From the **Test pattern style** drop-down list, choose a test pattern type and video format.
   c. Type a value in the **Duration** box to determine the length of the test pattern.
   d. Select the **Play 1 kHz tone with test pattern** check box to add an audio test tone that will play along with the test pattern.
   e. Select the **Add black leader** check box and type a value in the **Duration** box if you want to print black frames before your video.
   f. Select the **Add black trailer** check box and type a value in the **Duration** box if you want to print black frames after your video.
   g. Click **Next**. The Device Control dialog is displayed.

6. Use the Device Control dialog to indicate whether VEGAS Pro will have control of your deck:

Setting	Description
Manual	Select this radio button if the application is unable to obtain device control of your deck. You will need to cue the tape and press the Record button on your deck before recording.
Crash Recording	Select this radio button if the application can perform basic device control of your deck. You will need to cue the tape to the location where you want to begin printing. The device's timecode location is displayed in the **Device timecode** box. When you click **Finish**, recording will begin automatically and will stop after reaching the end of the selection or project.
Auto Edit	Select this radio button if your deck supports Auto Edit/Insert Edit mode. *When using Auto Edit mode, use a striped tape to ensure continuous timecode over the portion of the tape where you plan to record.* a. Select the **Preview only** check box if you want to preview your print-to-tape operation without engaging the deck's record head. Use **Preview only** mode to double-check and adjust your **Start printing at** timecode setting as needed. b. The **Start printing at** box displays the current device timecode location. You can cue the tape or type a value to indicate where you want to begin recording. The **End at** box displays the frame where recording will end (much like punch-in audio recording). c. When you click **Next**, the Select Channels page is displayed. d. On the Select Channels page, select a radio button to choose which channels you want to print to tape: • **Write all rendered channels**: select this radio button to print video and all audio channels to tape • **Write only selected channels**: select this radio button if you want to choose which channels you want to print to tape. Select the check box for each channel you want to print.

7. Click **Finish**. If you have not already prerendered, portions of your project that cannot be rendered and printed to tape in real time will be selectively prerendered. For more information, see "Selectively prerender video" on page 435
   - If you're using **Manual** mode, a dialog will be displayed after rendering is finished. You can enter a delay time in the **Delay** box and select the **Beep** check box if you want to count down before sending video to your deck.
   - If you're using **Crash Recording** or **Auto Edit** mode, your deck will begin recording after rendering is finished.
   - If you're using **Auto Edit** mode, recording will begin and end automatically at the specified timecode positions.

Printing video to HDV tape

From the Tools menu, choose **Print Video to HDV Tape** to print your project to an HDV camera or deck.

Printing to tape from the timeline

Use this procedure when you're creating an HDV project on the timeline and need to render a MPEG2 transport stream and print it to HDV tape.

1. Load your HDV project.
2. If you want to print only a portion of your project, create a time selection that includes the section of your project.
3. From the Tools menu, choose **Print Video to HDV Tape**. The HDV Print to Tape - Device page is displayed.
4. Choose your HDV camera or deck from the **Device** drop-down list.
5. Click **Next**. The HDV Print to Tape - Select Format/File page is displayed.
6. Choose render settings:
   a. Select the **Render format** radio button.
   b. In the **File path** box, type the path to the file you want to render, or click the **Browse** button to browse to the folder you want to use and then type a file name.
   c. From the **Template** drop-down list, choose the setting that matches your destination format. This list will include only formats that are supported by the selected device.

      Information about the selected rendering template is displayed in the **Description** box.
   d. Select the **Render loop region only** check box if you want to print only the portion of your project that you selected in step 2.

      The check box is available only if you've created a time selection in the timeline.
   e. Select the **Delete file after print** check box if you want to delete the rendered file after the print-to-tape operation is finished.
   f. Select the **Use project output rotation setting** check box if you're rendering a rotated project and want to use the **Output rotation** setting from the Project Properties dialog for your rendered file.

      When the check box is cleared, the media is rotated according to its Media Properties setting, but the project itself is unrotated–you can use this setting to proof your project on an unrotated display.

      For more information, see "Creating rotated projects" on page 53
   g. Click **Next**. The HDV Print to Tape - Device Control page is displayed.
7. Use the Device Control dialog to indicate whether VEGAS Pro will have control of your HDV recorder and how you want to print to tape:
   - Select **Manual** if your HDV device is not OHCI-compliant or if the application is unable to obtain device control of your HDV recorder. You will need to cue the tape and press the Record button on your HDV recorder before recording.
   - Select **Crash Recording** if you are using an OHCI-compliant IEEE-1394 HDV device and the application is able to obtain device control of your HDV recorder.

     You will need to cue the tape to the location where you want to begin printing. The device's timecode location is displayed in the **Device timecode** box.

     When you click **Finish**, recording will begin automatically and will stop after reaching the end of the selection or project.
8. Click **Finish**. Your project will be rendered to the file you specified in step 6.

- If you're using **Manual** mode, a dialog will be displayed after rendering is finished. You can specify a delay time in the **Delay playback countdown timer** box and select the **Beep each second during countdown** check box if you want to count down before sending video to your device.
- If you're using **Crash Recording** mode, your HDV recorder will start and begin recording after rendering is finished.

Printing a rendered file

Use this procedure when you have a rendered MPEG 2 transport stream that you want to print to HDV tape.



If you are printing a rendered file to HDV tape, the file must precisely conform to the target HDV device and file type requirements, or the print-to-tape operation will fail. Rendering using the provided HDV MPEG-2 render templates–unmodified in any way–is required to successfully print to HDV tape.

1. Load your HDV project.
2. If you want to print only a portion of your project, create a time selection that includes the section of your project.
3. From the Tools menu, choose **Print Video to HDV Tape**. The HDV Print to Tape - Device page is displayed.
4. Choose your HDV camera or deck from the **Device** drop-down list.
5. Click **Next**. The HDV Print to Tape - Select Format/File page is displayed.
6. Choose the file you want to print:
   a. Select the **Use an existing file** radio button.
   b. In the **File path** box, type the path to the file you want to print, or click the **Browse** button to choose the file you want to print.
7. Click **Next**. The HDV Print to Tape - Device Control page is displayed.
8. Use the Device Control dialog to indicate whether VEGAS Pro will have control of your HDV recorder and how you want to print to tape:
   - Select **Manual** if your HDV device is not OHCI-compliant or if the application is unable to obtain device control of your HDV recorder. You will need to cue the tape and press the Record button on your HDV recorder before recording.
   - Select **Crash Recording** if you are using an OHCI-compliant IEEE-1394 HDV device and the application is able to obtain device control of your HDV recorder.

     You will need to cue the tape to the location where you want to begin printing. The device's timecode location is displayed in the **Device timecode** box.

     When you click **Finish**, recording will begin automatically and will stop after reaching the end of the selection or project.
9. Click **Finish**.
   - If you're using **Manual** mode, a dialog will be displayed before printing begins. You can specify a delay time in the **Delay playback countdown timer** box and select the **Beep each second during countdown** check box if you want to count down before sending video to your device.
   - If you're using **Crash Recording** mode, your HDV recorder will start and begin recording after you click the **Finish** button.

Rendering projects (Render As)

When you're finished editing your VEGAS® Pro project–or when you want to see it in its final form–you can use the Render As dialog to convert your project to another format and create a single file on your hard drive.

From the File menu, choose **Render As** to display the Render As dialog.

When you're finished editing your VEGAS® Pro project–or when you want to see it in its final form–you can use the **Save it to my hard drive** destination in the Make Movie wizard save your project as a single file on your hard drive. For more information, see "Saving Your Movie to Your Hard Drive."

If you need access to more rendering options, click the **Advanced options** button to open the Render As dialog.

When you render your project, 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.

If you've prerendered your project, those prerendered sections can be used for your final render when the destination formats match. For more information, see "Selectively prerender video" on page 435

When you route busses to hardware outputs, the outputs from those busses will not be included in the mix when you render your project. For more information, see "Routing busses" on page 307

Rendering your project

1. From the File menu, choose **Render As** to display the Render As dialog.
2. Use the **Folder** text box to choose where you want to save your file:
   a. The **Folder** box displays the path to the folder where your file will be saved. Click the down arrow to choose a recently used folder, or click the **Browse** button to specify a new folder.

      Click the **Project Location** *button to quickly choose the folder where the VEGAS Pro project is stored.*

   b. Type a name in the **Name** box, or click the **Browse** button and select a file in the browse window to replace an existing file.
3. Use the Formats selection box to choose the type of file you want to create.

   The **Formats** selection box displays the file types and formats you can use to render your file.When you select a format the **Templates** selection box updates to display available templates for that format. Click a template to select it and use that format for rendering, or select a template and click the **Customize Template** button to modify the template's settings. For more information, see "Custom rendering templates" on page 481

   Tips:

   - You can type in the **Search render templates** box to find templates. For example, if you wanted to render a video for an Internet video, you could type "Internet" in the box to display only templates that include the term "Internet" in the template name or description.
   - If you have templates that you use often, you can create favorites. Click the gray star next to a template name to mark that template as a favorite. You can then select **Show favorites only**from the **Filters** drop-down menu to display only your favorites in the Render As dialog.
   - Use the Filters drop-down to choose templates that match your project settings (frame size, pixel aspect ratio, and frame rate). If you want to display only templates that match your project settings, select the **Match project settings** check box.
   - To create a 5.1 surround audio stream for your DVD, render your audio using the Dolby Digital AC-3 Studio plug-in with the **5.1 Surround DVD** or **5.1 Surround DVD, AGC on** template.

You'll need to choose a rendering template that inserts pulldown fields to create a standard DV file if your project properties are set to 24p or if you selected the **Allow pulldown removal when opening 24p DV** *check box on the General tab of the Preferences dialog. Use the* **NTSC DV 24p (inserting 2-3-3-2 pulldown)** *template if you intend to bring the file back into the timeline as source material.*

If you cleared the **Allow pulldown removal when opening 24p DV** *check box before adding your media and your project properties are not set to 24p, your 24p video is read as 29.97 fps interlaced video (60i), so you can choose whichever NTSC DV or PAL DV template suits your project requirements.*

4. If you're rendering to .wav, .w64, .avi, or .mxf format, you can select the **Enable multichannel mapping** check box to render a file with multiple audio channels.

   For more information, see "Rendering Multichannel Audio Files" on page 473

5. Select or clear the check boxes in the **Render Options** section as needed. Some options may not be available if they do not apply to your project. For instance, the **Render loop region only** check box is availabe only if you've created a time selection in the timeline.
   a. Select the **Render loop region only** check box if you want to save only the portion of the project that is contained within the loop region. **Loop Playback** does not need to be selected for this option to work.
   b. Select the **Stretch video to fill output frame size (do not letterbox)** check box when you are rendering to an output format with a slightly different aspect ratio than your project settings. This will prevent black bars from appearing on the top and bottom or the sides of the output.
   c. Select the **Use project output rotation setting** check box if you're rendering a rotated project and want to use the **Output rotation** setting from the Project Properties dialog for your rendered file.

      When the check box is cleared, the media is rotated according to its Media Properties setting, but the project itself is unrotated–you can use this setting to proof your project on an unrotated display.

      For more information, see "Creating rotated projects" on page 53
   d. If the selected file type supports it, you can select the **Save project markers in media file** check box to include markers, regions, and command markers in the rendered media file.

      For more information, see "Inserting markers" on page 203 "Inserting regions" on page 204and "Inserting command markers" on page 206
   e. Select the **Save project as path reference in rendered file** check box if you want to save the path to your VEGAS Pro project in the rendered file. Saving the project path allows you to easily return to the source project if you use your rendered file in another project.

      Notes:

      - The project information in the rendered file is a reference to a project file only. If you modify the project file after rendering, the project data will no longer match the rendered file. To edit a project using a path reference, the project file and all media must be available on your computer.
      - The check box will be unavailable if you haven't saved your project or if you're rendering using a third-party file-format plug-in.
      - For more information, see "Project references in rendered files" on page 60
   f. Select the **Save loudness log file next to media file** check box if you want VEGAS Pro to analyze the loudness of your file and create a log file that summarizes its loudness values.

      The loudness log is created using the same folder and base name as your sound file with _loud.txt appended to the name.

      The log will record the file name, format, loudness metering mode, and loudness values throughout the file.

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

      When the **Master bus mode** drop-down list on the Audio tab of the Project Properties dialog is set to **5.1 Surround**, surround processing is applied when measuring loudness (a gain of ~1.5 dB is applied to the left and right surround channels). When the **Master bus mode** drop-down list is set to **Stereo**, all channels contribute equally to the loudness measurement. For more information about loudness values, please see "Loudness meters" on page 437
   g. Select the enable multichannel mapping if you want to render a single audio file with multiple audio channels. For more information, see "Rendering Multichannel Audio Files" on page 473

6. Click the **Render** button. A dialog is displayed to show rendering progress. See below for more information.

   Render progress is displayed in the Windows task bar. If the render time is greater than a minute, a sound is played when rendering is complete.

   To change the sound, open the Windows Settings > Personalization > Themes and click on **Sounds**. *In the tree view below, expand the VEGAS Pro 18 entry. When you select the* **Render Complete** *event, you can preview the current sound, assign a new sound, or turn off the* **Render Complete** *sound.*

7. When rendering is complete, click the **Open** button to play the file with its associated player, or click **Open Folder** to open the folder where you saved the file.

Smart rendering

When you render video to any of the following formats, unedited video frames are passed through without recompression (smart rendering):

- DV AVI
- DV MXF
- IMX MXF (IMX 24p MXF is not supported for no-recompress rendering)
- XAVC Intra MXF
- HD MXF
- MPEG-2 (for files such as those from HDV and DVD camcorders)
- Panasonic P2

  For more information, see "Working with P2 Video" on page 64
- XDCAM EX supports smart rendering across the following formats:
  - SP 18.3 Mbps CBR 1280x720p to/from XDCAM EX and HDV HD-1
  - SP 25 Mbps CBR 1440x1080i to/from XDCAM EX, XDCAM HD, and HDV HD-2
  - HQ 35 Mbps VBR 1440x1080 to/from XDCAM EX and XDCAM HD
  - HQ 35 Mbps VBR 1280x720p to/from XDCAM EX
  - HQ 35 Mbps VBR 1920x1080 to/from XDCAM EX

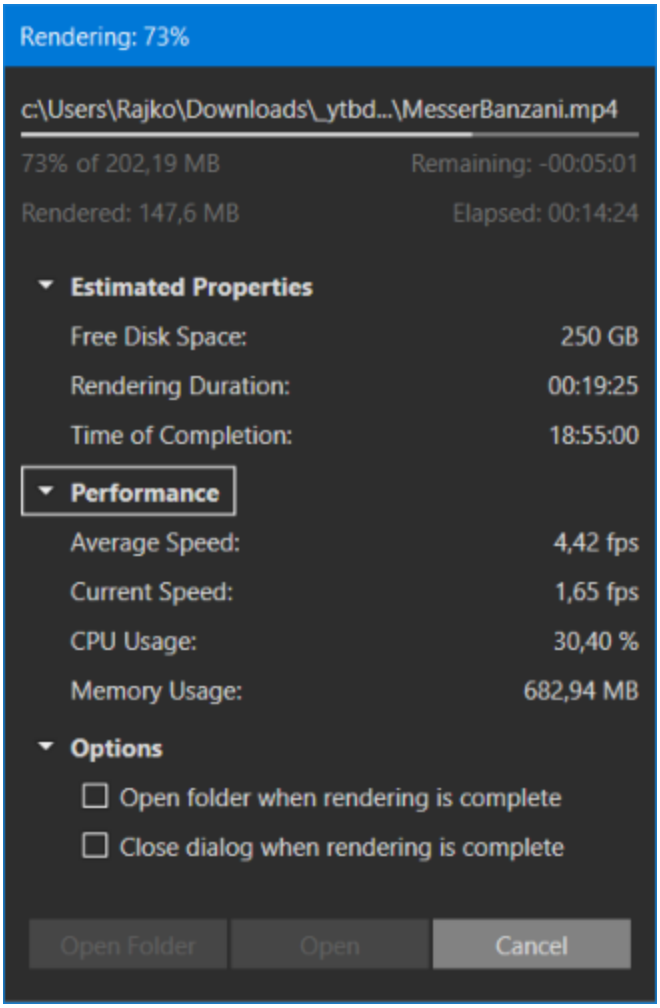
    For more information, see "XDCAM EX workflow" on page 369

In order to perform smart rendering, the width, height, frame rate, field order, profile, level, and bit rate of the source media, project settings, and rendering template must match. Frames that have effects, compositing, or transitions applied will be rendered.

You can clear the **Enable no-recompress rendering** check box on the General tab of the Preferences dialog to turn the feature off.

Render Progress Dialog

After starting the render process the following dialog is shown:



Beneath the file name and progress bar you see a couple of useful information about the render progress:

- The estimated file size of your video and how much of it (in size and percentage) is already rendered.
- The elapsed time since the render process was started and the estimated remaining time.

Click the arrow symbol in the Estimated Properties, Performance and Options section to reveal additional information and options. **Estimated Properties** shows the remaining free disc space, estimated total rendering duration and the time the render process will be finished. **Performance** shows the momentary and average render speed in frames per second and the memory and CPU usage.

In the **Options** section, you can choose to open the folder of the rendered video and/or close the render progress dialog after rendering is complete.

Rendering Multichannel Audio Files

If you want to render a single audio file with multiple audio channels, you can render to one of the following formats:

- WAV/WAV64 (for information about rendering 5.1 channel WAV/WAV64 files, please see "Rendering your 5.1 surround project" on page 409)
- AVI
- Material Exchange Format (MXF)

  MXF files require a video stream.

Render Format	Number of channels
DV MXF	Always contains 4 audio channels. You can use the **Channels** drop-down list on the Audio tab of the Custom Template dialog to choose how many channels will be filled with audio. For example, if you choose **2** from the **Channels** drop-down list, the rendered file will contain 4 audio channels: two channels will contain audio, and two channels will contain silence. For more information, see "Custom rendering templates" on page 481
IMX MXF	Always contains 8 audio channels. You can use the **Channels** drop-down list on the Audio tab of the Custom Template dialog to choose how many channels will be filled with audio. For example, if you choose **2** from the **Channels** drop-down list, the rendered file will contain 8 audio channels: two channels will contain audio, and six channels will contain silence.
HD MXF	Can contain 2 or 4 audio channels. You can use the **Channels** drop-down list on the Audio tab of the Custom Template dialog to choose how many channels will be rendered. For example, if you choose **2** from the **Channels** drop-down list, the rendered file will contain only 2 audio channels.

WMV/WMA, AC-3, and ATRAC support multichannel surround formats; channel mapping is not supported.

1. Create your project.
2. In the Mixing Console window, add a bus for each channel (or channel pair) you want to include in your rendered file.

   For example, if you wanted to create a six-channel .wav file, you could set up your project with three or six busses. If you use three busses, the left and right channels of each bus will be saved to a separate channel. If you use six busses, you can save the mono downmix from each bus as a separate channel.

   For more information, see "Adding audio busses" on page 305

   If you're working with a 5.1 surround project, you can map the six channels from the Surround Master bus to six output channels.
3. Assign tracks to busses to map the audio in your project to the desired channel. For more information, see "Assigning tracks to busses" on page 306
4. From the File menu, choose **Render As** to display the Render As dialog.
5. Use the Output File controls in the Render As dialog to choose the location where you want to use to save your file.
6. Select the **Enable multichannel rendering** check box.

7. Click the **Channels** button if you want to map the busses in your project to channels in the rendered file. If you don't specify a channel mapping, VEGAS Pro will not render a multichannel file.
   a. In the Channel Mapping dialog, select the check box for each bus you want to include in the rendered file. Each stereo bus will be saved to two channels in the rendered file. If you want to save a bus to a single channel, select the **(Mono downmix)** check box for that bus.
   b. If you want to change order of the busses in the channel mapping, select the bus and click the **Move Up** or **Move Down** button.
   c. Click **OK** to close the Channel Mapping dialog and return to the Render As dialog.

   
   Channel mapping is also available when printing to tape from the timeline, rendering to a new track, and exporting video to an XDCAM disc.

8. Use the Output Format controls to choose the type of file you want to create.

   The Output Format box displays the file types and formats you can use to render your file. You can double-click headings (or click the arrow buttons) to expand or collapse lists of available templates. Click a template to select it and use that format for rendering, or select a template and click the **Customize Template** button to modify the template's settings.

   If you choose **Default Template** when rendering to .wav, .w64, or .avi, the number of channels will match the number of channels specified in the Channel Mapping dialog.

   If you choose a rendering template that specifies more channels than you have set up in the Channel Mapping dialog, the additional channels will be rendered as silence.

   If you choose a template that specifies fewer channels than you have set up in the Channel Mapping dialog, the setting from the template will be used. Additional mapped channels will be ignored.
9. Select or clear the check boxes in the Render Options section as needed:
   a. Select the **Render loop region only** check box if you want to save only the portion of the project that is contained within the loop region. **Loop Playback** does not need to be selected for this option to work.
   b. Select the **Stretch video to fill output frame size (do not letterbox)** check box when you are rendering to an output format with a slightly different aspect ratio than your project settings. This will prevent black bars from appearing on the top and bottom or the sides of the output.
   c. Select the **Use project output rotation setting** check box if you're rendering a rotated project and want to use the **Output rotation** setting from the Project Properties dialog for your rendered file.

      When the check box is cleared, the media is rotated according to its Media Properties setting, but the project itself is unrotated–you can use this setting to proof your project on an unrotated display.

      For more information, see "Creating rotated projects" on page 53

10. Use the Metadata Options controls to whether information about your project is saved with the rendered media file:
    a. If the selected file type supports it, you can select the **Save project markers in media file** check box to include markers, regions, and command markers in the rendered media file.
    For more information, see "Inserting markers" on page 203 "Inserting regions" on page 204 and "Inserting command markers" on page 206
    b. Select the **Save project as path reference in rendered file** check box if you want to save the path to your VEGAS Pro project in the rendered file. Saving the project path allows you to easily return to the source project if you use your rendered file in another project.

    Notes:

    - The project information in the rendered file is a reference to a project file only. If you modify the project file after rendering, the project data will no longer match the rendered file. To edit a project using a path reference, the project file and all media must be available on your computer. For more information, see "Project references in rendered files" on page 60
    - The check box will be unavailable if you haven't saved your project or if you're rendering using a third-party file-format plug-in.
11. Click the **Render** button. A dialog is displayed to show rendering progress.
12. When rendering is complete, click the **Open** button to play the file with its associated player, or click **Open Folder** to open the folder where you saved the file.

Rendering MPEG Files

Use the MainConcept plug-in to render MPEG files. The plug-in includes templates that will work well for most of your encoding needs, and you can create custom templates if you have special encoding requirements.

Notes:

- VEGAS Pro does not create Video CDs, but you can use the MPEG plug-in to render files for your VCD-creation application. Consult the application's documentation to determine the file requirements before rendering.
- If you choose to save markers in your rendered MPEG-2 file, DVD Architect will read those markers as chapter markers. Ensure the **Render I-frames at markers** check box is selected before rendering (in the Render As dialog, choose **MainConcept MPEG-2** from the **Template** drop-down list, and then click the **Custom** button. In the Custom Template dialog, select the Video tab and select the **Render I-frames at markers** check box).

MPEG video requires frame widths that are divisible by 16 and frame heights that are divisible by 2. Noncompliant frame dimensions can cause unpredictable results or system instability.

Using default MPEG templates

When you browse rendering templates in the Render As dialog, a description of the selected template's settings is displayed below the list of templates. For more information, see "Rendering projects (Render As)" on page 469

Creating custom MPEG templates

In the Render As dialog, choose **MainConcept MPEG-1** or **MainConcept MPEG-2** in the Output Format box and click the **Customize Template** button if you want to create your own MPEG encoding templates.

For information about the active page in the Custom Template dialog, click the ? button.

Custom templates have many available options, and consequently, a lot of room for error. Verify your file requirements before creating a template. If you're using third-party DVD-burning software, for example, refer to the application's documentation to determine the application's file requirements.

Viewing MPEG-2 files on a computer

MPEG-2 files require an MPEG-2 decoder in order to view them in Windows Media Player and other applications. Vegas does not endorse or support any 3rd-party MPEG-2 decoders.

Rendering Projects for Use in DVD Architect

If you have DVD Architect software, you can avoid unnecessary transcoding or recompression by using VEGAS Pro to render your media files in the appropriate formats prior adding them to your DVD Architect project.

Vegas AC-3 and MainConcept MPEG-2 encoders provide templates that will produce files that do not require recompression (unless the file size is too large to fit on a DVD).

AC-3 audio (.ac3)

Sample Rate	Bit Rate	Channels
48,000 Hz	192 Kbps (64 Kbps to 640 Kbps is supported)	Stereo
48,000 Hz	448 Kbps (64 Kbps to 640 Kbps is supported)	5.1 surround

PCM audio (.wav or .w64)

Sample Rate	Bit Depth	Channels	Compression
48,000 Hz	16, 20, or 24 bit	Stereo	Uncompressed
96,000 Hz	16, 20, or 24 bit	Stereo	Uncompressed

NTSC MPEG video (.m2p, .mp2, .mpg, .mpeg, .mpv)

If you're using the MainConcept MPEG-2 encoder in VEGAS Pro software, use the **DVD Architect NTSC video stream** or **DVD Architect 24p NTSC video stream** template to render your video stream. You'll need to render your audio stream separately according to the parameters listed in the AC-3 audio or PCM audio headings in this section.

If you're rendering with a different application, the following settings will produce a compliant NTSC MPEG-2 video stream.

Frame Size	Frame Rate (fps)	Aspect Ratio	Maximum Group of Pictures	Max. Bit Rate
720x480	29.97 or 23.976 + 2-3 pulldown	4:3	36	9.8 Mbps
704x480	29.97 or	4:3	36	9.8 Mbps

Frame Size	Frame Rate (fps)	Aspect Ratio	Maximum Group of Pictures	Max. Bit Rate
	23.976 + 2-3 pulldown			
352x240	29.97 or 23.976 + 2-3 pulldown	4:3	36	9.8 Mbps
352x480	29.97 or 23.976 + 2-3 pulldown	4:3	36	9.8 Mbps
720x480	29.97 or 23.976 + 2-3 pulldown	16:9	36	9.8 Mbps
720x480	29.97 or 23.976 + 2-3 pulldown	16:9	36	9.8 Mbps

The MainConcept MPEG-2 encoder in VEGAS Pro renders with the Low Delay flag turned off. If you're rendering with a different encoder, ensure Low Delay is turned off.

PAL MPEG video (.m2p, .mp2, .mpg, .mpeg, .mpv)

If you're using the MainConcept MPEG-2 encoder in VEGAS Pro software, use the **DVD Architect PAL video stream** or **DVD Architect PAL Widescreen video stream** template to render your video stream. You'll need to render your audio stream separately according to the parameters listed in the AC-3 audio or PCM audio headings in this section.

If you're rendering with a different application, the following settings will produce a compliant PAL MPEG-2 video stream.

Frame Size	Frame Rate	Aspect Ratio	Maximum Group of Pictures	Max. Bit Rate
704x576	25 fps	4:3	30	9.8 Mbps
352x576	25 fps	4:3	30	9.8 Mbps
352x288	25 fps	4:3	30	9.8 Mbps
704x480	25 fps	16:9	30	9.8 Mbps

The MainConcept MPEG-2 encoder in VEGAS Pro renders with the Low Delay flag turned off. If you're rendering with a different encoder, ensure Low Delay is turned off.

Media File Settings for Blu-ray Disc Projects

You can burn Blu-ray Disc projects to BD recordable discs using the BDMV format:

- A 25 GB single-layer BD recordable disc can store approximately 3 hours, 42 minutes of AVC video (15 Mbps) or 2 hours, 15 minutes of MPEG-2 video (25 Mbps).
- A 50 GB dual-layer BD recordable disc can store approximately 7 hours, 25 minutes of AVC video (15 Mbps) or 4 hours, 31 minutes of MPEG-2 video (25 Mbps).

When you use **Tools** > **Burn Disc** > **Blu-ray Disc** in a stereoscopic 3D project, VEGAS Pro will create a Blu-ray 3D™ Disc.

If your project is destined for professional Blu-ray 3D™ Disc replication, VEGAS Pro can prepare content in full HD per-eye format by rendering two separate files (using **Left only** and **Right only** modes), which can be read by an MVC encoder such as the **Dualstream 3D encoder** and authored using a tool such as **Blu-print**.

For more information about working with stereoscopic 3D projects, see "Stereoscopic 3D editing" on page 191

AC-3 audio (.ac3)

Sample Rate	Bit Rate	Channels
48,000 Hz	192 Kbps (64 Kbps to 640 Kbps is supported)	Stereo
48,000 Hz	192 Kbps (64 Kbps to 640 Kbps is supported)	5.1 surround

PCM audio (.wav or .w64)

Sample Rate	Bit Depth	Channels	Compression
48,000 Hz	16 or 24 bit	Stereo	Uncompressed
96,000 Hz	16 or 24 bit	Stereo	Uncompressed

AVC video

If you're using VEGAS Pro software, you can use the AVCHD rendering templates to render a compliant video file including 5.1 surround AC-3 audio.

Template Name	Frame Size	Frame Rate	Aspect Ratio	Maximum Bit Rate
AVCHD NTSC 5.1 Surround	1440x1080	29.970 fps	16:9	40 Mbps
AVCHD PAL 5.1 Surround	1440x1080	25 fps	16:9	40 Mbps

If you're rendering with a different application, the following settings will produce compliant AVC media.

Frame Size	Frame Rate (fps)	Aspect Ratio	Maximum Bit Rate
720x480	29.970 interlaced	4:3	40 Mbps
720x480	29.970 interlaced	16:9	40 Mbps
720x576	25 interlaced	4:3	40 Mbps
720x576	25 interlaced	16:9	40 Mbps
1280x720	59.940	16:9	40 Mbps
1280x720	50	16:9	40 Mbps
1280x720	24.000	16:9	40 Mbps
1280x720	23.976	16:9	40 Mbps
1440x1080	29.970 interlaced	16:9	40 Mbps
1440x1080	25 interlaced	16:9	40 Mbps
1440x1080	24.000	16:9	40 Mbps
1440x1080	23.976	16:9	40 Mbps

Frame Size	Frame Rate (fps)	Aspect Ratio	Maximum Bit Rate
1920x1080	29.970 interlaced	16:9	40 Mbps
1920x1080	25 interlaced	16:9	40 Mbps
1920x1080	24.000	16:9	40 Mbps
1920x1080	23.976	16:9	40 Mbps

MPEG-2 video

If you're using VEGAS Pro software, you can use the Blu-ray rendering templates to render your video stream. You'll need to render your audio stream separately according to the parameters listed in the AC-3 audio or PCM audio headings in this help topic.

Template Name	Frame Size	Frame Rate (fps)	Aspect Ratio	Maximum Group of Pictures	Maximum Bit Rate
Blu-ray 1920x1080-24p, 25 Mbps video stream	1920x1080	23.976	16:9	24	40 Mbps
Blu-ray 1920x1080-50i, 25 Mbps video stream	1920x1080	25	16:9	25	40 Mbps
Blu-ray 1920x1080-60i, 25 Mbps video stream	1920x1080	29.970	16:9	30	40 Mbps
Blu-ray 1440x1080-24p, 25 Mbps video stream	1440x1080	23.976	16:9	24	40 Mbps
Blu-ray 1440x1080-50i, 25 Mbps video stream	1440x1080	25	16:9	25	40 Mbps
Blu-ray 1440x1080-60i, 25 Mbps video stream	1440x1080	29.970	16:9	30	40 Mbps
Blu-ray 1440x1080-24p, 8 Mbps video stream	1440x1080	23.976	16:9	24	40 Mbps
Blu-ray 1440x1080-50i, 8 Mbps video stream	1440x1080	25	16:9	25	40 Mbps
Blu-ray 1440x1080-60i, 8 Mbps video stream	1440x1080	29.970	16:9	30	40 Mbps

If you're rendering with a different application, the following settings will produce compliant MPEG-2 video stream.

Frame Size	Frame Rate (fps)	Aspect Ratio	Maximum Group of Pictures	Maximum Bit Rate
720x480	29.970 interlaced	4:3	30	40 Mbps
720x480	29.970 interlaced	16:9	30	40 Mbps
720x576	25 interlaced	4:3	25	40 Mbps
720x576	25 interlaced	16:9	25	40 Mbps
1280x720	59.940	16:9	60	40 Mbps
1280x720	50	16:9	50	40 Mbps
1280x720	24.000	16:9	24	40 Mbps

Frame Size	Frame Rate (fps)	Aspect Ratio	Maximum Group of Pictures	Maximum Bit Rate
1280x720	23.976	16:9	24	40 Mbps
1440x1080	29.970 interlaced	16:9	30	40 Mbps
1440x1080	25 interlaced	16:9	25	40 Mbps
1440x1080	24.000	16:9	24	40 Mbps
1440x1080	23.976	16:9	24	40 Mbps
1920x1080	29.970 interlaced	16:9	30	40 Mbps
1920x1080	25 interlaced	16:9	25	40 Mbps
1920x1080	24.000	16:9	24	40 Mbps
1920x1080	23.976	16:9	24	40 Mbps

Custom rendering templates

If the selected file type supports it, the Render As dialog allows you to create custom templates for saving files.

Notes:

- VEGAS Pro templates for rendering multichannel audio in .wav/.wav64, .avi, and .mxf formats may be visible in other Vegas applications that do not support multichannel audio. Using these templates in other applications will not produce the desired result and should be avoided.
- If you modify a template in the Custom Template dialog without saving it with a new name, the settings will be saved to disk as "Untitled."

Creating or editing a template

1. From the File menu, choose **Render As**.
2. Select a template in the Output Format box and click the **Customize Template** button to open the Custom Template dialog.
3. Choose a template from the **Template** drop-down list, or enter a new name in the edit box.
4. Built-in presets cannot be edited.
5. When determining bit rates, 1K=1024.
6. Use the Custom Template dialog to set the template's properties.

   For information about specific controls in each file type's Custom Template dialog, click the help ? button.

7. Click the **Save Template** button  .
8. Click **OK** to return to the Save As or Render As dialog.

Deleting a template

1. From the File menu, choose **Render As**.

2. Select a template in the Output Format box and click the **Customize Template** button to open the Custom Template dialog.
3. Choose a template from the **Template** drop-down list.
4. Click the **Delete Template** button.

   Built-in presets cannot be deleted.

5. Click **OK** to return to the Save As or Render As dialog.

Copying rendering templates between computers or user accounts

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

Rendering templates are stored in **C:\Users\<username>\AppData\Roaming\Vegas\Render Templates\<plug-in name>**.

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

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

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

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

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

to this folder:

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

If you're copying templates from an older Vegas application, templates are saved as .sft files in the following folder: **C:\Documents and Settings\<username>\Application Data\Vegas\File Templates\<plug-in name>\<plug-in GUID>**.

Project tab

Some file formats include a Project tab in the Custom Template dialog.

Item	Description
Video rendering quality	Choose a rendering quality if you want to override the **Full-resolution rendering quality** setting in the Project Properties dialog.
Stereoscopic 3D mode	Choose the stereoscopic 3D mode you want to use for the template. For more information, see "Rendering a stereoscopic 3D project" on page 200
Swap Left/Right	Select the **Swap Left/Right** check box if you need to switch the left- and right-eye pictures. For more information, see "Rendering a stereoscopic 3D project" on page 200
Crosstalk cancellation	Drag the **Crosstalk cancellation** slider if you experience image bleed-through. For more information, see "Rendering a stereoscopic 3D project" on page 200
Color space	Choose a color space to use for the rendering template. For more information, see "Specifying the color space in a custom rendering template" on page 389

Using Vegas Pro Connect

Vegas Pro Connect makes it easier for you to edit and collaborate on VEGAS Pro projects.

When you're working with VEGAS Pro, you can use Vegas Pro Connect to remotely control the Vegas transport functions, seek and scrub the timeline, and add markers.

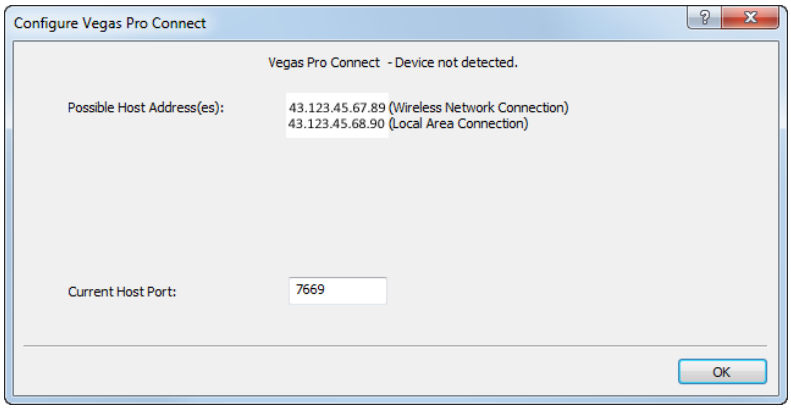
When you're on the go, you can use Vegas Pro Connect to bring your projects with you for review on your mobile device.

Setting up Vegas Pro Connect

Vegas Pro Connect saves connection profiles that allow you to use the app with a number of computers running VEGAS Pro.

1. Enable the Vegas Pro Connect host on each computer you want to connect to.
   a. In VEGAS Pro, verify **Options** > **External Control** is enabled.
   b. In VEGAS Pro, choose **Options** > **Preferences** and select the External Control & Automation tab.
   c. Choose **Vegas Pro Connect** from the **Available devices** drop-down list and click the **Add** button.
   d. Double-click the **Vegas Pro Connect** entry in the Active control devices list.
   e. The Configure Vegas Pro Connect dialog displays a list of possible addresses for your computer and the port that will be used to communicate with your computer.

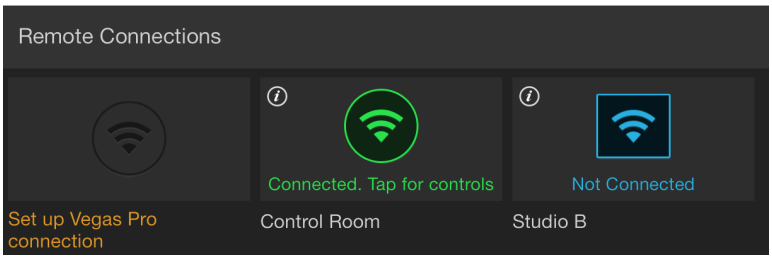
      Record the host addresses and port number. You'll need them when you set up Vegas Pro Connect.



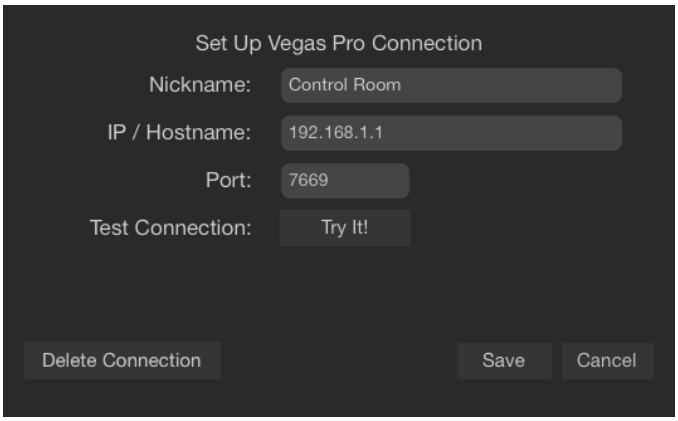
   Your mobile device and the computer running VEGAS Pro must be connected to the same network.

   f. Click **OK** to close the Configure Vegas Pro Connect and Preferences dialogs.

2. Set up a connection in Vegas Pro Connect:
   a. Start Vegas Pro Connect on your mobile device.
   b. Tap **Set up VEGAS Pro connection** to create a new connection, or tap ⓘ to edit an existing connection.



   c. Use the Set Up VEGAS Pro Connection settings to name your connection and specify the address and port of the computer you noted in step 1e above.



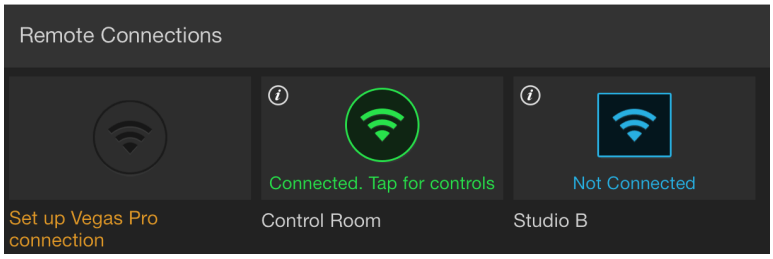
   d. Tap **Try It!** to test the connection.
      If the connection is successful, **Success** is displayed.
      If the connection fails, you may need to adjust your network or connection settings. For more information, see "Troubleshooting Vegas Pro Connect Connections" on page 493
   e. Tap **Save**.

Using Vegas Pro Connect to control playback

You can use Vegas Pro Connect to remotely control the Vegas transport functions, seek and scrub the timeline, and add markers. You can even connect multiple instances of Vegas Pro Connect for collaborative review and editing sessions.

For more information about transferring projects to your mobile device for remote viewing, please see "Using Vegas Pro Connect to review projects on your mobile device" on page 489

1. Tap a saved connection to open it.



2. Tap the buttons in Vegas Pro Connect to undo/redo edits, control playback, or add markers to the VEGAS Pro timeline.

Using transport controls



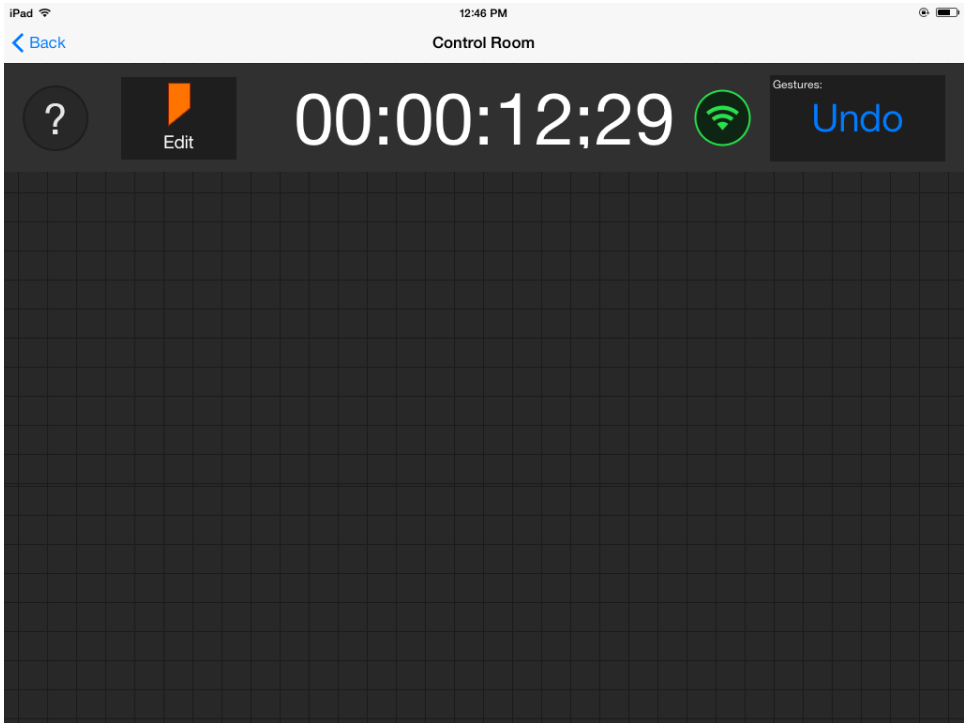
Item	Description
Connection Status	Indicates whether Vegas Pro Connect is connected to VEGAS Pro. **Not Connected**  : Vegas Pro Connect is not connected to VEGAS Pro. The Vegas Pro Connect controls are not available when it is not connected. Tap the icon to edit and test your connection settings. For more information, see "Setting up Vegas Pro Connect" on page 483 **Connected**  : Vegas Pro Connect is connected to VEGAS Pro. Tap the icon to view your connection settings. If you need to switch to a different connection, tap **Cancel** to close the Configure Remote Connection settings, tap **Home**, and then tap the connection you want to use. **Inactive**  : Vegas Pro Connect is connected to VEGAS Pro, but VEGAS Pro is not active or a dialog box is open. The Vegas Pro Connect controls are not available when the connection is inactive. Click the VEGAS Pro window on your computer to activate the application or close the dialog that is blocking the VEGAS Pro window.  *Clear the* **Close audio and MIDI ports when not the active application** *check box on the General tab of the Preferences dialog to preserve your when VEGAS Pro is not active or a dialog box is open.*
Undo Redo	Tap **Undo** to reverse the last edit operation, or tap **Redo** to restore the last undo operation.

Item	Description
Gesture Mode	Tap **Gesture Mode**  to hide the transport controls and use your mobile device as a dedicated touchpad. In gesture mode, you can tap the **Help** ? button for more information about the available gestures.
Timecode	Displays the timecode value at the cursor position.
Trackbar	Represents the length of your project. Drag the handle to move the cursor forward or backward in your project.
Record	Tap **Record**  to start recording on all armed tracks. If no tracks are armed, a new track will be created automatically. For more information, see "Recording audio" on page 99  *When using Vegas Pro Connect to initiate recording, VEGAS Pro can display dialog boxes that will interrupt your workflow. To prevent dialog boxes from being displayed when recording, ensure you've selected the* **Do not prompt for the record folder in new projects** *check box in the Project Recorded Files folder and cleared the* **Show after every recording session** *check box in the Recorded Files dialog.*
Play	Tap **Play**  to start playback from the cursor position. You can use the **Toggle Play / Stop instead of Play / Pause** switch on the Settings panel if you want the **Play** button to toggle between Play/Stop and Play/Pause mode. For more information, see "Adjusting Vegas Pro Connect settings" on page 492
Stop **Pause**	Tap **Stop**  to stop playback or recording and return the cursor to its starting position. Tap **Pause**  to suspend playback or recording and maintain the cursor position. The button will be displayed as either a **Stop** or **Pause** button depending on the state of the **Toggle Play / Stop instead of Play / Pause** switch on the Settings panel if you want the **Play** button to toggle between Play/Stop and Play/Pause mode. For more information, see "Adjusting Vegas Pro Connect settings" on page 492
Go to Start	Tap **Go to Start**  to move the cursor to the beginning of the project.
Go to End	Tap **Go to End**  to move the cursor to the end of the project.
Previous Frame	Tap **Previous Frame**  to move the cursor to the previous frame.
Next Frame	Tap **Next Frame**  to move the cursor to the next frame.
Markers	Tap a marker type to add a marker at the current cursor position. **Custom**: Adds a marker and prompts you to type a custom label. **Check Color**: Adds a marker labeled "Check Color." **Check Mix**: Adds a marker labeled "Check Mix." **SFX**: Adds a marker labeled "SFX." **Edit**: Adds a marker labeled "Edit."

Item	Description
	You can customize the text that is added to markers that you create using Vegas Pro Connect. For more information, see "Adjusting Vegas Pro Connect settings" on page 492

Using gestures

In Gesture Mode, you can tap and swipe your mobile device:



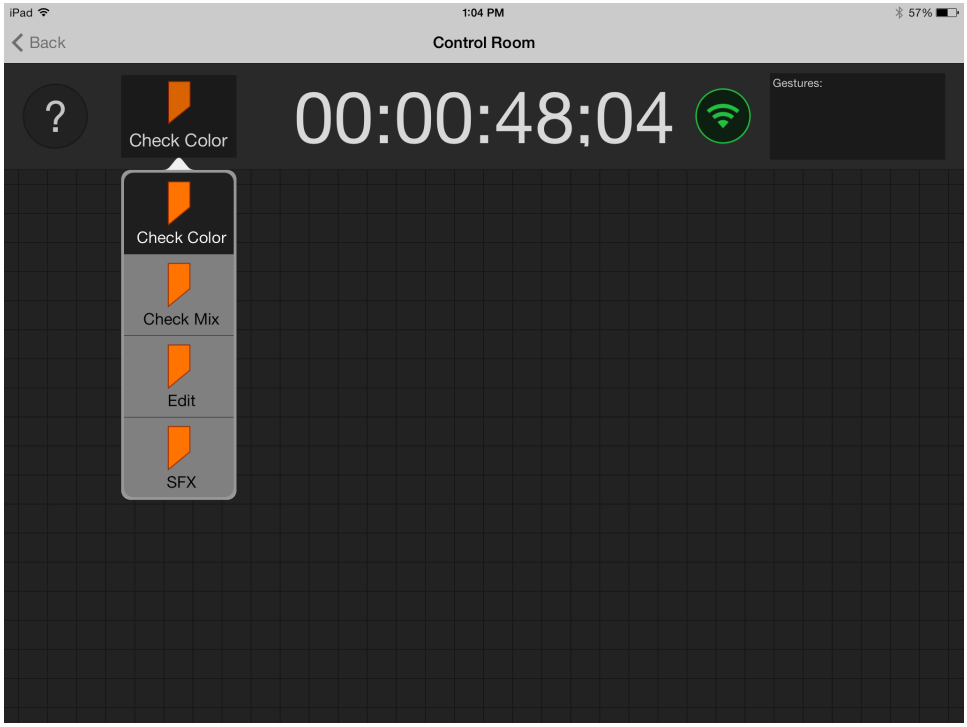
- Tap with one finger to start and pause playback from the cursor position.
- Tap with two fingers to stop playback.

  You can use the **Toggle Play / Stop instead of Play / Pause** switch on the Settings panel if you want to toggle between Play/Stop and Play/Pause mode.

  For more information, see "Adjusting Vegas Pro Connect settings" on page 492
- Swipe left with one finger to go to the previous marker (or to the start of the project if the cursor is at the first marker).
- Swipe right with one finger to go to the next marker (or to the end of the project if the cursor is at the last marker).
- Swipe right or left with two fingers to seek through the timeline.
- Swipe right or left with three fingers to seek through the timeline by frames.
- Tap and hold momentarily with one finger to start recording audio.
- Draw up and to the left with one finger to undo the last action.
- Draw up and to the right with one finger to redo the last action.

- Swipe down to add a marker using the selected marker type.

  To change the marker type that will be used for new markers, tap the marker icon and choose a new marker from the menu:



Using Vegas Pro Connect to review projects on your mobile device

Who says you can't take it with you? Choose **File** > **Prepare for Vegas Pro Connect** to prepare the current project to be synchronized with your mobile device.

A prepared project is a representation of your project at the specific point when you prepared it. VEGAS Pro renders a file that contains your current edits and adds it to a list of projects that you can choose to synchronize when Vegas Pro Connect is connected. After you sync, you can view your project on your device and add markers that will be synchronized with your VEGAS Pro project the next time you connect.

Preparing projects for Vegas Pro Connect

When you prepare a project, VEGAS Pro renders a file that can be played on your mobile device, creates a thumbnail image, and prepares metadata – such as markers – to be displayed on your device.

Each time you make changes to a project, you'll need to prepare it so Vegas Pro Connect can determine whether the project needs to be synchronized.

1. Choose **File** > **Prepare for Vegas Pro Connect**.

   The **Vegas Pro Connect Files Location** box displays the path to the folder that will be used for the files that will be synchronized with your mobile device.
2. Select the **Prepare metadata only** check box if you want to prepare only metadata. This method allows you to update markers quickly without rendering or transferring the media file.

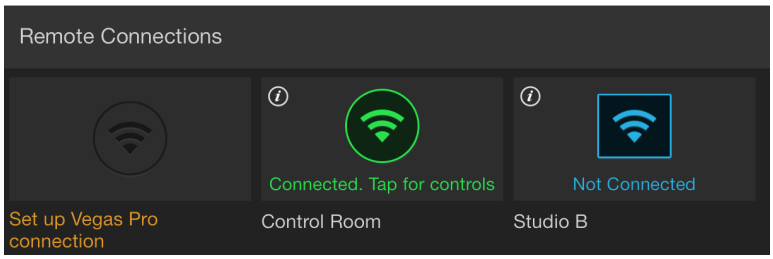
3. Select a radio button to choose the portion of your project that you want to prepare.
   - Select the **Prepare entire project** radio button if you want to save the full project timeline.
   - Select the **Prepare loop region only** radio button if you want to save only the portion of the project that is contained within the loop region. **Loop Playback** does not need to be selected for this option to work.
   - The **Prepare loop region only** radio button is available only if you've created a time selection in the timeline.

     When **Prepare loop region only** *is selected, VEGAS Pro will render only the frames contained within the loop region. If you change your selection and prepare the project again, the Review Projects section of Vegas Pro Connect will contain a separate entry for each selection range.*

   - Select the **Prepare previous loop region** radio button and choose a setting from the drop-down list to save a portion of the project that you've previously prepared. **Loop Playback** does not need to be selected for this option to work.
4. Click **OK** to start rendering your project and add it to the Review Projects queue on your mobile device.

Transferring projects to your mobile device

1. On your mobile device, tap the connection you want to use. After you connect, your queued project will be transferred to your device and displayed in the Review Projects list.

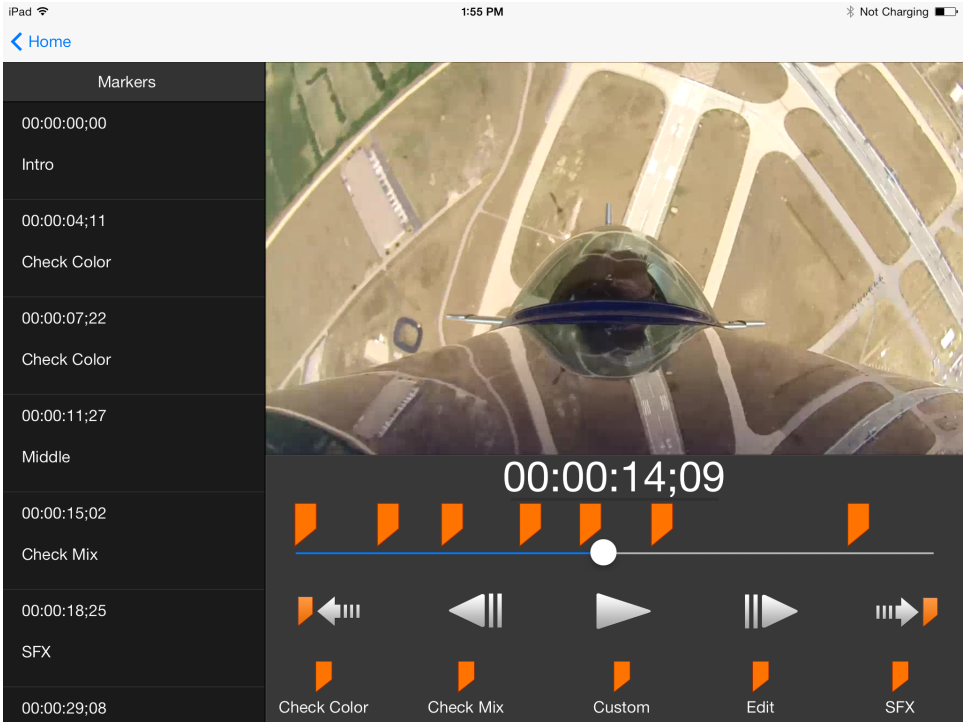


2. The Review Projects list at the bottom of Vegas Pro Connect displays a list of projects that are available for mobile review.
   - If a file has not been synchronized with your mobile device, **Tap to sync file** is displayed, Tap the file's thumbnail image to synchronize it.
   - If a file has been synchronized, a check mark  is displayed in the file's thumbnail image.
   - If a file has been updated since it was synchronized, a resync icon  is displayed in the file's thumbnail image. Tap **Tap to resync** to transfer the latest version to your mobile device.
   - Tap **Remove File**  to remove a file from your mobile device.
   - Tap a synchronized project's thumbnail image to start playback.

Reviewing projects on your mobile device

Tap a synchronized project's thumbnail image to start playback.

Tap the buttons in Vegas Pro Connect to undo/redo edits, control playback, or add markers to the VEGAS Pro timeline.



The Markers list displays all markers in your project. Markers that were added in Vegas Pro Connect include a **Delete** button that you can tap to remove the marker.

Markers that were added in VEGAS Pro cannot be deleted in Vegas Pro Connect.

Item	Description
Timecode	Displays the timecode value at the cursor position.
Trackbar	Represents the length of your project. Drag the handle to move the cursor forward or backward in your project.
Previous Marker	Tap **Previous Marker** to move the cursor to the previous marker.
Previous Frame	Tap **Previous Frame** to move the cursor to the previous frame.
Play	Tap **Play** to start playback from the cursor position.
Next Frame	Tap **Next Frame** to move the cursor to the next frame.
Next Marker	Tap **Next Marker** to move the cursor to the next marker.
Markers	Tap a marker type to add a marker at the current cursor position. **Custom**: Adds a marker and prompts you to type a custom label. **Check Color**: Adds a marker labeled "Check Color." **Check Mix**: Adds a marker labeled "Check Mix." **SFX**: Adds a marker labeled "SFX." **Edit**: Adds a marker labeled "Edit."

Item	Description
	Markers that you add in Vegas Pro Connect will be displayed in blue until you sync your project. When Vegas Pro Connect is connected ( ), you can tap **Home** *to sync the markers on your device with your VEGAS Pro project. If you're reviewing your project on the go, your markers will be synced the next time you start Vegas Pro while Vegas Pro Connect is connected.*

Managing prepared clips

Choose **File** > **Manage Vegas Pro Connect Clips** to display the Manage Vegas Pro Connect Clips dialog.

This dialog displays each of the clips that you've prepared for Vegas Pro Connect. You can see the clip's thumbnail image, the portion of the project that was prepared, and the last time the clip was prepared.

Click **Delete All Clips** or **Delete Selected Clips** to remove previously prepared Vegas Pro Connect clips from your computer.

Adjusting Vegas Pro Connect settings

Vegas Pro Connect allows you to adjust its settings so you can make it work just the way you need it.

On the Home screen, tap the **Settings** link in the top-right corner of the Vegas Pro Connect window to open the Settings panel.

Item	Description
Show connection setup help	Tap **Show** to display a series of slides on your mobile device that will help you connect Vegas Pro Connect to a computer running VEGAS Pro.
Reset all content and preferences	Tap **Reset** to remove all content and saved connections from your mobile device. After you reset, Vegas Pro Connect will revert to its initial installation state.
Toggle Play / Stop instead of Play / Pause	Drag the switch to the right if you want the Vegas Pro Connect **Play** button to start and stop playback. In this mode, the button will change to a **Stop** button during playback, and the cursor will return to the initial playback position when you tap **Stop**. Drag the switch to the left if you want the Vegas Pro Connect **Play** button to start and pause playback. In this mode, the button will change to a **Pause** button during playback, and the cursor will maintain its position when you tap **Pause**.
Markers	You can customize the text that is added to markers that you create using Vegas Pro Connect. Tap the **Display** box and type a new name if you want to change the default marker names. Tap the **Detail** box if you want to add an extended description to a marker type. For example, you might add "Screening room A" to the Check Color marker type to indicate where you previewed your project. Markers with detailed descriptions will be displayed as "Check Color: Screening room A" in Vegas Pro Connect and on the Vegas Pro timeline. *Markers that you add will be displayed in blue until you sync your project.*

Troubleshooting Vegas Pro Connect Connections

Vegas Pro Connect displays the **Not Connected**  icon when it is unable to connect to VEGAS Pro.

Tap the icon to edit and test your connection settings. For more information, see "Setting up Vegas Pro Connect" on page 483

If you're having trouble establishing a connection, please check the following items.

- The computer running VEGAS Pro and the device running Vegas Pro Connect must be connected to the same network.

  To check your computer's network, open Network and Sharing Center and note the connected networks.

  To check your mobile device's network, go to **Settings** > **Wi-Fi** and verify your mobile device is connected to the same network.
- Firewalls may block Vegas Pro Connect.

  Try turning off your firewall or opening the port that will be used to communicate with your computer. For more information, see "Setting up Vegas Pro Connect" on page 483

Using hardware controllers

VEGAS® Pro supports several types of hardware devices you can use to adjust controls in the user interface, from a full-featured, professional control surface to a simple gaming joystick.

A hardware controller lends a tactile element to your editing sessions, providing a hands-on feel that your mouse just can't duplicate.

Using a control surface

A control surface is a hardware device that uses knobs, faders, and buttons to control user interface elements that are normally controlled with a mouse. Using a control surface lends a tactile feel to your editing sessions.

Unlike keyboard shortcuts–which determine the shortcut's behavior based on the portion of the VEGAS Pro window that has focus–a control surface's mapped functions work no matter what part of the application has focus.

Connecting your control surface

You can use one Mackie Control Universal (with up to four Mackie Control Universal Extenders), one Frontier TranzPort, one PreSonus FaderPort, and up to five generic control surfaces with VEGAS Pro.

If you're using Mackie Control Extenders, you'll need a multiport MIDI interface with MIDI In/Out ports for each device.

Perform the following steps for each device.

1. Connect the MIDI Out port on your MIDI interface to the MIDI In port on your control surface.
2. Connect the MIDI In port on your MIDI interface to the MIDI Out port on your control surface.
3. If you're using Mackie Control Extenders, repeat Steps 1 and 2 for each Mackie Control Extender.

If you're using a USB interface such as the Frontier TranzPort, just plug in the USB cable.

Configuring VEGAS Pro to use your control surface

Use the MIDI tab in the Preferences dialog to select the device to which your control surface is connected.

1. From the Options menu, choose **Preferences** to display the Preferences dialog.
2. Enable your MIDI input and output ports:
   a. Select the MIDI tab in the Preferences dialog. For more information, see "Preferences - MIDI Device Tab" on page 550
   b. In the **Make these devices available for MIDI output** box, select the check box for the MIDI port that is connected to your control surface's In port.
   c. In the **Make these devices available for MIDI input** box, select the check box for the MIDI port that is connected to your control surface's Out port.
   d. Click **Apply**.
3. Choose your control surface:
   a. Select the External Control & Automation tab in the Preferences dialog. For more information, see "Preferences - External Control & Automation Tab" on page 558
   b. Choose a device from the **Available devices** drop-down list and click the **Add** button. Adding a device loads its default profile. If you want to customize the behavior of the control surface, double-click its entry in the **Active control devices** list.
4. Click **OK** to apply your changes and close the Preferences dialog.

Configuring or customizing your control surface

Use the External Control & Automation tab in the Preferences dialog to select the control surfaces you want to use and adjust their configuration.

1. From the Options menu, choose **Preferences** to display the Preferences dialog.
2. Select the External Control & Automation tab. For more information, see "Preferences - External Control & Automation Tab" on page 558
3. Choose a device from the **Available devices** drop-down list and click the **Add** button. The device is added to the **Active control devices** list.
4. Double-click the entry in the **Active control devices** list to display the configuration dialog.
   - For information about setting up a Mackie control, see "Using a Mackie Control" below
   - For information about setting up a Frontier TranzPort, see "Using a Frontier TranzPort" on page 509
   - For information about setting up a PreSonus FaderPort, see "Using a PreSonus FaderPort" on page 511
   - For information about setting up a generic MIDI control, see "Using a Generic Control Surface" on page 512

Using your control surface

This section describes how to use your control surface in general terms.

For information about your specific device, please refer to the manufacturer's documentation.

1. From the Options menu, choose **External Control** to enable your selected control surfaces.
2. If necessary, press the **Automation** button on your control surface.
3. Click the **Automation Settings** button for each track you want to edit with the control surface and choose **Automation Write (Touch)** or **Automation Write (Latch)** to enable automation recording. For more information, see "Recording track envelope and keyframe automation" on page 248

   To enable automation recording for audio busses or the main video output, use audio bus tracks or the video bus track. For more information, see "Audio bus tracks" on page 229 and "Video bus track" on page 230
4. Use the functions on your control surface to edit your project.

Using a Mackie Control

The Mackie Control is fully supported by VEGAS Pro. An overlay is available from Mackie that you can use to label the Mackie Control buttons and controls with their mapped functions in VEGAS Pro:**http://www.mackie.com/products/mcu/index.html**.

The overlay identifies the default control mapping. You can also customize the buttons and controls on the Mackie control. When you use the default mapping, the Mackie Control is divided into several functional areas. All functionality described in this topic refers to the default control mapping.

For information about your Mackie Control, please refer to the manufacturer's documentation.

For more information about setting up a control surface, see "Using a control surface" on the previous page

The Mackie Control Universal can control either trim or automation settings. In order to control automation settings, the **Automation** *button in the Audio/Video section must be selected, and the track or bus you want to edit must be set to* **Automation Write (Touch)** *or* **Automation Write (Latch)**. *Hold the F1 button while turning the V-Pot (or use the* **Automation Settings** *button) to change the automation recording mode for each track and bus track.*

Configuring channel mappings for Mackie Control Extenders

If you're using Mackie Control Extenders. you'll need to set up your channel mapping.

For example, if your Mackie Control Universal is on the left of your Mackie Control Extender, you could configure the Mackie Control to adjust channels 1 through 8 and use the Mackie Control Extender to adjust channels 9 through 16.

If you have a Mackie Control Universal positioned between two Mackie Control Extenders, you could adjust channels 1 through 8 on the left Extender, adjust channels 9 through 16 on the Mackie Control Universal, and adjust channels 17 through 24 on the right Extender.

1. From the Options menu, choose **Preferences** to display the Preferences dialog.
2. Select the External Control & Automation tab.
3. Double-click your Mackie Control in the **Active control devices** list to display the Configure Mackie Control dialog.

   The current channel mapping is displayed on each device's LCD.
4. Choose the channels you want to control with the Mackie Control Universal:
   a. From the **Device Type** drop-down list, choose **Mackie Control**.
   b. From the **Channel Mapping** drop-down list, choose the channels you want to adjust with the Mackie Control Universal.
5. Choose the channels you want to control with the Mackie Control Extender:
   a. From the **Device Type** drop-down list, choose **Mackie Control Extender**.
   b. From the **Channel Mapping** drop-down list, choose the channels you want to adjust with the Mackie Control Extender.
6. Repeat Step 5 for each Mackie Control Extender.
7. Click **OK** to apply your changes and close the Configure Mackie Control dialog.
8. Click **OK** to apply your changes and close the Preferences dialog.

Configuring or customizing control mappings

Use the External Control & Automation tab in the Preferences dialog to select the control surfaces you want to use and adjust their configuration. For more information, see "Preferences - External Control & Automation Tab" on page 558



When you customize your control mappings, button functions may not match the labels on the overlay. You can click the **Default All** *button in the Configure Mackie Control dialog to restore the default settings.*

1. From the Options menu, choose **Preferences** to display the Preferences dialog.
2. Select the External Control & Automation tab.
3. Double-click your Mackie Control in the **Active control devices** list to display the Configure Mackie Control dialog.
4. To add or change a function do the following:
   a. Select an item in the **User defined surface control mappings** list.
   b. Select an item in the **Available host functions** list.
   c. Click the **Assign** button.
5. To remove a function, select an item in the **User defined surface control mappings** list and click the

Clear button.

6. To remove all functions, click the **Clear All** button.
7. To replace all custom functions with the default settings, click the **Default All** button.

Channel section (not shown)

The channel section includes V-Pots (knobs), buttons, and faders that you can use to edit your tracks and busses.

Area	Description
V-Pot	Adjusts values for panning, volume (when **Flip** button is selected), video track opacity (when **Flip** button is selected), video track fade-to-color, and effect parameter values. • Adjusts track volume when the **Pan** or **Sends** button is selected and the **Flip** button is selected. • Adjusts audio track panning when the **Pan** button is selected. • Adjusts bus send levels when the **Sends** button is selected. • Adjusts video track opacity when the **Video** and **Flip** buttons are selected. • Adjusts video track fade-to-color envelope when the **Video** button is selected, the **Automation** button in the Audio/Video section is selected, and the track is in **Automation Write (Touch)** or **Automation Write (Latch)** mode. • Adjusts the track compositing mode when the **Video** button is selected and you press the **Output/Compositing** button twice to change the track assignment to CO. • Adjusts effect parameters when the **Inserts** button is selected. The V-Pot is velocity sensitive, so rotating quickly changes values quickly, and you can press the button to choose a selection. When the **Pan** or **Sends** button is selected, press the V-Pot to edit the track or bus effects chain.
Rec/Rdy button	Arms audio tracks for recording. For more information, see "Recording audio" on page 99
Signal LED	Indicates whether an audio track or bus is outputting a signal.
Solo button	Press to solo a track or remove it from the solo group.
Mute button	Press to mute or unmute a track.
Select button	Press to select a track.
Fader	Adjusts the track or bus level (unless the **Flip** button is selected). When the **Automation** button is selected, the fader adjusts the automation envelope if the track is in **Automation Write (Touch)** or **Automation Write (Latch)** mode. The fader can also adjust settings for the following items when you select other buttons in the Channel section. • Adjusts audio track panning when the **Pan** and **Flip** buttons are selected.

Area	Description
	• Adjusts bus send levels when the **Sends** and **Flip** buttons are selected. • Adjusts video track opacity when the **Video** button is selected. • Adjusts video track fade-to-color settings when the **Automation**, **Video**, and **Pan/Fade to Color** buttons are selected. • Adjusts video track fade-to-color envelope when the following conditions are met: ◦ The **Video** button is selected. ◦ The **Automation** button in the Audio/Video section is selected. ◦ The **Pan/Fade to Color** button is selected. ◦ The track is in **Automation Write (Touch)** or **Automation Write (Latch)** mode. The fader is touch sensitive, so if you're recording automation parameters, recording will begin when you touch the fader and stop when you release it. The current setting is displayed in the Mackie Control display.

Footswitches (not shown)

The Mackie Control has two switched inputs (labeled **User Switch A** and **User Switch B**) that you can use to connect footswitches.

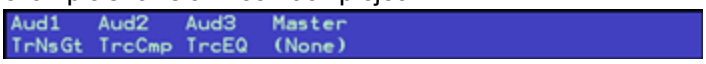
By default, footswitch A toggles playback, and footswitch B starts and stops recording.

You can customize the footswitches in the Configure Mackie Control dialog. Double-click **Mackie Control** in the Active control devices list on the External Control & Automation tab of the Preferences dialog to display the Configure Mackie Control dialog.

Control buttons

The buttons in the Control section determine the operation of the V-Pots and faders in the channel section of your Mackie Control. In every mode, the fader adjusts track volume, and the V-Pot adjusts the selected control mode. You can press the **Flip** button to reverse the V-Pot and fader function.

Button	Description
Output / Compositing	Press the **Output** button to set the output device for each track or bus. Turn the V-Pot in the channel section to choose an output device and press the V-Pot to select it. When the **Video** button is selected, you can set the compositing mode for each track using the V-Pot.
Input / Motion Blur	Press to set the recording input device for each track. Turn the V-Pot in the channel section to choose an input device and press the V-Pot to select it. When the **Video** button is selected, press the V-Pot to enable or bypass motion blur for each video track.
Pan /	Press to adjust track panning using the V-Pot in the channel

Button	Description
Fade to Color	section. In 5.1 surround projects, pressing the Pan button toggles left-to-right panning, front-to-rear panning, and center-channel level adjustment using the V-Pot. When the **Video** button is selected, you can adjust the opacity of video tracks with the fader in the channel section and adjust fade-to-color settings with the V-Pot when the **Automation** button in the Audio/Video section is selected and the track is in **Automation Write (Touch)** or **Automation Write (Latch)** mode.
Sends	Press to adjust bus and assignable effects send levels. Press the **Sends** button to scroll through the available busses and assignable effects chains, and then turn the V-Pot to adjust the send level.
Inserts	Press to adjust effects settings. Press the button once to display PL in the Mackie Control Assignment display. The Mackie Control LCD displays the effects that are assigned to each track or bus. The following example shows a three-track project:  Turn the V-Pot to scroll through the effects, and press the V-Pot to edit the current effect. In editing mode, **PE** is displayed in the Assignment display. The following example shows the settings for the Noise Gate plug-in on track one:  PE mode uses the following controls: • V-Pots 1 - 4: Turn to edit the effect's parameters. For switch parameters such as Bypass, press the V-Pot to change the setting. • V-Pot 5: Turn to scroll through an effect's property pages. • V-Pot 6: Turn to choose from a plug-in's available presets. Press the V-Pot to choose a preset. • V-Pot 7: Turn to edit the current effect for a different channel. • V-Pot 8: Turn to choose other effects for the current channel. Press the **Inserts** button again to view effects chains. **PS** is displayed in the Assignment display. The following example shows the effects chain on track one:  PS mode uses the following controls: • V-Pots 1, 3, and 5: Turn to choose other effects for the current channel. Press to edit the selected effect and enter PE mode. • V-Pots 2, 4, and 6: After choosing an effect with V-Pot 1, 3, or 5, press V-Pot 2, 4, or 6 to add it to the channel.

Button	Description
	• V-Pot 7: If a channel has multiple pages of effects in the chain, turn to display additional effects. In the previous example, **Aud 1 1/2** means that track one has two pages of effects. • V-Pot 8: Turn to choose effects chains for other channels. When **<No Insert>** is displayed above a V-Pot, you can turn the V-Pot to view effects that you can add to the chain. New effects are displayed with a *. Press the next V-Pot (to the right) to add the effect.
Settings	Press to adjust track or bus settings using the F1 through F6 buttons. • F1: Hold the button and turn the V-Pot to change the automation recording mode for each track and bus track. For more information, see "Recording track envelope and keyframe automation" on page 248 • F2: Hold the button and turn the V-Pot to change the current panning mode. For more information, see "Audio panning modes" on page 407 • F3: Hold the button and press the V-Pot to change the track phase. • F4: Hold the button and turn the V-Pot to change record input monitoring settings when you're using an ASIO audio device. For more information, see "Recording audio" on page 99 • "Recording audio" on page 99 When the **Sends** button is selected, press the **Settings** button and hold F5 while pressing the V-Pot to change a track's bus or assignable effects send level to Pre Volume or Post Volume. Press the **Sends** button to scroll through the available bus and effects sends. • F6: Press the **Settings** button and hold F6 while pressing the V-Pot on a channel to return the channel's settings to the track defaults. For more information, see "Setting default track properties" on page 233

Fader Banks buttons

The Fader Banks buttons control the behavior of the channel section controls.

Button	Description
Bank	Press the left or right arrow button to scroll the channels 8 units at a time. For example, if tracks 1-8 are currently displayed, pressing the right arrow will change to tracks 9-16.
Channel	Press the left or right arrow button to scroll the channels 1 unit at a time. For example, if tracks 1-8 are currently displayed, pressing the right arrow will change to tracks 2-9.

Button	Description
	Hold the **Option** button while pressing either Channel button to change track order. For example, if track two is selected and you press **Option**+ **< Channel**, track two becomes track one. Conversely, if track one is selected and you press **Option** + **Channel >**, track one becomes track two.
Flip	Press to exchange the behavior of the fader and V-Pot when allowed.
Video	Press to toggle audio and video modes. For example, you press the **Pan/Fade** button in audio mode, you can perform audio track panning with the V-Pot. If you press the button in video mode, you can adjust fade-to-color settings if the **Automation** button in the Audio/Video section is selected and the track is in **Automation Write (Touch)** or **Automation Write (Latch)** mode.

Display buttons

The Display buttons control the Mackie Control LCD display.

Button	Description
Meters/Values	When you're working with audio tracks or busses, press to display meters or numeric values. Even in Meters mode, numeric values are displayed when you edit a value. In Audio mode, hold the **Shift** button in the Modifiers section while pressing the **Meters/Values** button to toggle control of tracks, busses, or tracks and busses. • Press once to show audio tracks. • Press again to show audio tracks. • Press again to show busses. • Press again to show tracks and busses.
Time Fmt Zero	Press and hold to display the current time format. Turn V-Pot 8 while holding the button to change the format. Hold the **Shift** button in the Modifiers section while pressing the **Time Fmt/Zero** button to set the current cursor position to zero.

Markers buttons

The Markers buttons control additional track and channel settings.

Button	Description
Marker 1/9 Automation Mode	Press to place the cursor at marker 1, or hold Shift and press to place the cursor at marker 9. When the **Settings** button is selected, hold the button and turn the V-Pot to change the automation recording mode for each track and bus track. For more information, see "Recording track envelope and keyframe automation" on page 248
Marker 2/10 Pan Mode	Press to place the cursor at marker 2, or hold Shift and press to place the cursor at marker 10.

Button	Description
	When the **Settings** button is selected, hold the button and turn the V-Pot to change the current panning mode. For more information, see "Audio panning modes" on page 407
Marker 3/11 Track Phase	Press to place the cursor at marker 3, or hold Shift and press to place the cursor at marker 11. When the **Settings** button is selected, hold the button and press the V-Pot to change the track phase.
Marker 4/12 Input Monitor	Press to place the cursor at marker 4, or hold Shift and press to place the cursor at marker 12. When the Settings button is selected, hold the button and turn the V-Pot to change record input monitoring settings when you're using an ASIO audio device. For more information, see "Recording audio" on page 99
Marker 5/13 Pre/Post	Press to place the cursor at marker 5, or hold Shift and press to place the cursor at marker 13. When the **Pan** button is selected, press the **Settings** button and then hold F5 while pressing the V-Pot to change the bus or assignable effects output fader to Pre FX or Post FX. When the **Sends** button is selected, press the **Settings** button and hold F5 while pressing the V-Pot to change a track's bus or assignable effects send level to Pre Volume or Post Volume. Press the **Sends** button to scroll through the available bus and effects sends.
Marker 6/14 Default	Press to place the cursor at marker 6, or hold Shift and press to place the cursor at marker 14. Press the **Settings** button and hold F6 while pressing the V-Pot on a channel to return the channel's settings to the track defaults. For more information, see "Setting default track properties" on page 233
Marker 7/15	Press to place the cursor at marker 7, or hold Shift and press to place the cursor at marker 15.
Marker 8/16	Press to place the cursor at marker 8, or hold Shift and press to place the cursor at marker 16.

Add New buttons

The Add New buttons add busses or tracks to your project.

Button	Description
Track	Press to add a new audio track. When the **Video** button is selected, a new video track is added.
Bus	Press to add an audio bus to your project.

Windows buttons

The Windows buttons control the display of various VEGAS Pro windows.

Button	Description
Master Bus	Press to show the Master Bus window. If the window is not docked, pressing the button shows/hides the window.
Video Preview	Press to show the Video Preview window. If the window is not docked, pressing the button shows/hides the window.
Plug-Ins	Press to show the Plug-In Manager window. If the window is not docked, pressing the button shows/hides the window.

View buttons

The View buttons control the display of various sections of the VEGAS Pro window.

Button	Description
Bus Tracks	Press to show or hide audio bus tracks in the VEGAS Pro timeline. When the Video button is selected, press to show or hide the video bus track. For more information, see "Audio bus tracks" on page 229 and "Video bus track" on page 230
Dock Area	Press to show or hide the Window Docking Area at the bottom of the VEGAS Pro window.
Track List	Press to show or hide the track list in the timeline.

Modifiers buttons

The Modifiers buttons extend the functionality of other buttons on the Mackie Control.

Button	Description
Shift	Hold the **Shift** button while pressing a button labeled with inverse text to perform the shift function. For example, hold **Shift** while pressing the **Undo/Redo** button to reverse an undo action.
Option/ Track Order	Hold the **Option/Track Order** button while pressing a button in the Settings, Add New, or Windows group for alternative functions. Hold the **Option/Track Order** button while pressing a the **Channel <** or **Channel >** button to change track order. Hold the **Option/Track Order** button while pressing F1 to F16 to perform custom functions you can define. See the Configure or customize your control mappings heading in this section for more information. Use the External Control & Automation tab in the Preferences dialog to select the control surfaces you want to use and adjust their configuration. 1. From the Options menu, choose **Preferences** to display the Preferences dialog. 2. Select the External Control & Automation tab. 3. Double-click your Mackie Control in the **Active devices** list to display the Configure Mackie Control dialog.

Button	Description
	4. To add or change a function do the following: • Select an item in the **User defined surface control mappings** list. • Select an item in the **Available host functions** list. • Click the **Assign** button. 5. To remove a function, select an item in the **User defined surface control mappings** list and click the **Clear** button. 6. To remove all functions, click the **Clear All** button. 7. To replace all custom functions with the default settings, click the **Default All** button. For more information, see "Preferences - External Control & Automation Tab" on page 558
Ctrl	Hold the **Ctrl** button while using a control for alternative functions.
Alt	Hold the **Alt** button while using a control for alternative functions. Hold **Alt** while pressing F1 through F10 to run scripts 1-10 from the Tools > Scripting submenu.

Audio/Video buttons

The Audio/Video buttons control various audio and video settings for your project.

Button	Description
Automation	Press to place the controls on the Mackie Control in automation mode. The controls in the channel section of the Mackie Control will affect the automation parameters on the track or bus if **Automation Write (Touch)** or **Automation Write (Latch)** mode is selected. When the button is not selected, the buttons control trim (static) values. For more information, see "Using automation" on page 236
Bypass FX	Press to bypass/enable all audio effects.
Metronome	Press to turn the metronome on or off. For more information, see "Metronome" on page 103
Surround/ Ext Monitor	Press to toggle the project properties between stereo and 5.1 surround mode. When the **Video** button is selected, press the **Surround/Ext Monitor** button to send your video preview to an external monitor.
Downmix/ Split Screen	Press to toggle the state of the **Downmix Output** button in the Master Bus window. When the **Video** button is selected, press the **Downmix/Split Screen** button to toggle split-screen video previews.
Dim/ Overlays	Press to toggle the state of the **Dim Output** button in the Master Bus window. When the **Video** button is selected, press the **Dim/Overlays** button to toggle the display of overlays (grid, safe areas, and RGB channels) in the Video Preview window.

Project buttons

The Project buttons perform various project-level commands.

Button	Description
Save	Press to save your project.
Undo/ Redo	Press to reverse edit operations. Hold **Shift** while pressing the button to reverse an undo operation.
OK	Not used.
Cancel	Not used.

Timeline buttons

The Timeline buttons perform various commands for the project timeline.

Button	Description
Marker/ CD Index	Press to place a marker at the cursor position. Hold the **Shift** button while pressing the **Marker/CD Index** button to place a CD index marker at the cursor position. Hold the **Ctrl** button while pressing the **Marker/CD Index** button to remove a marker. Hold the **Ctrl** and **Shift** buttons while pressing the **Marker/CD Index** button to remove a CD index marker. For more information, see "Using markers, regions, and commands" on page 203
Region/ CD Track	Press to convert the current selection to a region. Hold the **Shift** button while pressing the **Region/CD Track** button to convert the current selection to a CD track region. Hold the **Ctrl** button while pressing the **Region/CD Track** button to remove a region. Hold the **Ctrl** and **Shift** buttons while pressing the **Region/CD Track** button to remove a CD track.
Loop/ Select	Press to toggle looped playback mode. Hold the **Shift** button while pressing the **Loop/Select** button to create a time selection from the loop region.
Mark In/ Go to In	Press to set the beginning of the loop region at the cursor position. Hold the **Shift** button while pressing the **Mark In/Go to In** button to move the cursor to the beginning of the loop region.
Mark Out/ Go to Out	Press to set the end of the loop region at the cursor position. Hold the **Shift** button while pressing the **Mark Out/Go to Out** button to move the cursor to the end of the loop region.
Event Trim/ Center Cursor	Press to toggle event edge-trimming mode. Press the right or left arrow button to select the next or previous event edge, and then turn the jog dial to trim the event edge. Hold the **Shift** button while pressing the **Event Trim/Center Cursor** button to center the cursor in the timeline view. For more information, see "Adjusting an event's length" on

Button	Description
	page 142
RTZ/ End	Press to move the cursor to the beginning of the project. Hold the **Shift** button while pressing the **RTZ/End** button to move the cursor to the end of the project.

Transport buttons (not shown)

The Transport buttons allow you to navigate the timeline and preview your project.

Button	Description
Rewind	Press and hold to move backward through the timeline at 20x speed.
Fast Forward	Press and hold to move forward through the timeline at 20x speed.
Stop	Press to stop playback and return the cursor to its position before playback started. Hold the **Shift** button while pressing the **Stop** button to create a dynamic RAM preview. For more information, see "Using dynamic RAM previews" on page 431
Play	Press to start playback. Press again to stop playback and leave the cursor at its current position. Hold the **Shift** button while pressing the **Play** button to preview the cursor position. To change the playback duration, use the **Cursor preview duration** control on the Editing tab of the Preferences dialog.
Record	Press to start recording. Press again to stop recording and leave the cursor at its current position. Hold the **Shift** button while pressing the **Record** button to render the current selection to a new track.

Arrow buttons (not shown)

The arrow buttons allow you to navigate the timeline and preview your project.

Button	Description
Left/Right	When the **Zoom** button is not selected:, • Press the left or right arrow button to move left or right by grid marks. • When the **Event Trim** button is selected, pressing the left or right arrow button selects the previous or next event edge. You can then use the jog dial to trim the event edge. • Hold **Shift** while pressing the left or right arrow button to select left or right by grid marks. • Hold **Ctrl** while pressing the left or right arrow button to move left or right by edits on the focus track.

Button	Description
	• Hold **Ctrl** + **Shift** while pressing the left or right arrow button to select left or right by edits on the focus track. When the **Zoom** button is selected: • Press the left or right arrow button to move left or right by pixels (when **Quantize to Frames** is turned off). • Hold **Shift** while pressing the left or right arrow button to select left or right by pixels. • Hold **Ctrl** while pressing the left or right arrow button to move to the previous or next marker. • Hold **Ctrl** + **Shift** while pressing the left or right arrow button to select to the previous or next marker.
Up/Down	When the **Zoom** button is not selected: • Press to change the focus track. • Hold **Shift** while pressing the up or down arrow button to select a range of tracks. When the **Zoom** button is selected: • Press to zoom in or out. • Hold **Shift** while pressing the up or down arrow button to change the magnification of audio waveforms. • Hold **Ctrl** while pressing the up or down buttons to zoom to a selection or to the high in/max out. • Hold **Ctrl**+**Shift** while pressing the up or down buttons to change track heights.

Jog dial (not shown)

The jog dial allows you to navigate the timeline and trim events.

Navigating the timeline

When playback is paused and the **Scrub** button is not selected, the jog dial performs the following functions:

- When the **Zoom** button is not selected, turn the dial clockwise or counterclockwise to navigate the timeline by frames.
- When the **Zoom** button is selected, turn the dial clockwise or counterclockwise to navigate the timeline by pixels.
- Hold the **Shift** button and turn the dial to create a time selection or extend a selection.

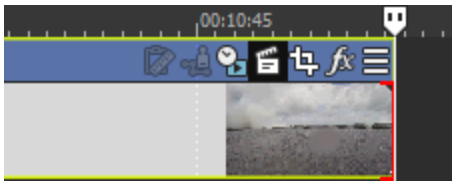
Scrubbing the timeline

During playback, turning the jog dial increases or decreases the playback rate.

When playback is paused and the **Scrub** button is selected, turning the jog dial scrubs the timeline.

Trimming events

1. Press the **Event Trim** button to enter event trimming mode.
2. Press the left or right arrow button to select the event edge you want to trim. A red bracket is displayed to indicate which event edge will be trimmed.



3. Turn the jog dial to trim the event edge left or right in one-frame increments. Hold Ctrl while turning the dial to trim in one-pixel increments. Depending on the current zoom level, the trim duration will vary.

   For more information, see "Adjusting an event's length" on page 142 and "Zooming and magnification" on page 181

Using a Frontier TranzPort

Using a Frontier TranzPort, you can control VEGAS Pro wirelessly.

For more information about configuring VEGAS Pro to use a control surface, see "Using a control surface" on page 495

View the control mappings

The map for the TranzPort assigns the controls as follows.

Control	Function	Shift Function
Track ◄	Focus to previous track or mixer control.	Insert audio track.
Track ►	Focus to next track or mixer control.	
Rec	Arm track for record.	
Mute	Mute track.	
Solo	Solo track.	
Undo	Undo.	Redo.
In	Set loop start.	
Out	Set loop end.	
Punch	Toggle metronome.	
Loop	Toggle looped playback.	Toggle jog wheel control of volume, panning, input, or output device for tracks or Mixer controls. 1. Press **Track** ◄ or **Track** ► to select the track you want to adjust. 2. Press Shift + Loop until the item you want to edit is displayed on the TranzPort. 3. Hold Shift while rotating the jog wheel to adjust the selected control.

Control	Function	Shift Function
Shift	Toggle alternate functions.	
Markers Prev	Move to previous marker.	
Markers Add	Insert marker at cursor.	
Markers Next	Move to next marker.	
Jog Wheel	Scroll cursor.	Adjust volume or pan for current track.
◀◀	Rewind.	Go to start.
▶▶	Fast forward.	Go to end.
■	Stop playback or recording.	
▶	Play/pause.	
●	Punch in or start recording.	

Adjust track or bus volume

1. Press Track ◀ or Track ▶ to select the track or mixer control you want to adjust.
2. Press Shift+Loop until the TranzPort displays volume.
3. Hold Shift while rotating the jog wheel to adjust the volume of the selected track or mixer control.

Adjust track or bus panning

1. Press Track ◀ or Track ▶ to select the track or mixer control you want to adjust.
2. Press Shift+Loop until the TranzPort displays panning.

   Not all mixer controls allow panning adjustment.
3. Hold Shift while rotating the jog wheel to adjust panning for the selected track or mixer control.

Edit a track's input device

1. Press Track ◀ or Track ▶ to select the track you want to adjust.
2. Press Shift+Loop until the TranzPort displays the track's input device.
3. Hold Shift while rotating the jog wheel to scroll through the available inputs. When you change the input device, an asterisk is displayed before the device name on the TranzPort.
4. Press Shift+Punch to set the input device.

Edit a track or channel strip's output device

1. Press Track ◀ or Track ▶ to select the track or channel strip you want to adjust.
2. Press Shift+Loop until the TranzPort displays the track's output device.
3. Hold Shift while rotating the jog wheel to scroll through the available output devices. When you change the output device, an asterisk is displayed before the device name on the TranzPort.
4. Press Shift+Punch to set the output device.

Using a PreSonus FaderPort

You can use a PreSonus FaderPort to control VEGAS Pro.

For more information about configuring VEGAS Pro to use a control surface, see "Using a control surface" on page 495

Viewing the control mappings

The map for the FaderPort assigns the controls as follows.

Control	Function	Shift Function
Fader	Adjusts volume for the active channel.	
Pan	Adjusts panning for the active channel.	
Mute	Mutes the active channel.	
Solo	Solos the active channel.	
Rec	Arm the active track for recording.	
Channel ◀	Scroll to previous track or Mixing Console channel strip. Scrolls by 8 channels when **Bank** is selected.	
Bank	Toggles scroll channel/bank mode.	
Channel ▶	Scroll to next track or Mixing Console channel strip. Scrolls by 8 channels when **Bank** is selected.	
Output	Master Fader mode.	
Read	Enables channel automation in to Read mode. Press again to turn automation off.	
Write	Enables channel automation in to Write mode. Press again to turn automation off.	
Touch	Enables channel automation in to Touch mode. Press again to turn automation off.	
Off	Turns the fader off.	
Mix	Displays the Mixing Console.	Dim output.
Proj	Switches behavior of fader and rotary knob.	
Trns	Toggles automation for the active channel.	
Undo	Reverses the last action performed.	
Shift	Toggle alternate functions.	
Punch	Toggles the Metronome on or off.	Moves left to the next marker.
User	Toggles metronome count-in.	Move right to the next marker.
Loop	Toggles looped playback.	Add a marker at the cursor position.
◀◀	Rewind.	Go to start.
▶▶	Fast forward.	Go to end.

Control	Function	Shift Function
■	Stop playback or recording.	
▶	Play/pause.	
●	Punch in or start recording. The LED blinks to indicate tracks are armed for recording and illuminates solidly during recording.	Render selected track to a new track.
Footswitch	Toggles playback.	Punch in/out recording.

Adjusting track or bus volume

1. Press Channel ◀ or Channel ▶ to select the track or Mixing Console channel strip you want to adjust.
2. Move the fader to adjust the volume of the selected track or channel strip.

If you want to use the FaderPort knob to adjust channel volume, select the **Proj** *button.*

Adjusting track or bus panning

1. Press Channel ◀ or Channel ▶ to select the track or Mixing Console channel strip you want to adjust.
2. Turn the FaderPort knob to adjust panning for the selected track or channel strip.

Tips:

- Not all channel strips allow panning adjustment.
- If you want to use the FaderPort fader to adjust channel volume, select the **Proj** button.

Starting recording

1. Arm the tracks you want to arm:
   a. Press Channel ◀ or Channel ▶ to select the track you want to record into.
   b. Press **Rec** to arm the selected track for recording.
   c. Repeat steps a and b for all tracks you want to arm.
2. Press **Record** ● to begin recording into all armed tracks.
3. When you're done recording, press **Record** ● again to stop.

Using a Generic Control Surface

You can configure up to five generic MIDI control surfaces to work with the VEGAS Pro interface.

For information about your specific device, please refer to the manufacturer's documentation.

For more information about setting up a control surface, see "Using a control surface" on page 495

Notes:

- If you have a MIDI controller that includes buttons and knobs or faders, you can use the device as an external control device. For an example of how you can set up a generic control surface to control tracks in your project, see "Configuring a Generic Control Surface" on the facing page
- Effects parameters cannot be adjusted with a generic controller.

A generic control surface can control either trim or automation settings. In order to control automation settings, you must assign a button to place the control surface in automation mode, and the **Automation Settings** *button on the track or bus you want to edit must be set to* **Automation Write (Touch)** *or* **Automation Write (Latch)**.

Customizing your control mappings

Use the External Control & Automation tab in the Preferences dialog to select the control surfaces you want to use and adjust their configuration.

1. From the Options menu, choose **Preferences** to display the Preferences dialog.
2. Select the External Control & Automation tab.
3. Double-click the Generic Control entry in the **Active control devices** list to display the Configure Generic Control dialog.
4. To add or change a function do the following:
   a. Choose a setting from the **View function group** drop-down list.
   b. Select the **Learn** check box.
   c. Select an command in the **Host Command** list and activate the control on your control surface.
   d. You can click the **Edit** button to fine-tune the MIDI message settings.
5. Repeat step 4 for each command you want to make available on your control surface.

   If you want to control audio and video tracks with your MIDI controller, you'll need to assign buttons to place the controller in Audio and Video mode.

   From the **View function group** drop-down list, choose **Assign** and then assign a MIDI message for the **Set Audio Mode** and **Set Video Mode** commands.

   You can then choose **Audio Channels** from the **View function group** drop-down list to configure controls for audio tracks, and choose **Video Channels** from the **View function group** drop-down list to configure controls for video tracks.
6. To remove a function, select an item in the **Host Command** list and click the **Reset** button.
7. To remove all functions, click the **Reset All** button.
8. Click the **Save As** button to save your updated configuration file.

Loading a control mapping file

1. From the Options menu, choose **Preferences** to display the Preferences dialog.
2. Select the External Control & Automation tab in the Preferences dialog.
3. Double-click the Generic Control entry in the **Active control devices** list to display the Configure Generic Control dialog.
4. Click the **Open** button and browse to the mapping file you want to use.
5. Click **OK** to apply your changes and return to the Preferences dialog.
6. Click **OK** to close the Preferences dialog.

Configuring a Generic Control Surface

If you have a MIDI controller that includes buttons and knobs or faders, you can use the device as an external control surface. For more information, see "Using a control surface" on page 495

For example, let's assume that you have a MIDI keyboard that has 8 knobs. This topic will show you how you can use those knobs to control the volume on the tracks in your project.

Notes:

- You can use this same process to assign a controller to any configurable parameter. To adjust track volume, we're selecting **Channel x Fader** in the **Host Command** list in step 9 below. However, if you wanted to adjust panning, you could choose **Channel x Pan,** or if you wanted to adjust the bus send level, you could choose **Channel x Send**.
- Effect parameters cannot be controlled with a generic controller.

A generic control surface can control either trim or automation settings. In order to control automation settings, you must assign a button to place the control surface in automation mode, and the **Automation Settings** *button*  *on the track or bus you want to edit must be set to* **Automation Write (Touch)** *or* **Automation Write (Latch)**.

1. From the Options menu, choose **Preferences** to display the Preferences dialog.
2. Select the MIDI tab, and verify that the port where your controller is connected is selected in the **Make these devices available for MIDI input** list.
3. Select the External Control & Automation tab.
4. From the **Available devices** drop-down list, choose **Generic Control**, and then click the **Add** button. The Generic Control is added to the **Active control devices** list.
5. Double-click the **Generic Control** entry in the **Active control devices** list to display the Configure Generic Control dialog.
6. Because the MIDI keyboard in our example has 8 knobs, type 8 in the **Number of channels** box.
7. Now, let's assign buttons to shift the channel banks up and down so you can control all the tracks in your project.

   For example, when you start using the controller, the knobs will adjust tracks 1-8. When you shift the banks down, you can control tracks 9-16, and so on.
   a. From the **View function group** drop-down list, choose **Channels**.
   b. Select the **Learn** check box.
   c. Select **Channel Bank Down** from the **Host Command** list.
   d. Press the button or key you want to use to switch to the next group of 8 tracks.
   e. Select **Channel Bank Up** from the **Host Command** list.
   f. Press the button or key you want to use to switch to the previous group of 8 tracks.
8. Choose **Audio Channels** from the **View function group** drop-down list.
9. Program each knob:
   a. Verify that the **Learn** check box is still selected.
   b. Select **Channel 1 Fader** from the **Host Command** list.
   c. Turn knob 1 on your MIDI keyboard. You'll notice that the **Channel**, **MIDI Message**, and **MIDI Data** columns are updated.
   d. Repeat steps 9a and 9b to program knobs 2 through 8 on your keyboard.
10. Now, let's assign a button to toggle the controller in and out of automation mode so we can use the knobs to adjust the track's volume (trim) or record volume automation:
    a. From the **View function group** drop-down list, choose **Assign**.
    b. Select **Toggle Automation Mode** from the **Host Command** list.
    c. Verify that the **Learn** check box is still selected, and then press the button or key you want to use to switch your control surface in and out of automation mode.

       You'll notice that the **Channel**, **MIDI Message**, and **MIDI Data** columns are updated.
11. Click **OK to close the Configure Generic Control dialog, and then click OK to close the Preferences dialog.**

12. From the Options menu, choose **External Control** to enable your controller.

    You're ready to start using your controller.

    - Turn each knob on your controller and notice that turning knob 1 adjusts the volume (trim) of track 1, turning knob 2 adjusts the volume of track 2, and so on.
    - Press the button that you assigned to scroll the channel bank down in step 7.

      Turn each knob on your controller and notice that turning knob 1 now adjusts the volume (trim) of track 9, turning knob 2 adjusts the volume of track 10, and so on.
    - Press the button that you assigned to scroll the channel bank up in step 7 so you can control tracks 1-8 again.
    - Press the button that you assigned to toggle automation mode in step 10.

      Select the **Automation Settings** button on each track to enable automation recording.

      Start playback, and turn each knob on your controller, and notice that turning knob 1 records volume automation on track 1, turning knob 2 records automation on track 2, and so on.
    - Press the automation mode toggle button once more, and you can use the knobs to adjust track trim levels again.

Using a joystick for panning, adjusting controls, and color correction

You can use a joystick to adjust faders, surround panning, and the color wheel controls in the color corrector plug-ins.

If you're using a force-feedback joystick, force feedback adds a tactile element to your editing sessions.

The Joystick Profiles folder in the VEGAS Pro program folder contains .ini files to provide button mapping for several joysticks and instructions for creating or editing joystick mappings. These profiles are specific to each model of joystick. If only trigger functions are working for your joystick, a default profile is being used.

Follow your manufacturer's instructions for calibrating your joystick before using it with VEGAS Pro.

Using the Microsoft SideWinder Force Feedback 2 joystick

Control	Function
Trigger	Enable joystick.
Stick	Move the control that has focus.
Hat (POV) switch	Move pan point to edges or corners of surround panner or Surround Panner window.
Button 2	Reset control to default for faders that take focus or Color Corrector color wheels. Centers track panning for stereo projects. Open/close Surround Panner window.
Button 3	Move to previous panning keyframe, Mixer control, or Color Corrector color wheel.
Button 4	Move to next panning keyframe, Mixer control, or Color Corrector color wheel.
Button 5	Hold button and adjust throttle control to adjust **Volume** fader in track list. Hold button and adjust throttle control to adjust bus **Volume** or assignable effect **Output** fader in the Mixing Console. Hold button and adjust throttle control to adjust **Center** fader in Surround Panner window.
Button 6	Hold button and adjust throttle control to adjust multipurpose fader in track list. Hold button and adjust throttle control to adjust assignable effect input fader in the Mixing

Control	Function
	Console. Hold button and adjust throttle control to adjust **Smoothness** slider in Surround Panner window.
Button 7	Move focus to previous track, Mixing Console channel strip, or color wheel.
Button 8	Move focus to next track, Mixing Console channel strip, or color wheel.
Throttle control	Combine with buttons 5, or 6 to adjust the selected control.

Using the LogitechWingman joystick

Control	Function
Trigger	Enable joystick.
Stick	Move the control that has focus.
Hat (POV) switch	Move pan point to edges or corners of surround panner or Surround Panner window.
Button 2	Move focus to previous track, Mixing Console channel strip, or Color Corrector color wheel.
Button 3	Move focus to next track, Mixing Console channel strip, or Color Corrector color wheel.
Button 4	Move to next panning keyframe, Mixing Console channel strip, or Color Corrector color wheel.
Button 5	Move to previous panning keyframe, Mixing Console channel strip, or Color Corrector color wheel.
Button 6	Reset control to default for faders that take focus or Color Corrector color wheels. Centers track panning for stereo projects. Open/close Surround Panner window.
Button 7	Hold button and adjust throttle control to adjust **Volume** fader in track list. Hold button and adjust throttle control to adjust bus **Volume** or assignable effect **Output** fader in the Mixing Console. Hold button and adjust throttle control to adjust **Center** fader in the Surround Panner window.
Throttle control	Combine with button 7 to adjust the selected control.

Using the Gravis Eliminator Precision Pro joystick

Control	Function
Trigger	Enable joystick.
Stick	Move the control that has focus.
Hat (POV) switch	Move pan point to edges or corners of surround panner or Surround Panner window.
Button 2	Change pan curve in Surround Panner window.
Button 3	Move focus to previous track, Mixing Console channel strip, or Color Corrector color wheel.
Button 4	Move focus to next track, Mixing Console channel strip, or Color Corrector color wheel.
Button 5	Reset control to default for faders that take focus or Color Corrector color wheels. Centers track panning for stereo projects.

Control	Function
	Open/close Surround Panner window.
Scroll wheel	Move to previous/next panning keyframe, Mixing Console channel strip, or Color Corrector color wheel.
Button 6 (Press scroll wheel)	Open/close Surround Panner window.
Button 7	Hold button and adjust throttle control to adjust **Volume** fader in the track list. Hold button and adjust throttle control to adjust bus **Volume** or assignable effect **Output** fader in the Mixing Console. Hold button and adjust throttle control to adjust **Center** fader in the Surround Panner window.
Button 8	Hold button and adjust throttle control to adjust multipurpose fader in track list. Hold button and adjust throttle control to adjust assignable effect **Input** fader in the Mixing Console. Hold button and adjust throttle control to adjust **Smoothness** slider in Surround Panner window.
Throttle control	Combine with button 7 or 8 to adjust the selected control.

Using a multimedia controller

VEGAS Pro supports several multimedia controllers that you can use for mouse-free editing and playback. Now you can increase your productivity and still have a free hand for your coffee mug.

This topic is intended to show you how the VEGAS Pro interface interacts with several multimedia controllers that we're familiar with and have tested. Other controllers may also work.

For specific information about your multimedia controller, please refer to the manufacturer's documentation.

Contour ShuttlePro default settings

Default setup

ShuttlePro .pref files are included with your VEGAS Pro installation. You can use these files to configure the Contour ShuttlePro or ShuttlePro v2 for use with VEGAS Pro.

If you have version 2.5 or later of the Shuttle Pro driver, you can use the driver's Export Settings Info feature to create a graphical representation of your current settings.

Contour ShuttleXpress default settings

ShuttleXpress .pref files are included with your VEGAS Pro installation. You can use these files to configure the Contour ShuttleXpress for use with VEGAS Pro.

If you have version 2.5 or later of the ShuttleXpress driver, you can use the driver's Export Settings Info feature to create a graphical representation of your current settings.

Navigating the timeline with a ShuttlePro or Shuttle Xpress

Use shuttle ring and jog dial to navigate the timeline. If you're using a ShuttlePro, you can also use the buttons in the top and bottom rows to navigate.

You can set the speed of the shuttle ring using the **JKL / shuttle speed** drop-down list on the Editing tab of the Preferences dialog.

Navigating the timeline with a PowerMate or other controller

If you have a multimedia controller such as the Griffin Technology PowerMate, you can map your controller to the F3/F9 jog/edit keys.

Map the single-button function to the Enter key for Play/Pause functionality. When paused, the knob will jog by frame.

When you use the [or] keys to enter event edge-trimming mode, the knob will trim the event:

- Turn the knob left or right to trim the selected event edge.
- Hold Alt while turning the knob to perform a slip trim.
- Hold Ctrl while turning the knob to change the event's playback rate.
- Hold Ctrl+Alt while turning the knob to perform an adjacent trim.

During playback, the knob will function as a variable-speed shuttle control. You can set the speed of the shuttle control using the **JKL / shuttle speed** drop-down list on the Editing tab of the Preferences dialog.

Editing events with a ShuttlePro or ShuttleXpress

You can use the second row of buttons and the jog dial to make the keyboard-based event edge-trimming method even better.

1. If you want downstream events to ripple as you trim, click the **Auto Ripple** button  to turn on Auto Ripple mode. For more information, see "Post-edit ripple" on page 131
2. Press the **Deselect All** button on the ShuttlePro to deselect all events.
3. Select a track and position the edit cursor over the event you want to edit.
4. Press the **Select Event Start** or **Select Event End** buttons and move to the edge you'd like to edit. A red bracket is displayed in the timeline to indicate which event edge will be trimmed.
5. Edit to your heart's content:
   - Turn the jog dial left or right to trim the selected event edge.
   - Hold Alt while turning the jog dial to perform a slip trim.
   - Hold Ctrl while turning the jog dial to change the event's playback rate.
   - Hold Ctrl+Alt while turning the jog dial to perform an adjacent trim.

Using Scripting

You can use scripting to streamline repetitive tasks, integrate with external applications, and implement customized features.

From the Tools menu, choose **Scripting** and choose a command from the submenu.



Scripts can pose a security risk to your computer. A script has the power to delete files, read files, write files, execute programs, access the Internet, access files on your network, and so on. Always examine the contents of a script before running it. If you don't understand the script, do not run it unless it comes from a trusted source. In general, take the same precautions you would take for any program you download from the Internet or receive in an e-mail attachment.

J# is not supported in .NET 4.0. If you need to use JScript scripts, please install the .NET 2.0/3.5 runtime libraries.

To install, choose **Programs and Features**, choose **Turn Windows features on or off**, and then select the **.NET Framework 3.5 (includes .NET 2.0 and 3.0)** check box.

After installing .NET, please restart VEGAS Pro.

Running a script

1. From the Tools menu, choose **Scripting.**
2. Choose a script from the submenu or choose **Run Script** from the submenu to browse to the script file (.vb or .js) you want to run.

Adding scripts to the Scripting menu

When you start the program, VEGAS Pro looks at the Script Menu folder in the VEGAS Pro program folder to determine which scripts appear in the Scripting submenu. This folder is *C:\Program Files\Vegas\VEGAS Pro\18\Script Menu* by default.

1. Add or delete scripts in the Script Menu folder to change the contents of the submenu.

   To prevent duplication of script files, you can use shortcuts in the Script Menu folder.

2. From the Tools menu, choose Scripting, and then choose **Rescan Script Menu Folder** to update the menu.

Using VEGAS Pro extensions

VEGAS Pro extensions are compiled scripts that are available under the Extensions submenu in the View, Edit, or Tools menus. These extensions are loaded when VEGAS Pro starts and remain loaded as long as the program is running. Extensions can respond to changes in project data, control playback, and display a nonmodal interface.

You can use the Customize Toolbar dialog to add VEGAS Pro extensions to the toolbar, or use the Customize Keyboard dialog to assign keyboard shortcuts to VEGAS Pro extensions. For more information, see "Customizing the toolbar" on page 523 and "Customizing keyboard shortcuts" on page 523

VEGAS Pro extensions are saved in **C:\Users*user name*\AppData\Local\Vegas\ Application Extensions**.

Creating a script

VEGAS Pro scripting uses the Microsoft .NET framework for scripting. You can write scripts in C#, JScript or

Visual Basic .NET.

Editing an existing script

All you need to edit a script is a simple text editor (and a working knowledge of JScript or Visual Basic .NET scripting). The scripts that are included with VEGAS Pro are fully commented to help you find and edit the parameters you need.

1. Create a copy of the script (.vb or .js) file you want to edit, assigning a descriptive name to the copy.
2. Open the new copy of the script in your text editor.

   Edit the script as needed. The comments in the script will help you find the parameters you need to edit.

   Comments are indicated with double forward slashes: //.

   For example, the AddEffectToAllMedia.js script includes the following lines:

   // This is the full name of the effect plug-in you want to add.

   var plugInName = "Vegas Timecode";

   // This is the name of the preset you want. Set this to null if you

   // want the default preset.

   var presetName = "SMPTE Drop (29.97 fps)";

   The default script applies the Vegas Timecode plug-in to all video media in your project using the SMPTE Drop (29.97 fps)preset. If you wanted to apply the Broadcast Colors plug-in's Extremely Conservative - 7.5 Setup preset to all audio media, you could edit the script as follows (changes appear in red):

   // This is the full name of the effect plug-in you want to add.

   var plugInName = "Vegas Broadcast Colors";

   // This is the name of the preset you want. Set this to null if you// want the default preset.
   var presetName = "Extremely Conservative - 7.5 Setup

   The plugInName variable should use the plug-in name that is displayed in the Plug-In Chooser. The presetName variable should use the preset name that is displayed in the **Preset** box in the FX window.
3. Save the script.

Creating custom button images for scripts

If you want to display custom icons for scripts in the Scripting menu and toolbars, you can add .png files to your Script Menu folder.

1. Create a 32-bit PNG file with the icon you want to use. Icons must be 16x16 pixels, and transparency is supported.
2. Save the PNG file in your Script Menu folder (typically *C:\Program Files\Vegas\VEGAS Pro\Script Menu*) using the same name as the script the icon should represent.

   For example, to assign a custom icon to the HelloWorld.js script, the icon should be saved as HelloWorld.js.png.
3. Customize the toolbar as needed, and the custom icons will be displayed in the Scripting menu (and in any toolbars that include the script) toolbar the next time you start the application.

Using VEGAS Pro command-line options

You can use the following commands to start VEGAS Pro from the command line, open projects, start scripts, pass arguments to scripts, or start VEGAS Pro extensions.

NOLOGO

Starts VEGAS Pro without displaying the application splash screen.

Example: Vegas120.exe /NOLOGO

OPEN

Starts VEGAS Pro and opens the specified media file or project.

Examples:

Vegas120.exe /OPEN "E:\Video\Wildflowers 001.avi"

–or–

Vegas120.exe /OPEN "E:\Vegas_Projects\24p widescreen.veg"

RUNSCRIPT

Starts VEGAS Pro and runs the specified script.

Examples:

Vegas120.exe /RUNSCRIPT "C:\CustomScripts\ScriptName.cs"

–or–

Vegas120.exe /SCRIPT "C:\CustomScripts\ScriptName.cs"

SCRIPTARGS

Starts VEGAS Pro and passes the specified arguments to a script.

Example: Vegas120.exe /SCRIPTARGS "*<argument>*" /SCRIPT "<script path>"

For more information about script arguments, please see the VEGAS Pro Scripting API.

CMDMODULE

Starts VEGAS Pro and loads the specified extension.

You can use this method to add VEGAS Pro extensions that are not saved in the extensions search path.

Example: Vegas120.exe /CMDMODULE "E:\Extensions\MyExtension.dll"

OPENPRJ

Starts VEGAS Pro and opens the project file referenced in the specified media file.

Example: Vegas120.exe /OPEN "E:\Video\Wildflowers 001.avi"

This command will have no effect if the specified media file was not rendered with an embedded project path reference.

COLORS

Starts VEGAS Pro using the VEGAS Pro color scheme or the Windows color scheme. When you use the command-line option, the **Use VEGAS Pro color scheme** setting on the Display tab of the Preferences dialog is ignored.

To run using the VEGAS Pro color scheme, use Vegas120.exe /COLORS 1.

To run using the Windows color scheme, use Vegas120.exe /COLORS 0.

If you're using high-contrast color scheme in Windows, the **Use VEGAS Pro color scheme** *preference and command-line argument are ignored.*

Customizing the VEGAS Pro interface

You can customize the VEGAS® Pro interface to suit your needs and working preferences.

Customizing the toolbar

From the Options menu, choose **Customize Toolbar** or **Customize Timeline Toolbar** to add, remove, and rearrange buttons on the toolbar.

For more information, see "Main toolbar" on page 14 or "The Transport and Editing Toolbar" on page 23

To return the toolbar to its original configuration, click the **Reset** *button.*

Adding a button to the toolbar

1. From the Options menu, choose **Customize Toolbar** or **Customize Timeline Toolbar**. The Customize Toolbar dialog box appears.
2. From the **Current toolbar buttons** list, select the button for which you want the new button to be added before. For example, if you are adding the **Trim** button and want it to appear before the **Cut** button, select the **Cut** button.
3. From the **Available toolbar buttons** list, select the button you want to add and click the **Add** button. The new button is added to the toolbar.

A separator may also be added between groups of buttons to separate them into logical groups. To add a separator, select **Separator** *from the* **Available toolbar buttons** *list and click the* **Add** *button.*

Removing a button from the toolbar

From the **Current toolbar buttons** list, select the button you want to remove and click the **Remove** button (or double-click the button).

Rearranging buttons on the toolbar

From the **Current toolbar buttons** list, select the button you want to move and click the **Move up** or **Move Down** button.

Customizing keyboard shortcuts

From the Options menu, choose **Customize Keyboard** to customize the keyboard shortcuts available in the VEGAS Pro interface.

The **Keyboard map** box displays the currently assigned shortcut keys. Click a tab in the middle of the dialog to choose which shortcuts you want to see.

Editing or creating new shortcuts

1. Click a tab in the middle of the dialog to indicate the type of command you want to assign to a keyboard shortcut.

2. Select a command in the list.

   You can type a word in the **Show commands containing** *box to filter the list of commands to display only commands that contain the word you typed.*

3. Click the **Shortcut keys** box and press the key combination you want to assign to the selected command.
4. Click the **Add** button to assign the key combination in the **Shortcut keys** box to the selected command.

Saving a keyboard map

Click the **Save as** button and type a name to save your current keyboard shortcuts to an .ini file in the **C:\Users\<username>\AppData\Roaming\Vegas\VEGAS Pro\18** folder.

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

You can use this file as a backup or to share your keyboard shortcuts with other VEGAS Pro users.

Deleting a keyboard map

Choose a mapping from the **Keyboard map** drop-down list and click the **Delete** button to remove the selected keyboard mapping.

You cannot delete the default VEGAS Pro keyboard mapping.

Importing or renaming a keyboard map

Copy a VEGAS Pro keyboard mapping .ini file to the **C:\Users\<username>\AppData\Roaming\Vegas\VEGAS Pro\18** folder.

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

The next time you start VEGAS Pro, the new keyboard mapping will be available from the **Keyboard map** drop-down list in the Customize Keyboard dialog.

If you want to edit a the name used to identify a keyboard mapping in the Customize Keyboard dialog, open the .ini file in a text editor and change the **<Display Name>** *portion of the Name=<Display Name> entry. Save the .ini file and restart VEGAS Pro to use the new name.*

Resetting the default keyboard map

Choose **[Default]** from the **Keyboard map** drop-down list and click **OK** to restore the default configuration.

Time ruler

You can specify how the time ruler will be displayed (in time units).

To set the cursor position, click in the timeline or time ruler. The cursor moves to the position you click, and the cursor position is displayed below the timeline.



Changing the format of the ruler

To change the ruler time format:

- Select the Ruler tab in the Project Properties window. Choose a format from the **Ruler time format** drop-down list. For more information, see "Setting project properties" on page 41
- From the Options menu, choose **Ruler Format** and choose a format from the submenu.



When synchronizing audio to video, it is crucial that the SMPTE timecode format used in the sequencer or digital audio workstation is the same as the SMPTE timecode striped onto the video. This guarantees that the SMPTE times on the video screen and computer monitor synchronize during playback.

Format	Description
Samples	Displays the ruler in samples.
Time	Displays the ruler in hours:minutes:seconds.milliseconds.
Seconds	Displays the ruler in seconds.
Time & Frames	Displays the ruler in hours:minutes:seconds.frames.
Absolute Frames	Displays the ruler with all frames numbered sequentially from the beginning of your project.
Measures and Beats	Displays the ruler in measures.beats.ticks, where 64 ticks = 1 beat. To set the tempo and number of beats per measure, use the Ruler tab in the Project Properties dialog. For more information, see "Setting project properties" on page 41
Feet and Frames 16mm (40 fpf)	Displays the ruler in feet+frames at a rate of 40 frames per foot.
Feet and Frames 35mm (16 fpf)	Displays the ruler in feet+frames at a rate of 16 frames per foot.
SMPTE Film Sync IVTC (23.976 fps)	Displays the ruler in hours:minutes:seconds:frames with a frame rate of 23.976 frames per second. This frame rate matches the frame rate used when the inverse telecine process removes pulldown from progressive-scan 24 fps (24p video). This format will display running film time correctly if you will be transferring your project to film. To see running project time, use SMPTE Film Sync (24 fps) or SMPTE Drop (29.97 fps).
SMPTE Film Sync (24 fps)	Displays the ruler in hours:minutes:seconds:frames with a frame rate of 24 frames per second. This frame rate matches the standard crystal-sync 16/33 mm film rate of 24 fps.
SMPTE EBU (25 fps, Video)	Displays the ruler in hours:minutes:seconds:frames with a frame rate of 25 frames per second. This is known as SMPTE EBU (European Broadcasting Union) because European television systems run at 25 fps. Use SMPTE 25 EBU format for PAL DV/D1 projects.
SMPTE Non-Drop (29.97 fps, Video)	Displays the ruler in hours:minutes:seconds:frames with a frame rate of 29.97 frames per second, which leads to a discrepancy between real ("wall clock") time and the SMPTE time, because there is no compensation in the counting system as there is in

Format	Description
	Drop Frame. Use SMPTE Non-Drop format for NTSC D1 projects that will be recorded on master tapes striped with Non-Drop timecode.
SMPTE Drop (29.97 fps, Video)	Displays the ruler in hours:minutes:seconds;frames with a frame rate of 29.97 fps to match the frame rate used by NTSC television systems (North America, Japan). Use SMPTE Drop Frame format for NTSC DV/D1 projects. Both SMPTE Drop and SMPTE Non-Drop run at 29.97 fps. In both formats, the actual frames are not discarded, but they are numbered differently. SMPTE Drop removes certain frame numbers the counting system to keep the SMPTE clock from drifting from real ("wall clock") time. The time is adjusted forward by two frames on every minute boundary except 0, 10, 20, 30, 40, and 50. For example, when SMPTE Drop time increments from 00:00:59.29, the next value will be 00:01:00.02.
SMPTE 30 (30 fps, Audio)	Displays the ruler in hours:minutes:seconds:frames with a frame rate of 30 frames per second. This rate is exactly 30 fps and is commonly used when synchronizing audio applications such as multitrack recorders or MIDI sequencers. This format should not be used when working with video.
Audio CD Time	Displays the ruler in hours:minutes:seconds:frames with a frame rate of 75 frames per second for creating Red Book CDs. For more information, see "Disc-at-once (DAO or Red Book) CD Burning" on page 454

Creating a time ruler offset

A time ruler offset changes the ruler so it starts at a specific time. Typically, this feature is used in conjunction with SMPTE and MIDI projects when their timelines are the main reference. An offset allows you to set the VEGAS Pro ruler based on another project's timeline for reference purposes.

Since an audio CD must always begin at 00:00:00, you cannot create a time ruler offset when the time ruler is set to the Audio CD Time format.

1. Right-click the time ruler and choose **Set Time at Cursor** from the shortcut menu. An edit box is displayed in the time ruler.

   To create a simple offset, click **Go to Start** *to move the cursor to the beginning of your project.*

2. Type a time in the edit box and press Enter.

   The time ruler is shifted so the cursor position matches the time you specified. For example, if the cursor is positioned at the 2:00 minute mark and you enter 15:00 minutes, the start of the project will be set to 13:00 minutes.

Grid spacing

From the Options menu, choose **Grid Spacing** and choose a command from the submenu to specify the spacing of the vertical grid lines along the timeline.

You can use grid lines as snap points when **Snap to Grid** is enabled. For more information, see "Enable snapping" on page 124

Saving and recalling window layouts

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

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

Window layouts are saved in the **C:\Users*user name*\AppData\Roaming\Vegas\VEGAS Pro\18** *folder. You can transfer layouts between computers by copying the .VegasWindowLayout files.*

Window layouts saved in VEGAS Pro 18 cannot be loaded in previous versions of VEGAS Pro.

Saving a window layout

1. Arrange the windows and docked windows as desired.

   For more information, see "Window Docking Area and Floating Window Docks" on page 27

   Press Ctrl+Alt+D, release the keys, and then press a number on your keyboard (not the numeric keypad) to save the layout in that space.
2. From the View menu, choose **Window Layouts**, and then choose **Save Layout As** from the submenu. The Save Layout As dialog is displayed.

   Choose **Save Layout** from the submenu if you want to update the current window layout. A bullet (●) is displayed next to the current layout.
3. In the **Name** box, type the name you want to use to identify the layout. This name will be used in the Organize Layouts dialog.
4. Choose a setting from the **Shortcut** drop-down list to set the shortcut that will be used to load the layout.

   For example, if you choose 4, you could press Alt+D, release the keys, and then press 4 on your keyboard to load the layout.
5. The **Folder** box displays the path to the folder where the layout will be saved.

   Window layouts are saved in the **C:\Users*user name*\AppData\Roaming\Vegas\VEGAS Pro\18** folder. You can click the **Browse** button to choose a different folder.
6. Click OK to save the new layout.

Loading a saved layout

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

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

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

Adding a layout to the View > Window Layouts submenu

1. From the View menu, choose **Window Layouts**, and then choose **Organize Layouts** from the submenu.

The Organize Layouts dialog is displayed.

2. Select a layout in the **Available layouts in current folder** box.

   This box lists the .VegasWindowLayout files in the folder displayed in the **Current layout folder** box. If the layout you want to use is saved in a different folder, you can click the **Browse** button to choose a new folder.
3. Select a layout in the **Current layouts in menu** box.
4. Click the **Assign** (or **Replace**) button – or double-click a layout in the **Available layouts in current folder** box – to add the layout to the View > Window Layouts submenu.

   You can click the **Move Up** or **Move Down** buttons to change the order of the layouts in the menu.
5. Click the **Activate** button – or double-click a layout in the **Current layouts in menu** box – to apply the selected layout to the VEGAS Pro workspace.
6. Click **OK** to close the Organize Layouts dialog and apply your changes.

Removing a layout from the View > Window Layouts submenu

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

   If you want to replace the selected layout, select a layout in the **Available layouts in current folder** box and click the **Replace** button.
4. Click **OK** to close the Organize Layouts dialog and apply your changes.

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

Deleting a layout from your computer

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

   You cannot delete a layout that is included in the **Current layouts in menu** *list. First, select the layout in the* **Current layouts in menu** *list and click the* **Clear** *button. Next, select the layout in the* **Available layouts in current folder** *list and click the* **Delete Layout** *button.*
4. Click **OK** to close the Organize Layouts dialog and apply your changes.

VEGAS Pro preferences

Choose **Options** > **Preferences** to display the VEGAS® Pro Preferences window. Use the tabs in this window to customize the interface to suit your needs and working preferences.

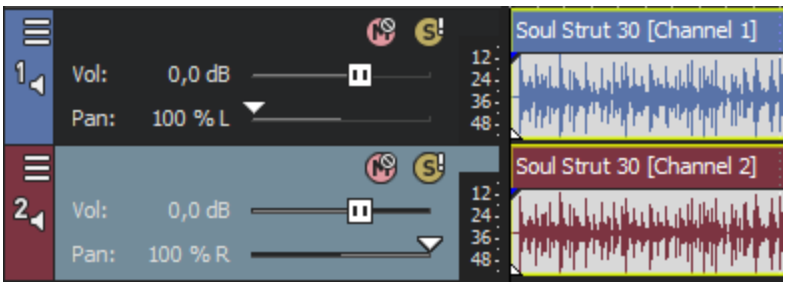
Whether you want to use VEGAS Pro on another computer or if you have to reinstall the program after a hard disk crash, optimizing the VEGAS Pro Preferences for your personal needs takes some time and effort. So it is a good idea to backup your preferences regularly. To do so, export your preferences with menu **Options** > **Export Preferences...**and save all preferences to a file. Use **Import Preferences...**to import such a preferences file (*.vegprefs) back into a VEGAS Pro installation.

Importing preferences may require a restart of the program. Therefore, you better save your project before importing preferences.

Preferences - General Tab

From the Options menu, choose **Preferences** and select the General tab to specify miscellaneous options.

Item	Description
Automatically open last project on startup	When this check box is selected, last project you edited will be reopened if the project was still open when you exited VEGAS Pro.
Confirm media deletion when still in use	When this check box is selected, a message box will appear asking if you want to delete a media file that is currently in use by the project.
Save active prerenders on project close	When this check box is selected, prerendered video files are preserved when a project is closed.
Close media files when not the active application	When this check box is selected, files can be edited in external editors (audio, image, etc.) while they are contained in events on the VEGAS Pro timeline.
Close audio and MIDI ports when not the active application	Select this check box if you want to close audio and MIDI ports when you switch to another application.
Use Newsfeed to stay informed about VEGAS product updates	When this check box is selected, you will receive notification when updates are available. Clear the check box to bypass the Newsfeed dialog.
Prompt to adjust project settings to match first media added to timeline	Select this check box if you want VEGAS Pro to ask you whether you want to match your project video settings to match the first video media you add to the timeline. *If you choose a VEGAS Pro project (.veg) file, VEGAS Pro will match the settings of the project, not the media within the project.* When the check box is cleared, no prompt will be displayed. For more information, see "Setting project properties" on page 41
Check project file type associations at	When this check box is selected, VEGAS Pro will check whether VEGAS Pro files are associated with VEGAS Pro and will prompt

Item	Description
startup	you to restore the file association if necessary.
Enable joystick support	Select this check box if you want to use a joystick to control panning, color corrector wheels, and other controls. For more information, see "Using a joystick for panning, adjusting controls, and color correction" on page 515 Clearing the check box can prevent problems with copy-protection dongles.
Enable auto-detection of 360° media	When this check box is selected, VEGAS Pro will recognize 360° media when loaded and sets the project properties to 360° output automatically.
Render large Wave files as Wave64	The .wav format is limited by a maximum file size of ~2GB (4GB if the **Allow Wave renders up to 4 GB** check box is selected). When this check box is selected, you can render larger files as Wave64 files.
Allow Wave renders up to 4 GB	Select this check box to enable support for WAV files up to 4GB before switching to WAV64. Clear the check box for compatibility with other software applications.
Ignore fact chunk when opening compressed WAV files	When this check box is selected, VEGAS Pro will ignore fact chunks in compressed WAV files. Compressed WAV files use fact chunks to specify how many actual samples are represented in the file. If a compressed file is improperly authored, this may cause some of the compressed data to not be loaded. If you suspect that not all sound data is being loaded from a compressed file, try checking this option and reopening the file. *If you change the setting of this check box, please delete any proxy (.sfap0) files associated with compressed WAV files.*
Allow pulldown removal when opening 24p DV	Select this check box if you want to remove pulldown when you open 24 fps progressive-scan DV video files. When the check box is cleared, 24p video is read as 29.97 fps interlaced video (60i).
Import MXF as multichannel	Select this check box if you want to import MXF files from XDCAM cameras and decks with multichannel audio. When the check box is cleared, audio from MXF files will be imported as stereo. For more information, see "Importing XDCAM Discs" on page 373
Import stereo as dual mono	When this check box is selected, two-channel audio files will be opened as separate mono audio events on separate tracks:  The audio events are grouped, and tracks that are created by adding media will be panned hard left and hard right. You can select an event and choose **Edit > Channels** to choose which channel is used

Item	Description
	for that event. You can use this feature when working with two-channel source media that contains two distinct audio channels, such as an interview in which channel 1 contains the interviewer's voice and channel 2 contains the subject's voice. When the check box is cleared, two-channel audio files will be opened as a stereo pair on a single track:  For more information, see "Audio channels" on page 171
Enable no-recompress rendering	Select this check box if you want to pass through unedited frames without recompression (smart render) for the following formats: • DV AVI • DV MXF • IMX MXF (IMX 24p MXF is not supported for no-recompress rendering) • XAVC Intra MXF • HD MXF • MPEG-2 (for files such as those from HDV and DVD camcorders) • Panasonic P2 For more information, see "Working with P2 Video" on page 64 • XDCAM EX supports smart rendering across the following formats: ◦ SP 18.3 Mbps CBR 1280x720p to/from XDCAM EX and HDV HD-1 ◦ SP 25 Mbps CBR 1440x1080i to/from XDCAM EX, XDCAM HD, and HDV HD-2 ◦ HQ 35 Mbps VBR 1440x1080 to/from XDCAM EX and XDCAM HD ◦ HQ 35 Mbps VBR 1280x720p to/from XDCAM EX ◦ HQ 35 Mbps VBR 1920x1080 to/from XDCAM EX For more information, see **XDCAM EX workflow** In order to perform rendering without recompression, the width, height, frame rate, field order, profile, level, and bit rate of the source media, project settings, and rendering template must match. Frames that have effects, compositing, or transitions applied will be rendered.
Enable QSV Encoding and Decoding (where available)	
Use GPU processing	

Item	Description
for ACES color management	
Enable OpenCL/GL Interop for Intel GPU	
Prompt to keep files after recording	When this check box is selected, the Recorded Files dialog box will appear after every recording session allowing you to rename, delete, or keep the .wav file.
Create undos for FX parameter changes	When this check box is selected, undos are created for all changes made to effect parameters.
Keep bypassed FX running	Select this check box if you want effects to remain open so you can bypass/enable effects with no pause for A/B testing. When the check box is cleared, effects are fully bypassed, conserving processing power.
Favor audio sync when playing Variable Frame rate (VFR) media	
Automatically name regions and markers if not playing	When this check box is selected, an edit box is displayed so you can name markers and regions as you place them.
Use linear scrub range	When this check box is selected, the scrub control uses a linear range. When the check box is cleared, the playback rate increases or decreases more as you drag toward the ends of the scrub control. For more information, see "Scrubbing" on page 20
Allow Ctrl+drag cursor style scrub over events	When this check box is selected, you can scrub with the mouse even when the cursor is over an event.
Make spacebar and F12 Play/Pause instead of Play/Stop	Select this check box if you want the F12 and spacebar keyboard shortcuts to toggle between Play and Pause mode. In this mode, the cursor will maintain its position.
Always draw marker lines	Select this check box if you want to extend marker and region lines across tracks in the VEGAS Pro timeline. When the check box is cleared, marker lines are drawn only when Enable Snapping is turned on. For more information, see "Enable snapping" on page 124
Allow edit cursor to be dragged	Select this check box if you want to be able to drag the cursor to change its position on the timeline and in the Trimmer window. When this check box is selected, you can position the cursor without losing your loop region To create a time selection without moving the cursor, hold the Shift key.
Double-click on media file loads into Trimmer instead of tracks	When checked, double-clicking a media file will open the file in the Trimmer window instead of adding the file to a track.
Show Trimmer history with filename first, then folder	When this check box is selected, the Trimmer history drop-down list displays the media file's name first, followed by the folder it is in. Select this to reverse the names.

Item	Description
Automatically save Trimmer markers and regions with media file	When this check box is selected, markers and regions created at the media file level in the Trimmer will be saved to the file.
Provide a warning if a track being deleted holds at least one event	Unselect this check box when you don't want to be warned when you delete a track that contains events.
Recently used project list	Select the check box and enter a number in the edit box if you want to list your most recently used projects at the bottom of the File menu.
Temporary files folder	Displays the folder where temporary files are created. Click the **Browse** button to specify a new folder. *When you add a media file from a removable device, a copy of the media file is stored in a subfolder within this folder. This keeps the media file available for use even if the source of the media is no longer accessible.* Be aware that these subfolders are cleared when you close the VEGAS Pro application. However, they are not cleared if the application closes inappropriately.
Free storage space in selected folder	Displays the amount of space available in the folder specified in the **Temporary files folder** box.
Default All	Restores the General page options to the default settings.

Preferences - Video Tab

From the Options menu, choose **Preferences** and select the Video tab to specify video settings and to adjust the preview settings for the Video Preview window. For more information, see "Using the Video Preview window" on page 423

Item	Description
Dynamic RAM preview max	Enter a value to set the amount of RAM that you want to dedicate to video previews. For more information, see "Using dynamic RAM previews" on page 431 *The maximum size of the RAM cache is displayed to the right of the control. If you reserve excessive amounts of RAM for your RAM cache, performance may decrease.*
Maximum number of rendering threads	This setting specifies the maximum number of threads that will be used for rendering files. Increasing the setting will not increase performance beyond the number of available threads; for example, if you have a single-processor computer, choosing **2** will not improve rendering performance. Decrease the setting if you have a multiprocessor (or multicore) computer and want to limit processor use or turn off multithreaded rendering. For example, if you had a dual-

Item	Description
	processor hyperthreaded computer, choosing **3** would allow you to keep one thread available for other tasks while rendering.
GPU acceleration of video processing	Many built-in video processing functions and video plug-ins in VEGAS Pro support GPU acceleration. To enable GPU-accelerated video processing, choose a device from the **GPU acceleration of video processing** drop-down list. Choose **Off** to turn off this feature. Notes: • Only compatible devices are displayed in this list. • In a system with multiple GPU's, VEGAS indicates which GPU is optimally configured to get best performance and by default, selects the optimal GPU device for accelerated video processing. • The GPU Accelerated folder in the Transitions, Video FX, Media Generators, and Compositors windows allow you to easily identify your GPU-accelerated plug-ins.
Show source frame numbers on event thumbnails as	Determines how individual frame information, located in a box at the lower left-hand corner of each frame, will be displayed. The frame information box can include **Frame Numbers**, **Time**, or **Timecode**.
Thumbnails to show in video events	Choose a setting from the drop-down list to choose which thumbnails you want to draw in video events. • **None**: No video frames are displayed. • **Head**: Only the first frame is displayed. • **Head, Tail**: The first and last frame are displayed. • **Head, Center, Tail**: The first, middle, and last frames are displayed. • **All**: All frames are displayed. *If you want to toggle audio waveforms in events, choose* **View > Audio Event Waveforms**.
Automatically create video proxies for greater than 4k resolution media	When using 4k media and above **proxies** are created automatically. You can disable this here, when you have a real fast machine.
Use external video capture application	Select this check box and click the **Browse** button to choose the application you want to use to capture DV or Video for Windows clips. Clear this check box if you want to capture SDI/HDV clips using the internal VEGAS Pro video capture application.
Action safe area (%)	Specify a percentage for the border size in the video's safe area. Video within this safe area will always be visible on a television monitor. The safe action borders are displayed in the Video Preview window as a grid via clicking on the **Overlays** button  .
Title safe area (%)	Specify a percentage for the border size in the video's safe title

Item	Description
	area. Video within this safe area will always be visible on a television monitor. The safe title borders are displayed in the Video Preview window as a grid via clicking on the **Overlays** button  .
Horizontal grid divisions (#) **Vertical grid divisions (#)**	Specifies the settings for the grid in the Video Preview window. The grid is used to help you line up overlays, pan and scan, and video motion.
Display at project size	Displays the Video Preview window at the size specified on the Video tab of the Project Properties dialog.
Simulate device aspect ratio	Displays square pixels in the Video Preview window even if the **Pixel aspect ratio** setting in the Project Properties dialog is using nonsquare pixels (DV). This switch will turn on/off square/non-square interpolation, allowing faster playback and viewing flexibility when drawing video frames to the VEGAS Pro Video Preview window.  *When you are performing pixel-critical editing (such as chroma keying or precise track motion/cropping), leave this preference turned off. Turning on square-pixel interpolation will scale the image and can potentially hide some detail when it combines pixels.*
Background color	Determines the color of the Video Preview window's background.
Stereoscopic 3D mode	If you're working with a stereoscopic 3D project and want to override the project settings for previewing your stereoscopic 3D project in the Video Preview window, choose a setting from the **Stereoscopic 3D mode** drop-down list. For more information, see "Stereoscopic 3D editing" on page 191
Display take names	Select this check box if you want to display take names in the Video Preview window when editing multicamera video. For more information, see "Editing multicamera video" on page 185
Display take numbers	Select this check box if you want to display take names in the Video Preview window when editing multicamera video.
Active take indicator	Click to display a color picker you can use to choose the color that will be used to indicate the current take when editing multicamera video. Click the  button to switch between RGB and HSL color modes, or click the eyedropper to sample a color from your screen.
Track fade top	Determines the color of the fade-to-color envelope when the envelope is dragged toward the top of the track. Click the color swatch to display a color picker, where you can choose any color using the RGBA or HSLA controls. Click the

Item	Description
	button to switch between RGB and HSL color modes, or click the eyedropper to sample a color from your screen. For more information, see "Video track automation" on page 240 *You can set the track fade colors for each video track independently by right-clicking the track header, choosing* **Fade Colors**, *and then choosing* **Top** *or* **Bottom** *from the submenu.*
Track fade bottom	Determines the color of the fade-to-color envelope when the envelope is dragged toward the bottom of the track. Click the color swatch to display a color picker, where you can choose any color using the RGBA or HSLA controls. Click the button to switch between RGB and HSL color modes, or click the eyedropper to sample a color from your screen.
Default All	Restores the Video page options to the default settings.

Preferences - Preview Device Tab

From the Options menu, choose **Preferences** and then click the Preview Device tab to configure an external monitor. Your video will be sent to this device when you click the **Preview on External Monitor** button in the Video Preview window.

Tips:

- If your project contains complex effects or compositing and you cannot attain full-frame-rate playback, use selective prerendering to prerender the sections of your project that cannot be rendered in real time. For more information, see "Selectively prerender video" on page 435
- If your video preview device supports audio playback (please see the **Details** box on the Preview Device tab for device status), you can play your project audio through your video preview device.

  First, configure your video preview device. Next, click the Audio Device tab and choose **Microsoft Sound Mapper** from the **Audio device type** drop-down list and select the **Use audio-capable preview device** check box. For more information, see "Preferences - Audio Device Tab" on page 545

AJA devices

1. From the Options menu, choose **Preferences** and then click the Preview Device tab.
2. From the **Device** drop-down list, choose **AJA Video Device**. The Details box displays information about the device.
3. Use the **Conform output to the following format** controls to adjust the video to display properly on your external monitor.

a. Choose the desired format from the **Conform output to the following format** drop-down list.
b. Select a radio button to indicate when you want to adjust the output to the selected format.

Setting	Description
Only when the project does not match any available format	Select this radio button if you want to adjust the video only if the project settings do not match a standard format. For more information, see "Setting project properties" on page 41
Always	Select this radio button if you want to adjust the video output to the selected format whenever you preview on the external monitor. Use this setting when you do not have a preview device that supports your required project format. For example, if you're creating a PAL project, but you don't have a PAL monitor, you could use this setting to preview on an NTSC monitor.

4. Select the **Use progressive segmented frame (psf) video formats** check box if your project properties are set to a progressive-scan format and you want to preview on a device that stores and transfers progressive-scan frames by dividing fields.
5. Select the **Use 10-bit encoding** check box if you're using 10-bit source material and the **Pixel format** setting on the Video tab of the Project Properties tab is set to **32-bit floating point**.
   Enabling 10-bit encoding allows your preview to maintain higher color resolution when previewing video.
   When the check box is not selected, the video preview output will use 8-bit encoding.
6. If audio and video do not play back in synchronization, use the **Sync offset** control to specify a frame offset to restore synchronization.

   This setting affects preview synchronization only. Audio and video synchronization in your project is unaffected. Depending on your hardware setup, you may need to adjust your settings. For example, you might need one setting when previewing directly to a monitor and a slightly higher setting when previewing through a monitor that is connected to a deck.

7. Choose a setting from the **Genlock** drop-down list if you want to synchronize your video output with a reference signal.

Setting	Description
Video In	Synchronizes to the SDI input.
Ref In	Synchronizes to an external reference input signal.
Free Run	Ignores all input signals and uses internal timing.

8. Select the **Recompress edited frames** check box if you want to recompress edited frames in your project before previewing.
   When the check box is cleared, edited frames will not be passed to your preview device.
9. Select the **Display frames in Video Preview window during playback** check box if you want to preview on the external monitor and in the VEGAS Pro Video Preview window simultaneously.
   When the check box is cleared, video is sent only to the external monitor.
10. Select the **Use project output rotation setting** check box if you're rendering a rotated project and want to use the **Output rotation** setting from the Project Properties dialog for previewing your project.
    When the check box is cleared, the media is rotated according to its Media Properties setting, but the Video Preview output is unrotated–you can use this setting to proof your project on an unrotated display.
    For more information, see "Creating rotated projects" on page 53

11. Choose a setting from the **Stereoscopic 3D mode** drop-down list if you're working with a stereoscopic 3D project and want to override the project settings for previewing your stereoscopic 3D project on an external monitor.

    For more information, see "Stereoscopic 3D editing" on page 191 and "Setting up stereoscopic 3D previews" on page 195

Blackmagic Design DeckLink devices

1. From the Options menu, choose **Preferences** and then click the Preview Device tab.
2. From the **Device** drop-down list, choose **Blackmagic Design DeckLink Video Device**. The Details box displays information about the device.
3. Use the **Conform output to the following format** controls to adjust the video to display properly on your external monitor.
   a. Choose the desired format from the **Conform output to the following format** drop-down list.
   b. Select a radio button to indicate when you want to adjust the output to the selected format.

Setting	Description
Only when the project does not match any available format	Select this radio button if you want to adjust the video only if the project settings do not match a standard format. For more information, see "Setting project properties" on page 41
Always	Select this radio button if you want to adjust the video output to the selected format whenever you preview on the external monitor. Use this setting when you do not have a preview device that supports your required project format. For example, if you're creating a PAL project, but you don't have a PAL monitor, you could use this setting to preview on an NTSC monitor.

4. Select the **Use 10-bit encoding** check box if you're using 10-bit source material and the **Pixel format** setting on the Video tab of the Project Properties tab is set to **32-bit floating point**.

   Enabling 10-bit encoding allows your preview to maintain higher color resolution when previewing video.

   When the check box is not selected, the video preview output will use 8-bit encoding.
5. If audio and video do not play back in synchronization, drag the **Sync offset** slider to specify a frame offset to restore synchronization.

   This setting affects preview synchronization only. Audio and video synchronization in your project is unaffected. Depending on your hardware setup, you may need to adjust your settings. For example, you might need one setting when previewing directly to a monitor and a slightly higher setting when previewing through a monitor that is connected to a deck.
6. Select the **Recompress edited frames** check box if you want to recompress edited frames in your project before previewing. When the check box is cleared, edited frames will not be passed to your preview device.
7. Select the **Display frames in Video Preview window during playback** check box if you want to preview on the external monitor and in the VEGAS Pro Video Preview window simultaneously.

   When the check box is cleared, video is sent only to the external monitor.

8. Select the **Use project output rotation setting** check box if you're rendering a rotated project and want to use the **Output rotation** setting from the Project Properties dialog for previewing your project.

   When the check box is cleared, the media is rotated according to its Media Properties setting, but the Video Preview output is unrotated–you can use this setting to proof your project on an unrotated display.

   For more information, see "Creating rotated projects" on page 53
9. Choose a setting from the **Stereoscopic 3D mode** drop-down list if you're working with a stereoscopic 3D project and want to override the project settings for previewing your stereoscopic 3D project on an external monitor.

   For more information, see "Stereoscopic 3D editing" on page 191 and "Setting up stereoscopic 3D previews" on page 195

OHCI-compliant IEEE 1394/DV

1. From the Options menu, choose **Preferences** and then click the Preview Device tab.
2. From the **Device** drop-down list, choose **OHCI Compliant IEEE 1394**. The Details box displays information about the device.
3. Use the **Conform output to the following format** controls to adjust the video to display properly on your external monitor.
   a. Choose the desired format from the **Conform output to the following format** drop-down list.
   b. Select a radio button to indicate when you want to adjust the output to the selected format.

Setting	Description
Only when the project does not match any available format	Select this radio button if you want to adjust the video only if the project settings do not match a standard format. For more information, see "Setting project properties" on page 41
Always	Select this radio button if you want to adjust the video output to the selected format whenever you preview on the external monitor. Use this setting when you do not have a preview device that supports your required project format. For example, if you're creating a PAL project, but you don't have a PAL monitor, you could use this setting to preview on an NTSC monitor.

4. If audio and video do not play back in synchronization, drag the **Sync offset** slider to specify a frame offset to restore synchronization.

   This setting affects preview synchronization only. Audio and video synchronization in your project is unaffected. Depending on your hardware setup, you may need to adjust your settings. For example, you might need one setting when previewing directly to a monitor and a slightly higher setting when previewing through a monitor that is connected to a deck.

5. Select the **Recompress edited frames** check box if you want to recompress edited frames in your project before previewing. When the check box is cleared, edited frames will not be passed to your preview device.

   If you're previewing a project that consists of DV media with no compositing or transitions, the DV will be passed directly to your preview device. If, however you'd added a 6-frame crossfade, the crossfade would be passed to the preview device only if the check box is selected.

6. Select the **Display frames in Video Preview window during playback** check box if you want to preview on the external monitor and in the VEGAS Pro Video Preview window simultaneously.

   When the check box is cleared, video is sent only to the external monitor.
7. Select the **Use project output rotation setting** check box if you're rendering a rotated project and want to use the **Output rotation** setting from the Project Properties dialog for previewing your project.

   When the check box is cleared, the media is rotated according to its Media Properties setting, but the Video Preview output is unrotated–you can use this setting to proof your project on an unrotated display.

   For more information, see "Creating rotated projects" on page 53
8. Choose a setting from the **Stereoscopic 3D mode** drop-down list if you're working with a stereoscopic 3D project and want to override the project settings for previewing your stereoscopic 3D project on an external monitor.

   For more information, see "Stereoscopic 3D editing" on page 191 and "Setting up stereoscopic 3D previews" on page 195

Windows Graphics Card

You can also use the Windows Graphics Card device on a computer with a single monitor. When you enable the external monitor, the video preview will fill your screen.

1. From the Options menu, choose **Preferences** and then click the Preview Device tab.
2. From the **Device** drop-down list, choose **Windows Graphics Card**. The Details box displays information about the device.
3. From the **Display Adapter** drop-down list, choose the device where your preview monitor is connected.

   You can click the **Identify Displays** button to determine which display corresponds to each setting in the drop-down list. A number will be displayed on each monitor.

   If the monitor number is displayed in red, the graphics card does not support 3D acceleration or acceleration has been turned off. You can go to Start > Settings > Control Panel > Display > Settings > Advanced > Troubleshoot to turn on acceleration if your adapter supports it.
4. Select the **Scale output to fit display** check box if you want the video preview to fill the display.
5. Select the **Apply deinterlace filter** check box if you're previewing interlaced video on a noninterlaced display. This filter can reduce the artifacts you often see on the edges of moving areas.

   The **Apply deinterlace filter** *check box will be unavailable if your video adapter does not support pixel shading.*
6. If you want to adjust color reproduction for video previews, select the **Adjust levels from studio RGB to computer RGB** check box.

   If your source media conforms to studio RGB color (black=16 and white=235) and you will be previewing on your computer's CRT or LCD monitor, this setting expands the studio RGB range to 0 to 255 to conform to a computer display.
7. Select the **Wait for vertical sync** check box if you want to wait for the monitor's vertical refresh timing before displaying frames. This setting can be used to correct image tearing.
8. Select the **Optimize GPU display performance** check box for most situations. You can clear the check box if you experience system, external monitor, or video preview performance problems.
9. Select the **Recompress edited frames** check box if you want to recompress edited frames in your project before previewing. When the check box is cleared, edited frames will not be passed to your preview device.
10. Select the **Display frames in Video Preview window during playback** check box if you want to preview on the secondary monitor and in the VEGAS Pro Video Preview window simultaneously.

    When the check box is cleared, video is sent only to the secondary monitor.

11. Select the **Use project output rotation setting** check box if you're rendering a rotated project and want to use the **Output rotation** setting from the Project Properties dialog for previewing your project.

    When the check box is cleared, the media is rotated according to its Media Properties setting, but the Video Preview output is unrotated–you can use this setting to proof your project on an unrotated display.

    For more information, see "Creating rotated projects" on page 53
12. Choose a setting from the **Stereoscopic 3D mode** drop-down list if you're working with a stereoscopic 3D project and want to override the project settings for previewing your stereoscopic 3D project on an external monitor.

    For more information, see "Stereoscopic 3D editing" on page 191 and "Setting up stereoscopic 3D previews" on page 195

Stereoscopic 3D Windows Graphics Card

The **Windows Graphics Card** setting will work with any graphics card that supports OpenGL. In particular, if you are using **Line Alternate** or **Checkerboard** mode, this driver will provide correct output regardless of project resolution.

To support 120 Hz displays with active shutter glasses, use the **Left and Right** mode with a graphics card that supports NVIDIA 3D Vision for Quadro.

When setting up a Quadro video card, please refer to the GeForce 3D Vision Quick Start Guide that was included with your hardware for installation and setup information. For additional information, graphics card and emitter drivers, and for hardware requirements, please see **http://www.nvidia.com/object/quadro_pro_graphics_boards.html**.

1. From the Options menu, choose **Preferences** and then click the Preview Device tab.
2. From the **Device** drop-down list, choose **Windows Graphics Card**. The Details box displays information about the device.
3. From the **Display adapter** drop-down list, choose your 3D display.

   You can click the **Identify Displays** button to determine which display corresponds to each setting in the drop-down list. A number will be displayed on each monitor.

   Notes:

   - If the monitor number is displayed in red, the graphics card does not support 3D acceleration or acceleration has been turned off. You can go to Start > Settings > Control Panel > Display > Settings > Advanced > Troubleshoot to turn on acceleration if your adapter supports it.
   - When using the **Stereoscopic 3D Graphics Card** device with a GeForce video card, you cannot preview stereoscopic 3D content and edit simultaneously. Quadro video cards allow simultaneous preview and editing.
   - When using the **Stereoscopic 3D Graphics Card** device with a GeForce video card, you must use the primary display to preview stereoscopic 3D content. You can click the **Identify Displays** button in the Preview Device tab in the Preferences dialog to identify your primary display.
4. Select the **Scale output to fit display** check box if you want the video preview to fill the display.
5. Select the **Apply deinterlace filter** check box if you're previewing interlaced video on a noninterlaced display. This filter can reduce the artifacts you often see on the edges of moving areas.

   The **Apply deinterlace filter** *check box will be unavailable if your video adapter does not support pixel shading.*

6. If you want to adjust color reproduction for video previews, select the **Adjust levels from studio RGB to computer RGB** check box.

   If your source media conforms to studio RGB color (black=16 and white=235) and you will be previewing on your computer's CRT or LCD monitor, this setting expands the studio RGB range to 0 to 255 to conform to a computer display.
7. Select the **Wait for vertical sync** check box if you want to wait for the monitor's vertical refresh timing before displaying frames.

   This setting can be used to correct image tearing.
8. Select the **Optimize GPU display performance** check box for most situations. You can clear the check box if you experience system, external monitor, or video preview performance problems.
9. Select the **Recompress edited frames** check box.
10. Select the **Display frames in Video Preview window during playback** check box if you want to preview on the secondary monitor and in the VEGAS Pro Video Preview window simultaneously.

    When the check box is cleared, video is sent only to the secondary monitor.
11. Select the **Use project output rotation setting** check box if you're rendering a **rotated project** and want to use the **Output rotation** setting from the Project Properties dialog for previewing your project.

    When the check box is cleared, the media is rotated according to its Media Properties setting, but the Video Preview output is unrotated–you can use this setting to proof your project on an unrotated display.
12. From the **Stereoscopic 3D mode** drop-down list, choose the setting that you want to use for previewing your project on a 3D monitor.

    Choose **Use project settings** if you want to use the setting from the Video tab in the **Project Properties** dialog, or choose another mode if you want to override the project setting when previewing on an external monitor.

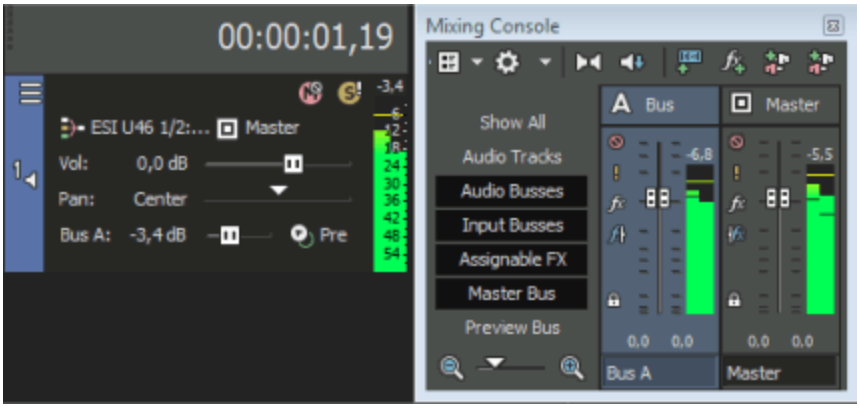
    For more information, see "Stereoscopic 3D editing" on page 191 and "Setting up stereoscopic 3D previews" on page 195
13. Select the **Swap Left/Right** check box if you need to swap the left- and right-eye pictures. This setting is useful if you're using a line-alternate display that displays the right eye on top, if you're using magenta/green anaglyphic glasses, or to create cross-eye free-view 3D.
14. Drag the **Crosstalk cancellation** slider if you experience image bleed-through. For example, if you see right-eye images in your left eye, you can adjust the **Crosstalk cancellation** slider to compensate.

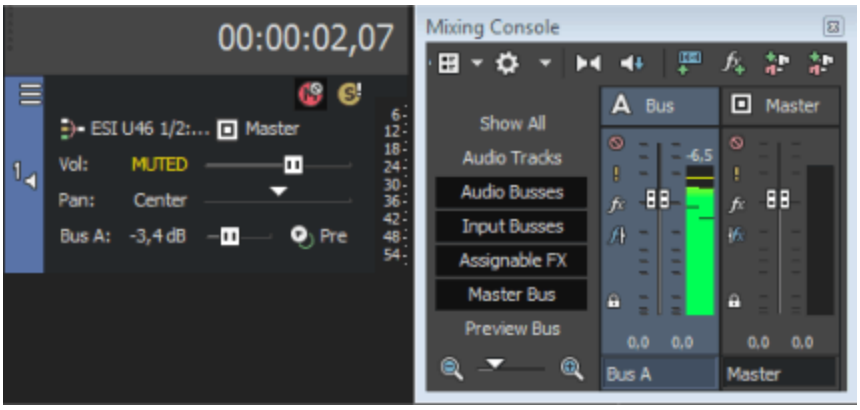
    When your project's **Stereoscopic 3D mode** is set to **Side by side**, **Top/bottom**, **Line alternate**, or **Checkerboard** mode, crosstalk cancellation is active only when the **Full-resolution rendering quality** drop-down list is set to **Good** or **Best**. When using anaglyphic modes, crosstalk cancellation is active for any quality level.
15. Click **OK** to close the Preferences dialog.

Preferences - Audio Tab

Use the Audio tab to specify playback and recording options. To display this tab, choose **Preferences** from the Options menu, then click the Audio tab.

Item	Description
Waveform display while recording	Choose a setting from the drop-down list to specify how to display audio waveforms while recording: • **Don't show waveforms**: No waveforms will be displayed on any tracks until the recording process has been completed. • **Show waveforms for a single track**: Selecting this option will display waveforms only when a single track is armed. If you arm multiple tracks, waveforms will not show.

Item	Description
	• **Show all waveforms**: If you are arming multiple tracks for record, all tracks will display the waveform during recording.
Normalize peak level (dB)	Use the slider to change the default Peak Level settings. This value will be used when you use the **Normalize** event switch. For more information, see "Applying switches to events" on page 169
Import audio at project tempo	When this check box is selected, ACID loops are automatically stretched to match the project tempo (specified on the Ruler tab of the Project Properties dialog) when you add them to the timeline or preview from the Explorer window. When the check box is cleared, tempo information is ignored.
Record to Broadcast Wave Format	When this check box is selected, VEGAS Pro records Broadcast Wave Format (.bwf) metadata when recording .wav files. You can view this information on the General tab of the Properties dialog for an event. For more information, see "Editing event properties" on page 173 Included in the .bwf metadata is a **Time reference** value. This item tracks where on the timeline the file was recorded. When you import a recorded .bwf file, it is added to the timeline at the same location it was originally recorded. The originator (VEGAS Pro) and originator reference (a unique ID number), are also recorded.
Track prefader sends listen to mute	Select this check box if you want pre-volume sends from tracks to busses and assignable effects to respond to the track mute state. When the check box is cleared, the pre-volume sends are not affected by the mute state (in order to facilitate cue mixes). For example, assume you have a project with one track and Bus A that is routed to a hardware output. By default, the bus send is pre volume, so the Master and Bus A will have the same output when you play your project:  If you mute the track, the track's output to the Master bus is muted, but the prefader send to Bus A continues playing (if the **Track prefader sends listen to mute** check box is not selected):

Item	Description
	 If you switch the track send to post volume, the track's outputs to the Master bus and Bus A are muted:  If you select the **Track prefader sends listen to mute** check box and switch the track send back to pre volume, the track's outputs to the Master bus and Bus A are muted: 
Use legacy track send gain	Select this check box if you want to configure audio track sends to behave as they did in VEGAS Pro 7.0 and earlier. When the check box is selected, you can open projects created with earlier versions of VEGAS Pro and be assured they will sound the same as they did in earlier versions of VEGAS Pro.
Preferred audio editor	Use this option to specify the location of the audio-editing application you want to use with your VEGAS Pro projects. This editor will be displayed in the Tools menu when you want to open an event in a sound editor. If Sound Forge software is detected on your system, it automatically becomes the default editor. To specify an audio

Item	Description
	editor, click the **Browse** button and browse for the editor's .exe file. For more information, see "Opening events in an audio editor" on page 172
Metronome	Select the **Use default metronome sounds** radio button to use the default normal and accent sounds when using the metronome, or click **Use custom metronome sounds** and specify the files you want to use in the **Normal** and **Accent** boxes. • **Normal**: Specifies the sound file for the metronome when the **Use custom metronome sounds** radio button is selected. • **Accent**: Specifies the accent sound file for the metronome when the **Use custom metronome sounds** radio button is selected. For more information, see "Metronome" on page 103
Open editor when new loudness log is generated	Select this check box of you want to automatically open loudness log files in your default text editor when you choose **Tools** > **Generate Loudness Log**. For more information, see "Generating a loudness log" on page 438
Default All	Click the **Default All** button to restore all Audio preferences to the default settings.

Preferences - Audio Device Tab

Use the Audio Device tab to specify playback and recording options. To display this tab, choose **Preferences** from the Options menu, then click the Audio Device tab. Click the **Advanced** button to access the advanced audio preferences.

Item	Description
Audio device type	Choose a driver type from the drop-down list. • **ASIO**: Allows you to choose a specific low-latency ASIO device from the **Default stereo and front playback device** drop-down list. • **Direct Sound Surround Mapper**: When you're working with a 5.1 surround project and a surround-capable sound card, this setting uses the default Windows audio device to send 5.1-surround audio to your sound card.

Item	Description
	• **Microsoft Sound Mapper**: Uses the default Windows audio device for playback and recording. If your video preview device supports audio playback (please see the **Details** box on the Preview Device tab for device status), you can play your project audio through your video preview device using the Microsoft Sound Mapper: 1. Configure your video preview device on the Preview Device tab in the Preferences dialog. 2. Select the Audio Device tab in the Preferences dialog and choose **Microsoft Sound Mapper** from the **Audio device type** drop-down list. 3. Select the **Use audio-capable preview device** check box. When you preview your project with **Video Preview on External Monitor**  enabled, audio will be routed through your video preview device. When **Video Preview on External Monitor** is not enabled, audio will play through your default audio device. • **Windows Classic Wave Driver**: Allows you to choose a specific audio device from the **Default stereo and front playback device** drop-down list. Click the **Advanced** button to change settings for the selected device.
Default stereo and front playback device	Choose the device that you want to use for playing stereo sound data and the front-left and -right channels of a 5.1 surround project. Selecting the Microsoft Sound Mapper allows the operating system to select an appropriate device to use for the current sound data. *If you have selected* **Microsoft Sound Mapper***, you will not be able to assign busses to different devices. For more information, see "Routing busses" on page 307*
Default rear playback device	Choose the device that you want to use for playing the rear channels of a 5.1 surround project.
Default center and LFE playback device	Choose the device that you want to use for playing the center and low-frequency effect channels of a 5.1 surround project.
Playback buffering (seconds)	Drag the slider to adjust the amount of buffering that occurs before starting playback. The larger the number, the more buffering occurs during playback. This value must be as low as possible without gapping. To set it, start at .25 and play back a typical song. Move some of the track faders. If the playback gaps at all, try increasing this slider in small increments until the gapping goes away. If you simply cannot get playback to be free of gapping, you need to either decrease the number of tracks you are trying to play simultaneously, install more RAM in your computer so you can increase buffering, buy a faster access hard drive, or minimize

Item	Description
	the number of DirectX plug-ins you are trying to use simultaneously.
Enable track buffering	Select this check box and drag the **Track buffering** slider if you want to adjust the amount of audio that is prerendered ahead of the cursor position. When the check box is selected, a separate processing thread is used to render audio from tracks. On multiprocessor or multicore computers, a thread will be created for each logical processor, resulting in improved track counts, improved performance with lower latency, and faster audio rendering. When the check box is cleared, a single processing thread is used to render audio from tracks and busses.
Default audio recording device	Choose the device that you want to use for recording sound data. Selecting the **Microsoft Sound Mapper** allows the operating system to select an appropriate device to use for the current sound data.
Automatically detect and offset for hardware recording latency	Select the check box to automatically compensate for offset between the time you initiate recording and when your sound card starts recording. Clear the check box and drag the **User Offset** slider to specify an offset value (hold Ctrl while dragging for fine adjustment).
Advanced	Clicking this button opens the Advanced Audio Preferences dialog. For more information, see "Advanced Audio Configuration" below
Default All	Click on the **Default All** button to restore all Audio preferences to the default settings.

Advanced Audio Configuration

Use the Advanced Audio Configuration dialog to view information about and adjust settings for audio device selected in the **Audio device type** drop-down list on the Audio Device tab of the Preferences dialog.

Microsoft Sound Mapper or Windows Classic Wave Driver

Item	Description
Audio devices	This list contains all of the audio devices that are installed in your computer. Select a device from the list to set the options below for that device.
Interpolate position	When check box is selected, the application will attempt to compensate for inaccurate devices by interpolating the playback or recording position. If you notice that your playback cursor is offset from what you are hearing, enable this option for the playback device.
Position bias	If the position of playback or record does not match what you hear after you enable **Interpolate position**, you can attempt to compensate using the **Position bias** slider.

Item	Description
	Moving this slider will offset the position forward or backward to compensate for the inaccuracies of the device.
Do not pre-roll buffers before starting playback	When this check box is selected, buffers will not be created prior to starting playback. Some devices do not behave properly if this check box is cleared. If your audio stutters when you start playback try checking this option.
Audio buffers	Drag the slider to set the number of audio buffers that will be used. Adjusting this setting can decrease gapping or help you synchronize the input and output for record input monitoring.
Buffer size	Choose a setting from the drop-down list to indicate the buffer size you want to use. Choose MME to use the **Playback buffering** setting on the Audio Device tab in the Preferences dialog. For example, if you choose **MME** from the **Buffer size** drop-down, set the **Audio buffers** slider to **5**, and set **Playback buffering** to 0.35 seconds, five 0.07-second buffers will be created. If you choose **1024** from the **Buffer size** drop-down and set the **Audio buffers** slider to **5**, five 1024-byte buffers will be created.
Priority	Choose a setting from the drop-down list to set the priority that is assigned to your audio buffers. Increasing the buffers' priority can help you attain smoother playback, but it can also adversely affect other processes.
Enable input monitoring	Select this check box if you want to be able to perform record input monitoring using a wave driver. When the check box is cleared, record input monitoring is not available. This setting has no effect on standard audio playback.

ASIO

When an ASIO driver is selected, the Advanced Audio Configuration dialog displays information about the settings for the selected driver. Click the **Configure** button to open the driver manufacturer's configuration applet and adjust settings.

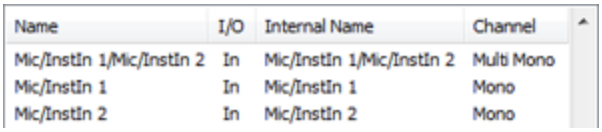
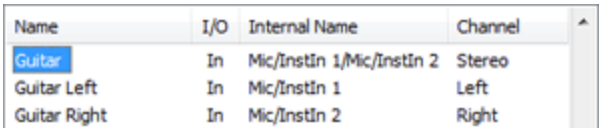
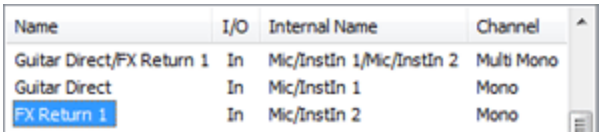
The lower portion of the dialog lists the device name and the name for each of the selected ASIO device's ports. You can use these controls to customize input and output port names. For more information, see "Customizing ASIO port naming" below

Customizing ASIO port naming

When you use an ASIO sound card, default names are displayed in VEGAS Pro for each of the device's ports. If you have a simple setup, the default names probably work well enough for you. However, if you have a complex setup, customizing the port names can help you keep track of your routing with meaningful labels.

For example, if you have your control room monitors connected to outputs 1 and 2 on your sound card, you could replace the default **MainOut 1L** and **MainOut 1R** port names with **CtrlRm Left** and **CtrlRm Right**. If your lead vocal microphone is connected to **Mic/Inst 1**, you could name the port **LeadVocal**, and a harmony microphone connected to **Mic/Inst 1** could be labeled **Harmony**.

1. From the Options menu, choose **Preferences**, and then click the Audio Device tab.
2. Choose your ASIO audio interface from the **Audio device type** drop-down list, and then click **Apply**.
3. Click the **Advanced** button to display the Advanced Audio Configuration dialog.
4. If you want to edit the name of an input or output port, click the label in the **Name** column, and then press F2. You can then type a new name in the edit box.

Item	Description
Name	The name of the port as it will be displayed in VEGAS Pro.  Input pairs and outputs can be mono, multiple mono, or stereo. • Mono : A single-channel input or output. • Stereo : A pair of two mono inputs or outputs. For example, you might connect the right and left outputs of a stereo device to a stereo input. • Multi mono: A grouping of two monaural channels as a multichannel port. The content in the channels is from distinct monaural sources and not intended to be mixed as a stereo signal. For example, you might connect two microphones to separate inputs to record harmony vocals.  After renaming the multiple mono port **Mic/InstIn 1/Mic InstIn 2** to **Guitar**, the port is switched to stereo, and the left and right channels are renamed **Guitar Left** and **Guitar Right**.  If you rename either of a stereo port's channels, the port is switched to a multiple mono channel, and labels are updated accordingly. If you want to switch back to a stereo channel, you can rename the Multi Mono channel. Notes: • ASIO port names are not saved per project. • In stereo pairs, odd-numbered ports represent the left channel; even-numbered ports represent the right channel. • Stereo pairs must consist of sequential channels. You cannot make stereo pairs from arbitrary channels. • If you want to restore a port's default name, delete the label in the **Name** column, and the **Internal Name** is restored. • If you want to restore all port names, click the **Reset Names** button (or press Alt+N).

Item	Description
I/O	Indicates whether the port is an input or output port.
Internal Name	The default name of the port.
Channel	Indicates whether a port is a stereo, mono, or multiple mono.

Preferences - MIDI Device Tab

Use the MIDI tab to set options for using MIDI devices with VEGAS Pro. To display this tab, choose **Preferences** from the Options menu, then click the MIDI tab.

Item	Description
Make these devices available for MIDI output	Select the check box for each MIDI device that you want to use as a MIDI output for a control surface. For more information, see "Using a control surface" on page 495
Make these devices available for MIDI input	Select the check box for each MIDI device that you want to be available for a control surface.
Default All	Restores all MIDI preferences to the default settings.

Preferences - VST Effects

From the Options menu, choose **Preferences** and select the VST Effects tab to indicate where your VST plug-ins are installed.

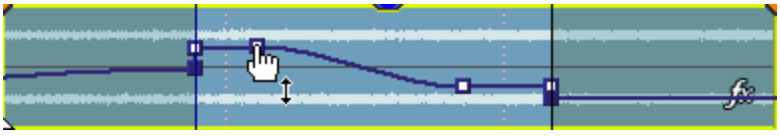
Item	Description
Default VST search folder	This is the folder where the application looks for VST effects during startup.
Alternate VST search folder 1 **Alternate VST search folder 2**	Enter a path in the edit box or click **Browse** to indicate where the application can find VST effects.
Select VST effects to be available as audio plug-ins	Select the check box for each VST plug-in that you want to make available to your VEGAS Pro projects. Clear a check box to exclude the plug-in. *When you use a VST plug-in, VEGAS Pro will lock it for the remainder of your VEGAS Pro session. A lock is displayed next to the check box to indicate that the plug-in cannot be removed until you close and restart the application.*

Preferences - Editing Tab

From the Options menu, choose **Preferences** and select the Editing tab to specify options for editing on the VEGAS Pro timeline.

Item	Description
Enable looping on events by default	When this check box is selected, the **Loop** event switch will be enabled for new events.

Item	Description
	When this switch is enabled, events will repeat if you drag the end of an event past the end of the media file.
Preserve pitch when stretching audio events	When this check box is selected, the pitch of an audio event is preserved when you hold Ctrl and drag the end of the event to change its duration. When the check box is cleared, audio events' pitch will increase when you make an event shorter and will decrease when you make an event longer. *If you change this setting during an editing session, the new setting will affect only media that you add to the timeline after changing the setting. To change the behavior for existing events on the timeline, use the* **Time stretch / pitch shift** *controls on the Audio Event tab of the Event Properties dialog.* For more information, see "Editing event properties" on page 173 and "Adjusting an event's length" on page 142
Cut, copy, and delete grouped events	When this check box is selected, cutting, copying, or deleting an event will affect all events in the same group. For more information, see "Cutting, copying, and pasting events" on page 127 and "Grouping events" on page 167
Do not quantize to frames for audio-only edits	When this check box is selected, edits to audio events (such as event moves, trims, and ASR times) are not quantized to frame boundaries even if **Quantize to Frames** is enabled. For more information, see "Moving events" on page 122 "Adjusting an event's length" on page 142 "Event envelopes" on page 149 and "Quantize to frames" on page 126
Collapse loop region when no time selection is present	When this check box is selected, the loop region is reset when no data is selected. If the check box is cleared, the loop region will retain the last selection.
JKL/shuttle speed	Choose a setting from the drop-down list to set the speed that will be used for scrubbing the timeline with the JKL keys or with a multimedia controller. For more information, see "Scrubbing" on page 20 and "Using a multimedia controller" on page 517
Quick fade length for audio events	A rapid fade is applied to the edges of audio events to soften potentially harsh transitions that can result from cutting data or splitting events. Enter a value in the box to change the length of the fade. From the Options menu, choose **Quickfade Audio Edits** to turn quick fades on or off. When you turn off quick fades, the edges of new events are not faded (existing fades are not removed).
New still image length	Enter a value in the edit box to specify the duration of events that are created when you add still images to the timeline.
Default time between CD tracks	Enter a value in the edit box to specify the length of time that is inserted between events when you add tracks for a disc-at-once audio CD from the Project Media window. For more information, see "Disc-at-once (DAO or Red Book) CD Burning" on page 454

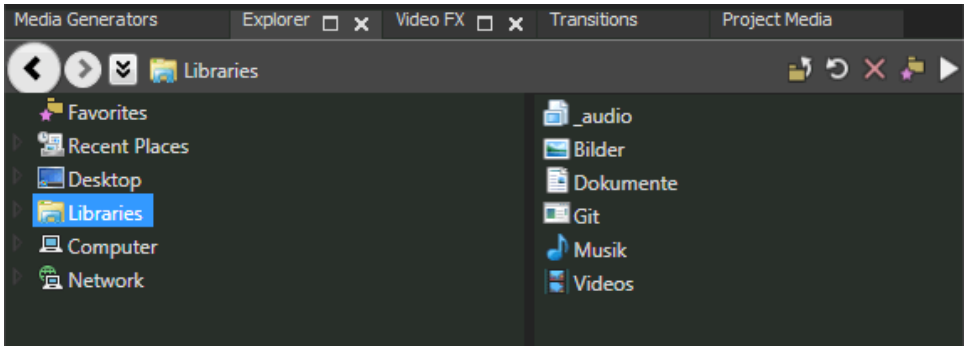
Item	Description
Cursor preview duration	Enter a value in the edit box to specify the length of the time that will be played when you preview the cursor. To preview the cursor, press the 0 key on the numeric keypad. A temporary selection is created (centered over the cursor) and playback begins automatically. Cursor preview will loop if **Loop Playback** is selected.
Automatically overlap multiple selected media when added	When this check box is selected, events will be overlapped when you drag several media files to the timeline. When the check box is cleared, events will be added end-to-end. To change the amount of overlap between events, adjust the **Amount** setting in the **Cut-to-overlap conversion** section of the dialog. *Automatic Crossfades must be turned on to use this feature. For more information, see "Automatic crossfades" on page 123*
Cut-to-overlap conversion	When you have two video events that are inserted back-to-back with no transition (referred to as a *cut*), you can convert the cut to a transition by dragging a transition from the Transitions window and dropping it between the events. You can also right-click the edge of either event, choose **Transition** from the shortcut menu, and choose a transition from the submenu. The cut-to-overlap conversion settings will extend one or both of the events so they overlap, allowing room for the transition. Type a value in the edit box (or use the spin control) to specify the amount by which you want the events to overlap after conversion. (This setting also controls the overlap applied when the **Automatically overlap multi-selected media when added** check box is selected). From the **Alignment** drop-down list, choose the method you want to use to extend events: • **Before cut**: The overlapping area will end at the cut/cursor. • **Centered on cut**: The cut/cursor will mark the center of the overlapping area. • **After cut**: The overlapping area will start at the cut/cursor.
Time selection envelope fades	When this check box is selected, all envelope points within a time selection are adjusted as you drag, and fades are applied to the beginning and end of the selection (additional envelope points are created as necessary):  Type a value in the edit box (or use the spin control) to specify the length of the fades that will be created. Choose a setting from the **Alignment** drop-down list to indicate where the fade should be applied: • **Outside**: Fades are applied before and after your time selection.

Item	Description
	• **Centered**: Fades are centered on the beginning and end of the time selection. • **Inside**: Fades are applied to the beginning and end of your time selection. Clear the **Time selection envelope fades** check box if you want to edit envelope points individually.
Automatically crop still images added to timeline	Select this check box if you want to automatically crop still images to match your project's output frame proportions when adding them to the timeline.  Uncropped image in 16:9 widescreen project: pillarboxing is displayed  Cropped image: the image fills the screen with no pillarboxing
Default All	Restores the Editing page options to the default settings.

Preferences - Display Tab

From the Options menu, choose **Preferences** and select the Display tab to specify options for the appearance of the VEGAS Pro workspace.

Item	Description
Track colors	Use these controls to change the default colors used to display tracks in your project. Select a track from the **Track** drop-down list, and then click the color swatch to display a color picker. You can choose any color using the RGBA or HSLA controls. Click the button to switch between RGB and HSL color modes, or click the eyedropper to sample a color from your screen. When you click **OK** or **Apply**, all tracks that used the selected color are updated.
Envelope colors	Use these controls to change the default colors used to display envelopes in the timeline.

Item	Description
	Choose an envelope type from the **Envelope type** drop-down list and click the color swatch to display a color picker, where you can choose any color using the RGBA or HSLA controls. Click the button to switch between RGB and HSL color modes, or click the eyedropper to sample a color from your screen.
Snap colors	Use these controls to change the default colors used to snapping indicators in the timeline. Choose an snap indicator type from the **Snap type** drop-down list and click the color swatch to display a color picker, where you can choose any color using the RGBA or HSLA controls. Click the button to switch between RGB and HSL color modes, or click the eyedropper to sample a color from your screen.
Icon color strength	Drag the slider to adjust the color intensity of icons in the VEGAS Pro window. Drag to the left to decrease the color saturation, or drag to the right to increase it.
Button Highlight Color	Use these control to set the background color of active toolbar buttons. Click the color swatch to display a color picker, where you can choose any color using the RGBA or HSLA controls. Click the button to switch between RGB and HSL color modes, or click the eyedropper to sample a color from your screen.
Interface Type	Select one of the Radio buttons below **Interface Type** to change the look of the VEGAS Pro interface. Click the **Apply** or **OK** button to finish. You will then get an alert stating that the application must be closed and restarted for the changes to take affect. Click **OK** and restart VEGAS Pro. To change your active window title bar colors, go to Control Panel > Personalization > Window Color and Appearance.
Automatically hide docking area	Select this check box if you want the window docking area to hide automatically when you're not using it. Hover over the bottom of the VEGAS Pro window to show the window docking area. *If the* **Display timeline at bottom of main window** *check box is also selected, double-click the splitter above the timeline to make the docking area visible again.*
Display timeline at bottom of main window	Select this check box if you want to display the timeline at the bottom of the VEGAS Pro window. The Window Docking area will be displayed at the top of the window.
Position tabs at top of docked windows	Select this check box if you want to display tabs at the top of docked windows: 
Allow floating windows to dock	When this check box is selected, windows will automatically be docked when you drag them over other windows in the VEGAS Pro workspace. You can hold the Ctrl key while dragging a window to prevent it from docking. When this check box is cleared, windows will not dock unless you hold the Ctrl key.

Item	Description
	For more information, see "Window Docking Area and Floating Window Docks" on page 27
Reverse Event Background color	This option swaps the foreground and background color of the events. For instance, in audio events the track color is used for the waveform display. With reverse on, this color is used for the background and the former background color is now the waveform color.
Use High DPI scaling (where available)	
Default All	Restores the Display page options to the default settings.

Preferences - CD Settings Tab

From the Options menu, choose **Preferences** and select the CD Settings tab to specify to specify settings for burning and extracting audio from CDs.

Item	Description
Use strict Red Book specification for DAO validation	Select this check box if you want to be notified prior to burning a disc-at-once CD if anything about your CD project is against strict Red Book standards. For more information, see "Disc-at-once (DAO or Red Book) CD Burning" on page 454 These warnings are not critical, and in most cases you will not write an unreadable disc if you proceed. Clearing this check box will not suppress critical warnings that will result in an unreadable disc.
Include wide SCSI devices when searching for drives	Select this check box if you want to scan for wide SCSI CD drives when you attempt to extract data from or burn CDs. When the check box is cleared, VEGAS Pro will not scan for wide SCSI devices, which can increase compatibility with some USB device drivers that incorrectly identify themselves as wide SCSI.
Skip drive database; autodetect drive capabilities on startup	When the check box is cleared, an internal configuration file is used to determine your drive's capabilities. If you encounter problems burning discs, select this check box, and your drive will be scanned to determine its capabilities when the application starts.
Use SPTI direct	Select this check box if you want to use SPTI (SCSI Pass-Through Interface) to communicate with your CD burning drive.
Use legacy disc drivers	Select this check box to use the legacy VEGAS Pro disc drivers for burning discs. Clear this check box to use the Microsoft Image Mastering API (IMAPI) disc drivers to burn discs in VEGAS Pro software. This can be useful if burning discs with the legacy disc drivers is not working as you expect.
Default All	Restores all CD preferences to the default settings.

Preferences - Sync Tab

Use the Preferences Sync tab to specify the options for setting up synchronization of other applications and devices with VEGAS Pro. To access this tab, choose **Preferences** from the Options menu and click on the Sync tab.

Sync Settings

The following settings, available on the Sync tab, are used for setting up MIDI timecode generation from the VEGAS Pro timeline.

Item	Description
Generate MIDI Timecode settings	These settings are for setting up MIDI timecode generation from the VEGAS Pro timeline.
Output device	This option specifies the MIDI device to which the MIDI timecode will be sent. The MTC slave should also be set to this device.
Frame rate	This option specifies the frame rate for generating MIDI timecode. The MTC slave must be set to the same frame rate.
Generate MIDI Clock settings	These settings are for setting up MIDI clock generation from the VEGAS Pro timeline.
Output device	This option specifies the MIDI device to which the MIDI clock will be sent. The MIDI clock slave should also be set to this device.
Trigger from MIDI Timecode settings	These settings are for setting up MIDI timecode triggering from another application or external device.
Input device	This option specifies the MIDI device from which the MIDI timecode will be received. The MTC master should also be set to this device.
Frame rate	This option specifies the frame rate at which the MTC master will send timecode to VEGAS Pro.
Advanced	Clicking on this button opens the Advanced Sync properties dialog for the selected MIDI settings.
Default All	Click on the **Default All** button to restore all Sync preferences to the default settings.

MIDI Timecode Input - Advanced Settings

The MIDI Timecode Input dialog appears when you have clicked on the **Advanced** button on the Sync tab of the Preferences dialog. This dialog contains advanced options for MIDI timecode input. It is only displayed if a device is selected for MTC input on the previous dialog.

Item	Description
Free-wheel for time code loss	When this option is selected, playback will continue for a specified period of time without chasing if timecode is lost for some reason. Enabling this option can compensate for infrequent losses in timecode. If losses in timecode are frequent, troubleshooting should be done to find the cause of the problem.
Free-wheel slack time	Use the up and down arrows or enter a value in the edit box to specify the amount of time that timecode can be lost before the **Free-wheel playback time** starts. A longer time is more tolerant

Item	Description
	of breaks in the incoming timecode.
Free-wheel playback time	Specifies the amount of time that playback will continue after the **Free-wheel slack time** has been exceeded.
Synchronization delay time	Use the up and down arrows or enter a value in the edit box to specify the amount of time it takes for to synchronize itself to incoming timecode. On slower computers, this time should be set to approximately two seconds. On faster computers, it may be set lower. *Setting this value too low can sometimes result in audible pitch shifting at the start of playback.*
Offset adjust	If synchronization is consistently behind or ahead of your MTC generator, enter a value in the box to adjust a synchronization offset with quarter-frame accuracy. • If synchronization is behind, set this value to a negative number. A setting of - 4 usually does the trick. • If synchronization is ahead, set this value to a positive number. A setting of +4 usually does the trick, though it is rare that VEGAS Pro will sync ahead.

MIDI Timecode Output - Advanced Settings

This tab contains advanced options for MTC (MIDI timecode) input. It is only displayed if a device is selected for MTC input on the Sync tab of the main Preferences dialog.

Item	Description
Full-frame message generation	This option specifies when to send full-frame timecode messages while Generate MIDI Timecode is enabled. Full-frame messages are used by some external synchronizable audio devices to seek to a proper location prior to actually starting synchronization. Tape-based recorders especially benefit from seeking to full-frame messages because of the time it takes to move the transport to the proper location. However, full-frame messages are ignored by some devices and may actually cause unexpected behavior in other devices. Check your hardware documentation to find out if they support full-frame messages.

MIDI Clock Output - Advanced Settings

The MIDI Clock Output dialog appears when you have clicked on the **Advanced** button on the Sync tab of the Preferences dialog. This dialog contains advanced options for MIDI Clock output. It is only displayed if a device is selected for MIDI Clock output on the previous dialog.

Item	Description
Send Start instead of Continue when beginning playback	Select this check box if you want to send a Start command rather than a Continue command when **Generate MIDI Clock** is enabled.

Item	Description
	When the check box is cleared, a Continue command is sent, as this type of command allows the chasing device to start from a specific time. However, some older sequencers that support MIDI clock chase do not support the Continue command and must start playback from the beginning every time.
Song Position Pointer generation	This option specifies when to send Song Position Pointer messages while **Generate MIDI Clock** is enabled. Song Position Pointer messages are used by MIDI applications and devices to seek to a proper location prior to actually starting synchronization.

Preferences - External Control & Automation Tab

Use the External Control & Automation tab to set up and customize control surfaces and adjust settings for automation envelopes. To display this tab, choose **Preferences** from the Options menu, then click the External Control & Automation tab.

You can connect one Mackie Control Universal (with up to four Mackie Control Universal Extenders), one Frontier TranzPort, on PreSonus FaderPort, and up to five generic MIDI controllers.



The selected device isn't enabled until you select the **External Control** *command from the Options menu.*

Item	Description
Smooth and thin automation data after recording	When recording automation, VEGAS Pro creates as many envelope points or keyframes as possible to represent your control movements. Select this check box if you want to reduce the number of envelope points/keyframes after recording is finished. For more information, see "Recording track envelope and keyframe automation" on page 248
Set controls to default values when automation is turned off	Select this check box if you want controls to return to their default values when set the track's automation recording mode to **Automation Off**. Automated effect parameters do not have default settings and will retain their last-set values when you turn automation off. When the check box is cleared, controls will retain their last-set values when you turn automation off. For more information, see "Recording track envelope and keyframe automation" on page 248
Available devices	Choose a device from each drop-down list, and then click **Add** to choose the control surfaces that will be available to VEGAS Pro. Adding a device loads its default profile. • For information about setting up and using a control surface, see "Using a control surface" on page 495 • For information about using a Mackie Control Universal, see "Using a Mackie Control" on page 496 • For information about using a Frontier TranzPort, see "Using a Frontier TranzPort" on page 509

Item	Description
	• For information about using a PreSonus FaderPort, see "Using a PreSonus FaderPort" on page 511 • For information about using a generic control surface, see "Using a Generic Control Surface" on page 512
Active control devices	Lists the control devices that you've added. If you want to customize the behavior of the controller, double-click the device name.
New audio envelopes	Choose a setting from the drop-down list to set the default fade type that will be used when you add volume and panning envelopes. For more information, see "Audio track automation" on page 236 This setting is used only when you create new envelopes. When you add a point to an existing envelope, the new point always uses the same fade type as the preceding envelope point.
New audio event gain	Choose a setting from the drop-down list to set the default fade type for the fade-in and fade-out curves on audio event gain envelopes. For more information, see "Event envelopes" on page 149 This setting is used only for events that you place on the timeline after changing the setting. Existing events will use the default fade type that was active when they were added to the timeline.
New audio FX automation envelopes	Choose a setting from the drop-down list to set the default fade type that will be used when you add audio effect automation envelopes. For more information, see "Automating audio effect parameters" on page 242 This setting is used only when you create new envelopes. When you add a point to an existing envelope, the new point always uses the same fade type as the preceding envelope point.
New video envelopes	Choose a setting from the drop-down list to set the default fade type that will be used when you add fade-to-color, composite level, transition progress, motion blur, supersampling, and event velocity envelopes. This setting is used only when you create new envelopes. When you add a point to an existing envelope, the new point always uses the same fade type as the preceding envelope point.
New video event opacity	Choose a setting from the drop-down list to set the default fade type for the fade-in and fade-out curves on video event opacity envelopes. For more information, see "Event envelopes" on page 149 This setting is used only for events that you place on the timeline after changing the setting. Existing events will use the default fade type that was active when they were added to the timeline.
New video FX keyframes	Choose a setting from the drop-down list to set the default keyframe type that will be used when you add video track effect keyframes. For more information, see "Adding video effects" on page 287 This setting is used only when you add new effects. When you

Item	Description
	add a keyframe to an existing effect, the new keyframe is created as the same type as the preceding keyframe.
New video motion keyframes	Choose a setting from the drop-down list to set the default keyframe type that will be used when you add track motion, parent track motion, 3D track motion, or pan/crop keyframes. For more information, see "Editing track motion" on page 261"3D compositing" on page 353 and "Panning and cropping video events" on page 252 This setting is used only when you add new effects. When you add a keyframe to an existing effect, the new keyframe is created as the same type as the preceding keyframe.
Track Motion default smoothness	Type a value in the box (or use the spin control) to set the default Smoothness value for track motion and 3D track motion keyframes.
Pan/Crop default smoothness	Type a value in the box (or use the spin control) to set the default Smoothness value for event pan/crop keyframes. For more information, see "Panning and cropping video events" on page 252
Default All	Restores all External Control & Automation preferences to their default settings.

Deprecated Features tab

Various older program functions and components, which have meanwhile been replaced by more powerful ones, are hidden as standard in VEGAS. On this tab you can restore these functions.

The features are still present in the program when loading older project that use it but are hidden to prevent you from using it for new projects

Item	Description
Allow legacy GPU rendering	Selecting this option will allow access to GPU rendering options for Main Concept AVC/AAC and Sony AVC/MVC renderers.
Enable ProType Titler	Shows the legacy ProType titler in the Generated Media window.
Enable the QuickTime plugin	Activates the old QuickTime plugin for file compatibility with old .mov files.
Enable legacy text	Shows the ancient Text generator in the Generated Media window.
Enable Legacy stabilizer	Shows the old Video Stabilizer in the Video FX window.
Enable XDCam Explorer	Makes the XDCam Explorer window available in the View > Window menu.
Enable Import DVD Camcorder Disc	Makes the Import DVD Camcorder Disc entry available in the File menumenu.

File I/O tab

Item	Description
Enable Hardware Decoding for supported formats	This check box switches hardware decoding of AVC/HEVC media on and off, where applicable. Select the Hardware Decoder (NVIDIA NVDEC or Intel QSV) to use in the list box below. Hardware decoding works only, when the right hardware is available and the media is suitable for hardware decoding.
Enable MKV Reader (experimental)	Activates the new, experimental file reader for the .mkv Matroska video format, a free and open source video format. For more information, see **mastroska.org**.
Log Plugin loading/Reads/Renders	In case you have technical problems with your VEGAS Pro project you can get a log file when checking these options. Even if you don't understand each and every entry of the log file it can help you to identify problematic media files or plug-ins in your project. It is possible to log the loading process of plug-ins and media files and the render process. To activate logging, switch the according list box from **Off** to **Basic**, or for a more detailed logging to **Detailed**. The Log files can also be helpful for the technical support to identify problems. You find the Log files in c:\Users\ *[username]*\AppData\Local\VEGAS Pro\18.0\, they are normal text files with the file extension .log

Keyboard shortcuts

From the Help menu, choose **Keyboard Shortcuts** to view the shortcut keys that can help streamline your work with VEGAS Pro software. The available shortcut keys are arranged in tables according to function.

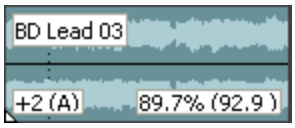
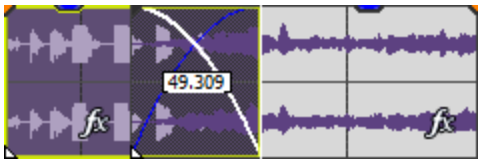
The following shortcuts represent the default configuration. Your system may differ if you've used the Customize Keyboard dialog to customize your keyboard shortcuts. For more information, see *"Customizing keyboard shortcuts" on page 523*

Project file shortcuts

Command	Keyboard Shortcut
Create new project	Ctrl+N
Create new project and bypass the Project Properties dialog	Ctrl+Shift+N
Exit VEGAS Pro	Alt+F4
Close the current project	Ctrl+F4
Open existing project	Ctrl+O
Project properties	Alt+Enter
Save project	Ctrl+S
Save project as	Ctrl+Shift+S
Save Version (Incremental Save)	Ctrl+Alt+S

Magnification and view

Command	Keyboard Shortcut
Set focus to timeline	Alt+0
Show Explorer window	Alt+1
Show Trimmer window	Alt+2
Show Master Bus window	Alt+3
Show Video Preview window	Alt+4
Show Project Media window	Alt+5
Show Project Notes window	Alt+6
Show Transitions window	Alt+7
Show Video FX window	Alt+8
Show Media Generators window	Alt+9
Show Plug-In Manager window	Ctrl+Alt+1
Show Video Scopes window	Ctrl+Alt+2
Show Surround Panner window	Ctrl+Alt+3
Show Edit Details window	Ctrl+Alt+4
Show Mixing Console window	Ctrl+Alt+5
Show Device Explorer window	Ctrl+Alt+6

Command	Keyboard Shortcut
Show Loudness Meters window	Ctrl+Alt+7
Show Dashboard	Ctrl+Alt+8
Open Color Grading Mode	Alt+G
Open Motion Tracking Mode	Alt+M
Show/hide audio bus tracks	B
Show/hide video bus tracks	Ctrl+Shift+B
Show/hide event media markers	Ctrl+Shift+K
Show/hide active take information When this command is selected, the current take information will be displayed on events in the timeline. Pitch shifted audio events will display the amount of pitch shift in the bottom-left corner of the event. If the media has a known root note, the new root is displayed in parentheses:  Stretched audio events will display a percentage in the lower-right corner of the event to indicate the stretched playback rate. If the media has a known tempo, the effective playback tempo (after stretching) is listed in parentheses after the stretch amount. Audio and video events that are not synchronized will be highlighted in the timeline, and the amount of offset will be displayed. Very small offsets that are below the resolution of the timeline may be displayed as 0.00. Set the project time format to samples to see the offset amount.	Ctrl+Shift+I
Show/hide waveforms on events in the timeline	Ctrl+Shift+W
Show/hide event buttons	Ctrl+Shift+C
Toggle Event Headers	Ctrl+Alt+M
Show/hide event fade lengths between selected and nonselected events: 	Ctrl+Shift+T
Toggles the display of the frame under the cursor or display split-screen previews when you perform one of following edits: event slip, event slip-trim, event slide, or crossfade/transition slide. For example, when you drag the edge of a video event with this command selected, the Video Preview window will update to draw the last frame in the event as you drag. When the command is not selected, a static frame is displayed.	Ctrl+Shift+O
Show/hide envelopes	Ctrl+Shift+E
Show next window	F6 or Ctrl+Tab
Show previous window	Shift+F6 or

Command	Keyboard Shortcut
	Ctrl+Shift+Tab
Recall window layout	Alt+D, then press 0-9
Save window layout	Ctrl+Alt+D, then press 0-9
Load default window layout	Alt+D, then press D
Load VEGAS 14 Default layout	Alt+D, then press V
Load audio mixing window layout	Alt+D, then press A
Load color correction window layout	Alt+D, then press C
When both are visible, toggle focus between track list and timeline (and bus track list and timeline if bus tracks are visible)	Tab
Switch focus to previous/next track or bus track	Alt+Shift+Up/Down Arrow
Zoom in/out horizontally in small increments (if timeline has focus)	Up/Down Arrow
Zoom in/out horizontally in large increments or zoom to selection (if one exists)	Ctrl+Up/Down Arrow
Zoom in time until each video thumbnail represents one frame	Alt+Up Arrow
Decrease height of all tracks or bus tracks (depending which has focus)	Ctrl+Shift+Down Arrow
Increase height of all tracks or bus tracks (depending which has focus)	Ctrl+Shift+Up Arrow
Minimize/restore track height (when restoring track height, tracks that you previously minimized are not restored–you can restore these tracks by clicking the **Restore Track Height** button on the track header)	` (grave accent)
Set track heights to default height	Ctrl+`
Minimize/restore the window docking area	F11 or Alt+`
Maximize/restore the timeline vertically and horizontally (window docking area and track list will be hidden)	Ctrl+F11 or Ctrl+Alt+`
Minimize/restore the track list	Shift+F11 or Shift+Alt+`
Zoom waveforms in/out vertically (audio only)	Shift+Up/Down Arrow

Cursor placement, loop region, and time selection

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

Command	Keyboard Shortcut
Center view around cursor	\
Go to	Ctrl+G
Set end of time selection	Ctrl+Shift+G
Go to beginning of time selection or viewable area (if no time	Home

Command	Keyboard Shortcut
selection)	
Go to end of time selection or viewable area (if no time selection)	End
Go to beginning of project	Ctrl+Home or W
Go to end of project	Ctrl+End
Select loop region	Shift+Q
Restore previous five time selections	Backspace
Move left by grid marks	Page Up
Move right by grid marks	Page Down
Move left/right one pixel (when **Quantize to Frames** is turned off)	Left or Right Arrow
Move to previous/next marker	Ctrl+Left/Right Arrow
Move one frame left/right	Alt+Left or Right Arrow
Move left/right to event edit points (including fade edges)	Ctrl+Alt+Left/Right Arrow
Jog left/right (when not in edge-trimming mode or during playback)	F3/F9
Move edit cursor to playback cursor position during playback	Alt+Down Arrow
Move cursor to corresponding marker or select corresponding region	0-9 keys (not numeric keypad)
Move to previous CD track	Ctrl+Comma
Move to next CD track	Ctrl+Period
Move to previous CD index or region	Comma
Move to next CD index or region	Period
Set in and out points	I (in) and O (out)
Create time selection while dragging on an event	Ctrl+Shift+drag with mouse

General editing

Command	Keyboard Shortcut
Cut selection	Ctrl+X or Shift+Delete
Copy selection	Ctrl+C or Ctrl+Insert
Paste from clipboard	Ctrl+V or Shift+Insert
Paste insert	Ctrl+Shift+V
Paste repeat	Ctrl+B
Delete selection	Delete
Trim event to selection	Ctrl+T
Render to new track	Ctrl+M

Command	Keyboard Shortcut
Create Nested Timeline	Alt+C
Open Nested timeline	Alt+N
Open Parent Timeline	Alt+P
Undo	Ctrl+Z or Alt+Backspace
Redo	Ctrl+Shift+Z or Ctrl+Y
Rebuild audio peaks	Shift+F5
Switch to normal editing tool	Ctrl+D
Switch to next editing tool	D
Switch to previous editing tool	Shift+D
Enable multicamera editing	Ctrl+Shift+D

Event selection and editing

Command	Keyboard Shortcut
Range select	Shift+click events
Multiple select	Ctrl+click individual events
Select all	Ctrl+A
Unselect all	Ctrl+Shift+A
Cut selection	Ctrl+X or Shift+Delete
Copy selection	Ctrl+C or Ctrl+Insert
Paste from clipboard	Ctrl+V or Shift+Insert
Paste insert	Ctrl+Shift+V
Paste repeat	Ctrl+B
Delete selection	Delete
Split events at cursor	S
Smart Split selected event	Alt+S
Rename selected event	F2
Trim/crop selected events	Ctrl+T
Move cursor to edge of previous selected event	Ctrl+[
Trim the start of the selected event to the cursor position	Alt+[
Time select previous selected event	Ctrl+Shift+[
Move cursor to edge of next selected event	Ctrl+]
Trim the end of the selected event to the cursor position	Alt+]
Time select next selected event	

Command	Keyboard Shortcut
	Ctrl+Shift+]
Move selected events one frame left/right	Numeric Keypad 1/3
Move selected events one pixel left/right	Numeric Keypad 4/6
Enter edge-trimming mode and select event start; move to previous event edge In this mode, 1, 3, 4, and 6 on the numeric keypad trim the selected event edge. Please see below.	Numeric Keypad 7 or [
Enter edge-trimming mode and select event end; move to next event edge	Numeric Keypad 9 or]
Trim left/right (when in edge-trimming mode)	F3/F9
Enter/exit expanded edit mode (or exit edge-trimming mode) You can also double-click an event edge to enter expanded edit mode. In this mode, 1, 3, 4, and 6 on the numeric keypad trim the selected event edge. Please see below.	Numeric Keypad 5
Trim selected events one frame left/right	Numeric Keypad 1/3
Time compress/stretch selected events one frame left/right	Ctrl+Numeric Keypad 1/3
Slip trim selected events one frame left/right	Alt+Numeric Keypad 1/3
L/J trim left/right by frames	Shift+Numeric Keypad 1/3
Slide a transition or crossfade one frame left/right (trim adjacent)	Ctrl+Alt+Numeric Keypad 1/3
L/J cut left/right by frames	Ctrl+Alt+Shift+Numeric Keypad 1/3
Trim selected events one pixel left/right	Numeric Keypad 4/6
Time compress/stretch selected events one pixel left/right	Ctrl+Numeric Keypad 4/6
Slip trim selected events one pixel left/right	Alt+Numeric Keypad 4/6
L/J trim left/right by pixels	Shift+Numeric Keypad 4/6
Slide a transition or crossfade one pixel left/right (trim adjacent)	Ctrl+Alt+Numeric Keypad 4/6
L/J cut left/right by pixels	Ctrl+Alt+Shift+Numeric Keypad 4/6
Move selected events up/down one track	Numeric Keypad 8/2
Slip: move media within event without moving the event	Alt+drag inside the event
Slip trim: moves the media with the edge as it is trimmed	Alt+drag edge of event
L/J trim: ignores event grouping so you can trim audio and video events independently.	Shift+drag edge of event
Trim adjacent: trims selected event and adjacent event	Ctrl+Alt+drag edge of

Command	Keyboard Shortcut
simultaneously	event
Trim adjacent while ignoring event grouping for fast L and J cuts.	Ctrl+Alt+Shift+drag edge of event
Slip-trim right edge of event	Alt+Shift+drag event
Event split or split/trim  *Holding the Shift key temporarily overrides snapping if it is enabled. Release the Shift key while dragging to snap the event to available snap points.*	Ctrl+Alt+Shift+click or drag event
Slide: trims both ends of event simultaneously	Ctrl+Alt+drag middle of event
Slide crossfade: moves crossfade	Ctrl+Alt+drag over a crossfade
Stretch (compress) the media in the event while trimming	Ctrl+drag edge of event
Raise pitch one semitone	= (not numeric keypad)
Raise pitch one cent	Ctrl+=
Raise pitch one octave	Shift+=
Lower pitch one semitone	- (not numeric keypad)
Lower pitch one cent	Ctrl+-
Lower pitch one octave	Shift+-
Reset pitch	Ctrl+Shift+= or Ctrl+Shift+-
Select next take	T
Select previous take	Shift+T
Convert cut to transition	Numeric Keypad / Numeric Keypad * Numeric Keypad -
Convert transition to cut	Ctrl+Numeric Keypad /
Open in audio editor	Ctrl+E

Red Eye Reduction

The following commands apply to the Red Eye Reduction dialog.

Command	Keyboard Shortcut
Scroll Left/Right	Right/Left Arrow Press Shift to scroll quickly
Scroll Up/Down	Up/Down Arrow Press Shift to scroll quickly
Jump to top/bottom of image	Page Up/Down Shift+Home/End

Command	Keyboard Shortcut
Jump to left/right edge of image	Home/End Shift+Page Up/Down
Jump to horizontal center of image	\ Numeric Keypad *
Jump to vertical center of image	Shift+\ Shift+Numeric Keypad *
Jump to horizontal and vertical center of image	C

Playback, recording, and preview

Command	Keyboard Shortcut
Arm track for record	Ctrl+Alt+R
Arm for record and set recording path	Ctrl+Alt+Shift+R
Record	Ctrl+R
Looped playback	Q or Ctrl+Shift+L
Play from start	Shift+Spacebar or Shift+F12
Start playback	Spacebar
Play from any window	Ctrl+Spacebar or F12
Play/pause	Enter or Ctrl+F12
Stop playback	Spacebar or Esc
Go to start of project	Ctrl+Home
Go to end of project	Ctrl+End
Go to previous frame	Alt+Left Arrow
Go to next frame	Alt+Right Arrow
Dim (attenuate) master bus output	Ctrl+Shift+F12
Preview cursor position. You can specify the length of the time that is previewed using the **Cursor preview duration** box on the Editing tab of the Preferences dialog.	Numeric Keypad 0
Scrub playback	J, K, or L
Selectively prerender video	Shift+M
Build dynamic RAM preview	Shift+B
Toggle external monitor preview	Alt+Shift+4
Generate MIDI timecode	F7
Generate MIDI clock	Shift+F7
Trigger from MIDI timecode	Ctrl+F7
Enable multicamera editing	Ctrl+Shift+D

Command	Keyboard Shortcut
Choose multicamera take	1 - 9
Choose multicamera take with crossfade	Ctrl+1 - 9

Timeline and track list

Command	Keyboard Shortcut
Insert new audio track	Ctrl+Q
Insert new video track	Ctrl+Shift+Q
Change audio track volume or video track compositing level (when focus is on track list)	Ctrl+Left/Right Arrow
Change audio track panning or video track fade-to-color setting (when focus is on track list and automation controls are visible) *Select the* **Automation Settings** *button to adjust the track fade-to-color setting.*	Ctrl+Shift+Left/Right Arrow
Mute selected tracks	Z
Mute selected track and remove other tracks from mute group	Shift+Z
Solo selected tracks	X
Solo selected track and remove other tracks from solo group	Shift+X
Mute selected track group	Ctrl+Alt+Z
Mute selected track group and remove other track groups from the mute group	Ctrl+Alt+Shift+Z
Solo selected track group	Ctrl+Alt+X
Solo selected track group and remove other track groups from the solo group	Ctrl+Alt+Shift+X
Override snapping (if snapping is on) or enable snapping (if snapping is off)	Shift+drag
Quantize to frames	Alt+F8
Enable/disable snapping	F8
Snap to grid	Ctrl+F8
Snap to markers	Shift+F8
Snap to all events	Ctrl+Shift+F8
Post-edit ripple affected tracks	F
Post-edit ripple affected tracks, bus tracks, markers, and regions	Ctrl+F
Post-edit ripple all tracks, markers, and regions	Ctrl+Shift+F
Auto ripple mode	Ctrl+L
Automatic crossfades	Ctrl+Shift+X
Render to new track	Ctrl+M
Group selected events	G
Ungroup selected events	U

Command	Keyboard Shortcut
Ignore event grouping	Ctrl+Shift+U
Clear group without deleting events	Ctrl+U
Select all events in group	Shift+G
Insert/show/hide track volume envelope	V
Remove track volume envelope	Shift+V
Insert/show/hide track panning envelope	P
Remove track panning envelope	Shift+P
Cycle through effect automation envelopes	E and Shift+E
Show/hide envelopes	Ctrl+Shift+E
Adjust envelope point up/down by one pixel	Select envelope point and hold the mouse button; press 8 or 2 on the numeric keypad
Adjust envelope point left /right by one pixel	Select envelope point and hold the mouse button; press 4 or 6 on the numeric keypad
Adjust envelope point value in fine increments without changing the point's timeline position	Ctrl+ drag envelope point or segment
Adjust envelope point value in normal increments without changing the point's timeline position	Ctrl+Alt+ drag envelope point or segment
Adjust envelope point's timeline position without changing its value	Alt+ drag
Insert command marker	C
Insert marker	M
Insert region	R
Insert CD track region	N
Insert CD track index	Shift+N

Trimmer commands

The following commands apply to the Trimmer window. Many of the shortcuts that apply to the timeline also work in the Trimmer. This list highlights commands unique to the Trimmer.

Command	Keyboard Shortcut
Add media from cursor: adds the current selection to the timeline as an event; if there is no selection in the Trimmer, the entire clip is used.	A
Add media to cursor	Shift+A
Transfer time selection from timeline to Trimmer after cursor *If there's a time selection over media that is also loaded in the trimmer, the selection is transferred to the trimmer.*	T

Command	Keyboard Shortcut
Transfer time selection from timeline to Trimmer before cursor	Shift+T
Toggle selected stream: audio/video/both	Tab
Toggle audio/video stream height	Ctrl+Shift+ Up/Down Arrow
Sort Trimmer history	H
Clear Trimmer history	Ctrl+Shift+H
Remove current media from Trimmer history	Ctrl+H
Save markers/regions	S
Toggle automatic marker/region saving	Shift+S
Open in audio editor	Ctrl+E
Show video in Video Preview window	Ctrl+P

Track Motion

The following commands apply to the Track Motion and 3D Track Motion windows.

Command	Keyboard Shortcut
Change 3D layout	1-6 (not numeric keypad)
Lock aspect ratio	A
Scale about center	C
Edit in object space	O
Prevent movement	X, Y, and Z
Prevent scaling	Shift+X, Shift+Y, and Shift+Z
Enable snapping	F8
Enable rotation	Shift+F8

Surround Panner

Add Ctrl to the following shortcuts if you want to move the pan point in fine increments.

Command	Keyboard Shortcut
Constrain motion to a line through the center of the Surround Panner	Shift+drag the pan point (only when **Move Freely**  is selected)
Constrain motion to a constant radius from the center	Alt+drag the pan point (only when **Move Freely**  is selected) Alt+mouse wheel
Constrain motion to the maximum circle that will fit in the Surround Panner	Alt+Shift+drag the pan point (only when **Move Freely**  is selected)

Command	Keyboard Shortcut
	Alt+Shift+mouse wheel
Move the pan point forward/back (when the pan point is selected)	Up/Down Arrow Page Up/Page Down Mouse wheel
Move the pan point left/right (when the pan point is selected)	Left/Right Arrow Shift+Page Up/Page Down Shift + mouse wheel forward/back
Move the pan point to a corner, edge, or center of the Surround Panner (when the pan point is selected and Num Lock is on)	Numeric Keypad
Move the pan point to a corner on the largest circle that will fit in the Surround Panner (when the pan point is selected and Num Lock is on)	Ctrl+Numeric Keypad 1,3,7,9

Mixing Console

Command	Keyboard Shortcut
Rename selected channel	F2
Insert new audio track	Ctrl+Q
Cycle default/narrow/wide channel strips	D/N/W
Hide the selected channel strip	Shift+H
Show the Channel List pane	Shift+C
Show/hide all channel strips	Q
Show/hide audio bus channel strips	U
Show/hide audio track channel strips	A
Show/hide assignable effects channel strips	E
Show/hide master bus channel strip	T
Show/hide preview channel strip	P
Show/hide fader ticks	Shift+T
Show/hide control region labels	Shift+L
Show/hide Faders control region	F
Show/hide Insert FX control region	I
Show/hide I/O control region	H
Show/hide Meters control region	M
Show/hide Sends control region	S
Adjust selected fader	Up/Down Arrow
Adjust left channel of stereo fader	Shift+Up/Down Arrow
Adjust right channel of stereo fader	Ctrl+Up/Down Arrow

Miscellaneous

Command	Keyboard Shortcut
Application Help	F1
What's this help	Shift+F1
Shortcut menu	Shift+F10
Make fine fader/slider adjustments	Ctrl+drag
Change relative keyframe spacing	Alt+drag keyframes
Move region without changing length	Alt+drag region tag

Multimedia keyboard

Command	Shortcut
Play/Pause	Play/Pause
Play from start	Shift+Play/Pause
Stop	Stop
Mute track	Mute
Mute track and remove other tracks from mute group	Shift+Mute
Solo track	Ctrl+Mute
Solo track and remove other tracks from solo group	Ctrl+Shift+Mute
Change audio track volume or video track compositing level (when focus is on track list)	Ctrl + Volume Up/Down
Change audio track panning or video track fade-to-color setting (when focus is on track list)	Shift + Volume Up/Down
Change track focus	Next/Prev Track

Mouse wheel shortcuts

Command	Shortcut
Zoom in/out	Wheel
Scroll vertically	Ctrl+wheel
Scroll horizontally	Shift+wheel
Move the cursor in small increments Trim the selected event edge one pixel (if you're in edge-trimming mode) Adjust scrub rate during playback	Ctrl+Shift+wheel
Move the cursor by frames Trim the selected event edge one frame (if you're in edge-trimming mode) Adjust scrub rate during playback	Ctrl+Alt+Shift+wheel
Auto-scroll	Click wheel button and move mouse

Command	Shortcut
Move fader/slider In plug-in windows, click the control first to give it focus.	Hover over handle and use wheel
Move fader/slider in fine increments	Ctrl+hover over fader and use wheel

Index

1

120 FPS clips 83

2

2-to-1 transform overlay 352
240 FPS clips 83
24p video 71, 111, 530
2K workflow 379

3

3-point editing 135
32-bit floating point color 41
360° 393
360° Output 43
3D AVC/H.264 200
3D compositing 353
3D projects 191

4

4 GB .wav files 529
4K workflow 90, 379

5

5.1 surround
  automating audio effects 242
  hardware setup 397
  panning 399, 407
  rendering 409
50i PAL video 111

6

608CC1 commands 208
608CC3 commands 209
60i NTSC video 111

7

7.5 IRE setup 446

8

8-bit color 41

A

A/B roll editing (track layers) 224
.aaf files
  exporting 59
  preferences 529
about VEGAS Pro software 12
AC-3 audio for DVDs 410
ACES 391
ACES color space 383
ACID loops 76, 115, 542
active take 173, 535
add at project frame rate 74, 83
Add black leader 461
Add black trailer 461
Add Channels panning mode 407
Add compositing mode 351
Add missing streams 149
Add new clips to project media 107
Add test pattern leader 461
Add to Favorites 29
adding
  assignable effects 280, 341
  audio effects 284
  audio envelopes 236
  audio track effects 323
  busses 305, 330
  captions 421
  empty events 119
  input busses 341
  markers 203
  media files 27, 68, 76, 114
  media to/from cursor 135
  regions 29, 204
  takes 165
  tracks 98, 212
  transitions 294
  video effects 287
  video envelopes 240
  window layouts 527
adjacent trim 142
Adjust Size and Quality for Optimal Playback 423
adjusting envelopes 244, 550
adjusting event length 142
Advanced Audio preferences 547
Advanced Backup 58
After Effects project interchange 63
AJA SDI cards
  capturing from 109
  configuring 536
  previewing video on external monitor 434
aligning stereoscopic 3D video 198
Allow Ctrl+drag cursor style scrub over events 532
Allow edit cursor to be dragged 532
Allow pulldown removal when opening 24p DV 530
Allow Wave renders up to 4 GB 530
alpha channel
  in masks 349
  selecting type for media file 94
Alternate VST search folders 550

Always draw marker lines 532
anaglyphic stereoscopic 3D mode 193
animation 252, 262, 268
Apply deinterlace filter 540
applying effects 276
applying non real-time event effects 280
archiving projects 64
arming tracks to record 23, 217, 323
arranging tracks 213
artifacts in rendered output 45
ASIO configuration 547-548
aspect ratio, maintaining 170
ASR 149
assignable effects
  envelopes 283
  inserting 280, 341
  overview 280
  removing 283
  routing tracks 282
  send level 221
assigning tracks to busses 306
ATSC A 85 40, 438
ATSC closed captions 411
attenuate mixer output 303
audio
  busses 229, 305
  effects 280, 284
  inserting envelopes 236
  inserting tracks 98, 212
  mixing 303
  preferences 542
  recording 99
  signal flow 309
  track controls 215
  track effects 276
audio-only edits 551
audio buffers 545, 548
audio CDs
  track index markers 210
  track list 179
  track regions 210
Audio Device preferences 545
Audio device type 545
audio editor 172
Audio envelope default type 558
audio envelopes 236
Audio event default fade 558
audio event effects 277
audio event properties 173
audio latency 545
Audio Only 149
audio panning modes 407
audio streams 171
Audio Sync 184
audio track channel strips 323
audio/video synchronization 148
auto-detection of video profiles 98
Auto Preview button 28, 72
Auto Ripple button 131
Automatic Crossfades 123
Automatically crop still images added to timeline 550
Automatically detect and offset for hardware recording latency 547
Automatically hide docking area 554
Automatically name regions and markers if not playing 532
Automatically open last project on startup 529
Automatically save Trimmer markers and regions with media file 533
automation
  5.1 surround panning 401
  audio effects 242, 558
  audio envelopes 236, 243
  audio track automation 236
  bus send levels 330, 335
  controls 236
  generic control surfaces 513
  overview 236
  recording 248
  track send levels 323
  video envelopes 240
Automation Settings button 304
AVCHD 381

B

background generators 33
backward video 151, 165
Balance panning mode 407
batch capture 73
BD *See* Blu-ray Disc
BDMV 459, 478
Bézier masks 155, 254, 353
bins 73, 80, 92
Bit depth 47
black frames in Video Preview during render 76, 114-115
Blend stereoscopic 3D mode 194
Blu-print 201, 476
Blu-ray Disc 459, 476, 478
bonus CD tracks 454
Box motion blur 46
BPM 41
Broadcast Wave Format
  importing 86
  recording 99, 542
Buffer size 548
buffers 548
Build Dynamic RAM Preview 431
Bump Map plug-in 352
Burn compositing mode 351
burning CDs 453, 458
burning DVDs 460
burning to Blu-ray Disc 459
bus-to-bus routing 307

busses 305
adding 305, 323
assigning tracks to busses 306
channel strips 330, 335
effects 278
envelopes 238, 307
multichannel mapping 234, 469, 473
Pre/Post FX 278
routing to hardware 307
send levels 307
tracks 229, 233
Button Highlight Color 554
buttons for scripts 519
BWF (Broadcast Wave Format) 86
bypassing
assignable effects 341
audio effects 99, 276, 284, 323
bus effects 331, 336
video effects 287, 425

C

C# scripts 519
CALM Act 39, 436-438
camcorders 87, 104
captions 411, 421
Capture RAM Buffer 107
capturing video
DVD camcorder 87
HDV 367
overview 104
preferences 107
SDI 104
CDs
extracting audio 112
index markers 210
preferences 555
track regions 210
CEA608 captions 206, 411
cents 173
chains 35
channel mapping 461, 470, 474
channel strips 318, 320-321
channels 135, 171
chapter markers 203
Check project file type associations at startup 529
Checkerboard stereoscopic 3D mode 193
child tracks 349
choosing cameras 185
choosing takes 165
choosing takes for multicamera video 185
circular masks 155, 255
Clean Up Prerendered Video 22, 436
cleaning Project Media list 69
Clear Edit History 180
clearing track groups 214
Clip Browsing Software for XDCAM EX 369
clock 449
Close audio and MIDI ports when not the active application 529
Close gaps 134
Close media files when not the active application 529
closed captions 411, 427
closing projects 66
Collapse loop region when no time selection is present 551
color correction 441
Color Grading 292
color management 383
Color Range 96
color space 391
Color space 95, 383, 482
Combine Channels for stereo audio 171
command line options 520
commands 206
composite-level envelopes 240
composite groups
muting and soloing 224
selecting 213
compositing
2D compositing 349
3D compositing 353
overview 349
Compositing gamma 44
Compositors window 34
compressed capture 106
Confirm media deletion when still in use 529
Conform output to the following format 536
Conform Project to Full-Resolution Media 374
Conform Timeline to Device Format 461
conform to project frame rate 83
conform to project frame rate | Primary.MovieStudio,Primary.ProOnly | [251] 177
Conform XDCAM Media in Current Project button 372
consolidating media 59
Constant Power panning mode 407
control surfaces
Frontier TranzPort 509
generic control surfaces 512
Mackie Control Universal 496
overview 495
PreSonus FaderPort 511
converting video to 24p 111
Copy and Trim XDCAM Clips 374
Copy Frame 423
Copy Media with Project 59
copying
event attributes 178
events 128
copying all grouped events 128, 168
copying envelopes and envelope points 244
correcting color 441
corrupt video frames 76, 114-115

Crash Recording mode 462
Create undos for FX parameter changes 532
Create Video Proxy 73, 90
creating
  CDs 453
  event groups 167
  events from regions 29
  projects 41
  sync links 168
  titles 299-300
  transitions 294
Credit Roll plug-in 297
cropping 152, 252
crossfading events 123
crossfading multicamera takes 187
Crosstalk Cancellation 43, 195
cue mix 346
cursor position 122
Cursor preview duration 552
custom commands 519
custom file settings 481
custom icons for scripts 520
customizing
  ASIO port naming 548
  keyboard shortcuts 523
  toolbar 523
  Vegas Pro workspace 527
Cut-to-overlap conversion 295-296, 550
Cut compositing mode 351
Cut, copy, and delete grouped events 550
cutting
  all grouped events 168
  events 127

D

Daily Backups 58
DAO *See* disc-at-once CDs
Darken compositing mode 352
Dashboard 38
Default audio recording device 547
Default center and LFE playback device 546
default fade type 559
Default rear playback device 546
default smoothness 560
Default stereo and front playback device 546
default still image length 551
Default time between CD tracks 550
default track properties 233
Default VST search folder 550
Deinterlace method 41
delay compensation 99, 276, 278, 280
delayed audio preview 276
Delete All Clips 492
Delete Selected Clips 492
Delete Selected XDCAM Disc from Capture Folder button 371
deleting
  all grouped events 168
  audio effects 284
  commands 206
  events 129
  markers 203
  prerendered video files 436
  regions 204
  takes 165
  time 129
  tracks 129
Deleting Backups 59
Deprecated Features 560
Depth Adjust 357
destructive audio editing 172
detecting audio/video synchronization offsets 148
Difference compositing mode 352
Difference Squared compositing mode 352
digital signage 53
Dim Output button 303, 318
Disable Resample switch 46, 171
disc-at-once CDs 210, 454
Displacement Map plug-in 352
Display frames in Video Preview window during playback 536
Display tabs at top of docked windows 553
Display take names 535
Display take numbers 533
Do not quantize to frames for audio-only edits 550
dock windows at top of main window 27, 553
Dodge compositing mode 351
Double-click on media file loads into trimmer instead of tracks 529
downloading media 68
Downmix Output button 303, 318
drawing envelopes 244
Dual-Fish-Eye 394
dual mono 530
Dualstream 3D encoder 201
duplicating masks 157, 256
duplicating tracks 215
DV
  printing to tape 461
DVD Architect Pro 410, 477-478
DVDs
  burning 460
  chapter markers 203
  importing video 87
  rendering MPEG files 476
DVI 433
dynamic RAM previews 431

E

EBU R 128 40, 438
edge trimming events 142
edit cursor 532
Edit Decision Lists (EDL) 66

Edit Details window 178
Edit Lists (XDCAM) 371
Edit Protocol Compliant AAF File 59
Editing preferences 550
editing toolbar 23
editing tools 15
EDL 63, 66
effects
  applying 276
  assignable effects 280
  automating audio effects 242
  bus effects 278
  bypassing video 233
  envelopes 283
  keyframe animation 268
  packages 283
  routing tracks to effects 282
  track effects 276
  video effects 287
  video output effects 423
  VST effects 550
empty events, inserting 119
Enable autosave 529
Enable HDV scene detection 108
enable hover scrub 137
Enable joystick support 530
Enable looping on events by default 550
Enable Media Manager 529
Enable multichannel mapping 234, 375, 470, 473
Enable no-recompress long-GOP rendering 472, 529
Enable Snapping 21, 124
Enable Timeline Overwrite button 139
Enable track buffering 547
Envelope Edit tool 16
envelopes
  adjusting 244
  assignable effects envelopes 283
  audio envelopes 236
  automation recording 248
  bus envelopes 307
  composite level envelopes 240
  event envelopes 149
  fade to color envelopes 241
  fades 552
  motion blur envelopes 231
  overview 236
  velocity envelopes 151
  video envelopes 240
eraser mode 16, 145, 147
essence marks 140, 205, 372, 375
Event 114
Event Length 145
event resampling switch 46, 171
events
  attributes 178
  audio effects 277
  buttons 564
  copying 128
  cutting 127
  editing 114
  envelopes 149
  fading 149
  grouping 167
  healing 133
  media markers 205
  moving 122
  pasting 129
  properties 173
  rearranging 134
  reversing 135
  selecting 119
  shuffling 134
  sliding 148
  slip-trimming 144, 147
  slipping 147
  snapping 124, 126
  split-trimming 145, 147
  video effects 290
exiting Vegas Pro 67
Expand Track Layers 224
Expand/Collapse Track Keyframes button 271
expanded edit mode 145
expanding multicamera tracks 185
Explorer window 27
exporting 63
  closed captions 411
  frames from timeline 423
  projects to DVD Architect 410
  video to AVCHD cameras 381
  video to P2 cameras 65
  video to XDCAM discs 375
extensions 519
external control indicators 321
external controls 496-497, 512, 517
external jog/shuttle controls 517
external monitors 424, 432-433
extracting audio from CDs 112

F

fact chunk in WAV files 529
fade curves 123
fade to color envelopes 230, 241, 533
FaderPort 511
fading events 123, 149, 244
Fail on dropped frames 107
fast-motion video 142, 151
fast fade curve 123
favorites 29
feathering masks 157, 256
field order 95
File I/O 561
file settings 481

Film panning mode 409
filter package 283, 289
filters *See* video effects
Final Cut project interchange 63
Fit to Fill 135
flicker, reducing interlace 169
Flip Horizontal 162, 199, 261, 263
Flip Vertical 162, 199, 261, 263
flipping envelope points 244
floating-point RGB processing 41
floating windows 27
Floating windows (stereoscopic 3D adjustment) 199
Focus to Timeline 563
force feedback joysticks 515
Force Resample switch 46, 171
frame-rate conversion 111
frame packing metadata for AVC 200
frame rate 43, 94, 177, 556
frames
  copying to clipboard 423
  exporting 423
freeze frame 151
Frontier TranzPort 509
full-frame-rate preview 431
full-frame multicamera preview 185
full-resolution files (XDCAM) 370-371, 373-374
full-screen Preview 432, 536
FX *See* effects
FX button 217, 225
FX Send channel strips 283, 341

G

gain offset 236
gamma, compositing 44
gapping 546
Gaussian Blur 45
General preferences 529
generate loudness log 438
Generate MIDI Clock 449
Generate MIDI Timecode 449
generated media 33, 297
generic control surfaces
  configuring 513
  using 512
Genlock control for AJA video devices 536
getting media from the Web 28
Go to End button 23
Go to Start button 23
GPU acceleration of video processing 534
grid
  snapping 124
  spacing 22, 526
grouping events 167
  clearing groups 167
  copying all 168
  creating new groups 167
  cutting all 168
  deleting all 168
  Remove From (U) 167
  Select All (Shift+G) 167
grouping tracks 214

H

hamburger button 13, 19, 135, 424
Hard Light compositing mode 351
hardware outputs for audio 307
hardware recording latency 547
HDR 65
HDR mode 65
HDV
  capturing 367
  editing 367
  printing to tape 467
  scene detection 108
headphone mix 346
Healing Events 133
Height Map plug-in 352
HFR clips 83
hidden CD tracks 454
hide docking area 554
high-frame-rate clips 83
Histogram 443
HitFilm Effects 90
hover scrub 68, 137

I

Icon color strength 554
icons, customizing for scripts 519
Ignore Event Grouping 167
Ignore fact chunk when opening compressed WAV files 530
image stabilization 162
Import audio at project tempo 543
Import DVD Camcorder Disc 560
Import MXF as multichannel 530
Import stereo as dual mono 530
importing
  Broadcast Wave Format (BWF) Files 86
  clips from XDCAM Station 88
  closed captions 413
  edit lists from XDCAM device 371
  media 85
  MXF files 369-370, 373
  video 87, 104
  VOB files 87
  VRO files 87
  XDCAM discs 370, 373
importing projects 63
IMX 369, 373, 375
in-place plug-ins 99, 276
include cancellation in renders and print to tape 195
Incremental Save 57
index markers 210
input busses 309

input device 102
input monitor 99, 234
insert effects 323
inserting
  assignable effects 280, 318, 323
  audio busses 305
  audio tracks 98, 212, 318, 323
  bus envelopes 238
  busses 318, 323
  CD index markers 210
  CD track regions 210
  command markers 206
  effects on busses 278
  empty events 119
  events on timeline 78, 117
  events with Paste Insert 129
  markers 203
  panning envelopes 236
  regions 204
  time 119
  video envelopes 240
  video tracks 98, 212
  volume envelopes 236
interchange with other editors 63
Interface Type 554
interlace flicker, reducing 169
intermediate files for HDV editing 367
Interpolate position 547
interpolation 263, 269
Invert Phase switch 169
inverting track phase 217, 329
IRE setup 446
ISRC 457

J

J cut 142-143
JKL/shuttle speed 550
joysticks 515
JScript 519
jump cut 133

K

Keep bypassed FX running 529
keyboard mapping 523
keyboard shortcuts 143, 523, 563
keyframes
  animation 268
  automation recording 248
  controller 268
  interpolation 160, 259
Keystone 199

L

L cut 142-143
Lanes/Curves views for keyframes 268
large WAV files 529
Latch automation mode 249
latency 545
Lay Out Audio CD from Events 454
layered PSD files 83
laying out multicamera clips 183
layouts *See* window layouts
leader, printing to tape 461
Left Only stereo audio 171
Left only stereoscopic 3D mode 194
legacy track send gain 542
Lens Separation 357
letterbox 471
Lighten compositing mode 352
Line 21 captions 412
Line alternate stereoscopic 3D mode 193
linear fade curve 123
Link to Main Track Pan 221
Live Save 57
loading window layouts 527
locked VST plug-ins 550
locking envelopes to events 236, 268
locking events 169
Look Up Table 291
Loop Playback 21, 423
looping events 169
loops on timeline 76, 115
loudness log 438
Loudness Meters window 39, 436-437
LUT 291

M

.m2ts files 381
Mackie Control Universal 496
magnification 181
Main Timeline 80
Maintain aspect ratio (Pan/Crop plug-in) 160, 259
Maintain Aspect Ratio switch 169
Make spacebar and F12 Play/Pause instead of Play/Stop 529
managing Vegas Pro Connect clips 492
Manual keyframe curves 268
markers
  Always draw marker lines 532
  CD track index markers 210
  CD track region markers 210
  command markers 206
  inserting 203
  marker bar 21
  Marker tool 211
  media markers 205
  Snap to Markers 124
masks
  Bézier 155, 254

circular 155, 255
duplicating 157, 256
feathering 157, 256
filters 349
negative 157, 256
oval 155, 255
positive 157, 256
rectangular 155, 255
rotating 157, 256
scaling 157, 256
square 155, 255
Master Bus window 303
Master FX button 304
Match Event Length button 298
Match Media Settings button 41
Match Project Video Settings 74, 76, 115, 529
Matroska 561
Maximum RAM buffer size 108
MCN 41
media bins 92
Media Catalog Number (MCN) 41, 49
media files
adding to project 76, 114
capturing video 104
for Blu-ray Disc projects 478
importing 85
offline 73
opening 50
overview 68
previewing 74
properties 94
Media FX button 71, 163, 289
Media Generators window 33, 297, 299
media markers and regions 205
Media Offline 73
media tags 70
metadata commands 206
metronome 103, 545
Microsoft .NET framework 519
MIDI
generate MIDI clock 449
generate MIDI timecode 449
preferences 556
Time Display window 18
trigger from MIDI timecode 450
MIDI control surfaces 512
MIDI timecode synchronization 449
mixing audio 171, 215, 234, 303, 317
Mixing Console window 37, 317
MKV 561
mobile project review 490
monitor mix 346
monitoring
assignable effect levels 341
bus levels 330, 335
tracks levels 323
monitors, external 432-433
Motion Blur 164
motion blur envelopes 231
Motion blur type 45
Motion tracking 272
moving
events 122
tracks 213
MPEG-2 transport streams *See* HDV
MPEG files, rendering 476
multicamera video
editing 183
previewing 186
shooting 183
synchronizing 183
take preferences 533
multichannel audio
adding to projects 76, 115, 171
exporting to XDCAM discs 375
importing Broadcase Wave Format (BWF) files 86
in Trimmer window 135
panning 399
printing to tape 461
rendering 234, 470, 473
synchronizing 148
multimedia controllers 517
Multiply (Mask) compositing mode 351
multiprocessor track buffering 545
multipurpose slider 221
multistream audio 76, 115, 135, 171
multistream stereoscopic 3D files 195
muting
all audio tracks 423
all video tracks 423
assignable effects 341
busses 334, 340
events 169
track groups 214
tracks 215, 224, 323
MXF files 369, 374, 376

N

nesting projects 54
Net Notify 529
.NET scripting 519
new
audio tracks 98, 212
features 11
projects 41
still image length 550
video tracks 98, 212
Next Frame button 23
no-recompress rendering 472, 531
non-real-time event effects 280
Normal Edit tool 15
normal rate 20
Normalize peak level 542
normalizing events 169
nudging events 122

O

offline media 529
Offset adjust (MIDI timecode) 557
offset time ruler 526
opacity envelopes 150
Open editor when new loudness log is generated 545
opening
  events in audio editor 172-173
  media files 50
  projects 50
  recent projects 56
Optimize GPU display performance 542
out-of-range colors 443
output device
  assignable effects 343
  busses 333
  input busses 338
oval masks 155, 255
overlapping multiple selected media 78, 117, 550
Overlay compositing mode 351
overlays in Video Preview window 423

P

P2 file format 64
packages 283
Pair as Stereoscopic 3D Subclip 195
Pan/Crop default smoothness 560
panning audio tracks 215, 399, 407, 515
panning video events 152, 252
parade monitor 446
parent motion 265, 356
parent overlay mode 349
parent track 349
passthrough rendering for unedited frames 472, 529
pasting
  event attributes 178
  events 129
  Paste Insert 129
  Paste Repeat 129
path reference in rendered file 60, 471
Pause button 23
PCM audio for DVDs 410
PDZ edit lists 371
peak files 181
peak program meters 317, 322, 326, 333, 339
per-eye video effects 200, 290
photographs *See* still images
pitch-shifting events 176
Pixel aspect ratio 42, 94
Pixel format 43
Play button 23
Play from Start button 23
playback *See* previewing
playback buffering 545
playback device 545
playback rate 20, 177
plug-in delay compensation 99, 276, 278, 280
Plug-In Manager window 35
plug-ins *See* effects
portrait mode projects *See* rotated projects
Position bias 547
positioning the cursor 122
post-edit ripple 131
post-fader insert effects 278
post-volume bus sends 221
PQ list 178, 210, 454
pre-fader insert effects 278
pre-roll 108
pre-volume bus sends 221
Pre/Post Routing 335, 341
Prefader sends listen to mute 544
preferences
  Audio 542
  Audio Device 545
  CD Settings 555
  Display 553
  Editing 550
  External Control & Automation 558
  General 529
  MIDI 550
  Preview Device 536
  Sync 556
  Video 533
  VST Effects 550
Premiere project interchange 63-64
prepared clips, deleting 492
prepared clips, synchronizing 492
preparing projects for Vegas Pro Connect 489
Prerender audio to proxy file 461
prerendering 435
Preserve pitch when stretching audio events 550
presets
  audio effects 284
  effects packages 283
  transitions 294
  video effects 287
PreSonus FaderPort 511
preventing windows from docking 27
Preview Device preferences 536
Preview Quality button 425
previewing
  dynamic RAM previews 431
  media files 27, 74
  projects 423
  selectively prerender video 435
  split-screen previews 429
  stereoscopic 3D projects 195
Previous Frame button 23
printing to tape 461, 467
Professional Discs *See* XDCAM discs
progressive-scan video 111

project interchange 63
Project Media Hoover Scrubbing 69
Project Media window 68
Project Notes 34
project resample mode 46, 171
projects
  closing 66
  creating 41
  Edit Decision Lists (EDLs) 66
  nesting 54
  opening 50
  previewing 423
  properties 41
  rendering 469
  saving 56, 59
Prompt to keep files after recording 529
properties
  media properties 94
  project properties 41
ProType Titler 299, 560
proxy-first workflow 365
proxy files 73, 90, *See also* XDCAM, proxy files
  proxy-first workflow 365
PSD files 83
publishing projects 61
pulldown fields
  removing 71, 530
punch-in
  adding media 79, 118
  recording 101
Pyramid motion blur 45

Q

quality of Video Preview window 423
Quantize to Frames 21, 126
Quick fade length for audio events 551
Quick Tags 70
Quickfade Audio Edits 551
Quickstart Window 38
QuickTime 560
QuickTime closed captioning files 414

R

.r3d files 379
rate 20
RAW camera files 52, 76, 115
razor blade 16
Real-Time backups 57
Real-Time Backups 58
RealPlayer (.rt) closed captioning files 413
rearranging events 134
Rebuild Audio Peaks 181
Rebuild Offline Nested Audio 54
recapturing
  video 73
  XDCAM clips 373
recent projects 56
Recompress edited frames 537
recompression 472, 531
Record button 23
record time 26
recording *See also* printing to tape
  audio 99
  device preferences 547
  input monitor 103, 234, 329
  to a media bins 92
  to Broadcast Wave Format 542
rectangular masks 155, 255
recutting multicamera tracks 185
Red Book CDs 454
red eye removal 179
red frames on timeline 76, 114-115
red Insert Effects button 323, 330, 335, 341
RED ONE and EPIC camera files 379
red plug-in icon 99, 276-277, 279-280
red video frames 76, 114-115
redoing edits 180
Reduce Interlace Flicker switch 169
refreshing XDCAM discs 373
regions
  adding from file to timeline 29
  inserting 204
  saving to media file 135
Relative Keyframe Spacing 268
removing
  all unused media 69
  assignable effects chains 283
  red eye from still images 179
  sync links 168
  video stabilization 162
Removing Effects 323, 330, 335, 341
renaming
  keyboard maps 523
  track groups 214
  tracks 217, 224-225
  XDCAM discs 373
Render As dialog 469
Render I-frames at markers 203
Render large Wave files as Wave64 529
rendering
  5.1 surround projects 409
  custom templates 481
  for DVD Architect Pro 477
  MPEG files 476
  multichannel audio 473
  projects 469
  smart rendering 370, 472, 531
  stereoscopic 3D projects 200
  to new track 234
  XDCAM EX 370, 472
reordering tracks 213
repairing synchronization offsets 148
replacing media 73
replacing XDCAM proxy files with full resolution files 371

resampling video events 169
Rescan Script Menu Folder 519
resolution of Video Preview window 423
Resolve project interchange 63
Restoring Backups 58
Retaining the split-screen preview settings 431
reversing
  events 151, 165
  subclips 135, 165
reviewing projects in Vegas Pro Connect 490
RGB Parade monitor 446
Right Only stereo audio 171
Right only stereoscopic 3D mode 194
ripple editing 127, 131
rolling shutter correction 162
rotated projects 53
rotating masks 157, 256
rotation
  3D compositing 353
  Stereoscopic 3D Adjust plug-in 199
routing
  busses to busses 307
  busses to hardware outputs 307
  tracks to assignable effects 282
  tracks to busses 306
ruler 524
running Vegas Pro from the command line 519

S

S-Log 383
  color space 95, 482
  view transform 45
S3D projects *See* stereoscopic 3D projects
Save active prerenders on project close 529
save loudness log next to media file 471
Save media-usage relationships in active media library 529
Save project as path reference in rendered file 60, 469
Save settings to video profiles for future auto-detection 94
Save Snapshot to File 428
Save Version 57
saving
  keyboard maps 523
  projects 56
  Rendering 469
  still images 423
  to AVCHD camera 65, 381
  window layouts 527
Scale output to fit display 536
Scale Video to Fit Preview Window 423
.scc closed captions 411
scene detection, HDV capture 107
scopes
  Histogram 443
  overview 441
  RGB Parade 446
  settings 446
  Vectorscope 441
  Waveform 442
Scott Cue In command markers 206
Scott EOM command markers 206
Screen Capturing 110
Screen compositing mode 351
screen edge violation 198
Scribble Strip 217, 225
scripting 519
scrub control 20
scrubbing 20
SCTE closed captions 411
SDI (Serial Digital Interface) audio 546
SDI (Serial Digital Interface) video 104, 109, 434, 536
searching
  media bins 92
  plug-ins 32
secondary Windows display 432
segments, adjusting envelopes 244, 550
SEI frame packing arrangement 200
Select VST effects to be available as audio plug-ins 550
selecting
  channels in Mixing Console 319
  events 119
  loop regions 21
  regions 205
  tracks 212
Selection Edit tool 16
Selectively Prerender Video 22, 435
semitones 176
send levels 323
Serial Digital Interface (SDI) video 104, 109, 434, 536
Set controls to default values when automation is turned off 558
Set Default Track Properties 233
Set Selection to Project 21
Set Selection to View 21
.sfap0 files 54, 529
.SfDecProp files 379
.sfk files 181, 529
.sfl files 135, 469
.sfvp0 files 73, 90
sharing projects online 61
shooting multicamera video 183
shortcuts 563
Show Trimmer history with filename first, then folder 529
Shuffle tool 15, 134
shuffling events 134
shuttle controllers 517
shuttle speed 551
side by side stereoscopic 3D mode 192

signage 53
signal flow diagrams 309, 362
silence 119
Simulate Device Aspect Ratio 423
Simulate device pixel aspect ratio 107
simultaneous internal and external video preview 536
Slide tool 15, 143, 148
sliding
  crossfades 148
  events 148
  transitions 148
slip-trimming events 144, 147
Slip tool 15, 147
slipping events 147, 165
slow-motion video 142, 151
slow fade curve 123
smart adaptive deinterlace 46
smart bins 92
smart rendering 370, 472, 531
Smart resample switch 46
Smart Resample switch 169
Smart Splitting 133
.smi closed captions 411
.smil closed captioning files 411
Smooth and thin automation data after recording 558
smooth fade curve 123
smoothness
  default value 558
  Pan/Crop plug-in 152, 252
  Surround Panner window 405
  Track Motion window 261
snapping
  colors 554
  grid spacing 526
  indicator 124
  Quantize to Frames 126
  snap offset 126
  to all events 22, 124
  to grid 21, 124
  to markers 21, 124
snapshots, capturing from timeline 423
soloing
  assignable effects 341
  busses 334, 340
  track groups 215
  tracks 215, 224, 323
Sony wireless adapter 365
sorting media with bins 92
sound editor 172
Sound Forge Pro software 172
Source Alpha compositing mode 351
spatial interpolation 160, 259, 261
speeding up video 142, 151
split-screen previews 429
split-trimming events 145, 147
Split Manual keyframe curves 268
Split Trim tool 15, 147
splitting events 132
SPTI direct 555
square masks 155, 255
square pixels 41
.srt subtitles 411
stabilizing video clips 162
static controls
  audio track volume and panning 215
  static controls vs. automation controls 236
  surround panning and center channel volume 400
  video track opacity 224
status bar 26
Stereoscopic 3D AVC/H.264 200
Stereoscopic 3D Camera 357
Stereoscopic 3D mode
  custom rendering templates 200
  media properties 94
  Preview Device preferences 536
  project properties 41
  Video Preview preferences 533
stereoscopic 3D projects 191
  adjusting depth 198
  aligning left- and right-eye views 198
  previewing 195
  rendering 200
  setting up 191
  subclips 195
  synchronizing events 195
  YouTube 3D 201
still images
  capturing from timeline 423
  default length 551
  reducing interlace flicker 169
Stitching 394
Stop button 23
Stop Preview button 28
Storyboards 80
StreamChase 88
streaming media 61
streams, audio 76, 94, 115, 135, 171
Stretch to fill frame 160, 259
Stretch video to fill output frame size 469
strobe effect 177
Studio RGB 447
subclips 141, 195
SubRip subtitles 413
Subtitles 91
Subtract compositing mode 351
supersampling 230
Surround Panner window 401, 407
surround sound *See* 5.1 surround
Swap Left/Right
  custom rendering templates 200
  media properties 94
  project properties 43, 195
  Stereoscopic 3D Windows Graphics Card 541
Swap Media 69
swapping audio channels 171
Swapping video files 69

switches
Disable Resample 46, 171
Force Resample 46, 171
Invert Phase 169
Lock 170
Loop 170
Maintain Aspect Ratio 169
Mute 169
Normalize 170
Reduce Interlace Flicker 169
Smart Resample 169
Use project resample mode 171
sync links 168
Sync offset 536
Sync preferences 556
synchronizing audio/video events 148
synchronizing multicamera clips 183
synchronizing projects with Vegas Pro Connect 490

T

tagging media files 70
takes
choosing active 165
deleting 166
Next Take 165
Previous Take 165
recording 100
renaming 165, 173
tall video projects *See* rotated projects
tape name 94
technical support 12
templates
command templates 206
rendering templates 481
tempo
displaying in events 165
event tempo 173
Import audio at project tempo 542
project tempo 41
temporal interpolation 268
test pattern 297, 461
text
Media Generators window 33, 297
titles 299
Titles & Text plug-in 300
thinning envelope points 244
threaded audio rendering 545
three-point editing 138
time
deleting 129
inserting 119
time-stretching events 142, 173
Time Ruler 524
Time selection envelope fades 244, 550
time selections
creating 119
envelope points 244
Time Stretch/Compress tool 15, 144
timecode
Generate MIDI Clock 449
Generate MIDI Timecode 449
Trigger from MIDI Timecode 450
timeline
editing XDCAM clips 374
Enable Timeline Overwrite 139
nesting projects 54
overview 22
timeline toolbar 23
tinting tracks *See* fade to color envelopes
titles 299-300
Titles & Text plug-in 299-300
toolbar
customizing 523
overview 14
tools
Envelope Edit tool 16
Marker tool 211
Normal Edit tool 15
Selection Edit tool 16
Shuffle tool 15, 134
Slide tool 15, 143, 148
Slip tool 15, 147
Split Trim tool 15, 147
Time Stretch/Compress tool 15, 144
Zoom Edit tool 17, 181
Top/bottom stereoscopic 3D mode 192
Touch automation mode 249
track-at-once audio CDs 453
Track colors 553
Track fade top/bottom colors 241, 533
track list 18
track motion 261, *See also* 3D compositing
Track Motion default smoothness 560
Track prefader sends listen to mute 542
track regions (audio CDs) 210
track sends 323, 544
track view *See* timeline
tracks
audio track controls 215
automation recording 248, 328
buffering 547
compositing 349
deleting 129
duplicating 215
editing 212
effects 276
grouping 214
I/O 323
inserting audio tracks 98, 212
inserting video tracks 98, 212
keyframes 270
mixing 303

mixing to new track 234
panning 328
properties 233
renaming 217, 224-225, 323
reordering 213
selecting 212
timeline 22
video track controls 224
volume 215, 323
trailer, printing to tape 461
transferring projects to Vegas Pro Connect 490
transferring XDCAM clips 371, 373
transition progress envelopes 151
Transitions window 294
transport controls 23
transport streams *See* HDV
TranzPort 509
Trigger from MIDI Timecode 450
trim controls
audio track volume and panning 215
surround panning and center channel volume 402
trim controls vs. automation controls 236
video track opacity 224
Trimmer window 135
trimming events 130, 142
trimming full-resolution XDCAM clips 374
trimming media files when saving projects 59
.txt files 59

U

UK PPM 317, 321, 327, 343
Undersample rate 173
undoing edits 180
ungrouping events 167
ungrouping tracks 215
Universal Product Codes 41
unlinking events in sync links 168
UPC codes 41
Uploading
Vimeo 63
Youtube 61
URL command markers 206
Use 10-bit encoding 109, 536
Use All Streams and Channels 137
Use audio-capable preview device 546
Use custom timecode 94
Use legacy track send gain 542
Use linear scrub range 529
Use Net Notify to stay informed about Sony product updates 529
Use progressive segmented frame (psf) video formats 536
Use project output rotation setting 536
Use project resample mode 171
Use SPTI direct 555
Use timecode in file 94
Use Vegas color scheme 553
Using HitFilm Effects 90

V

vectorscope monitor 441
.veg files
overview 41
saving 59
VEGAS Capture 110
Vegas color scheme 553
Vegas Pro extensions 519
VEGAS Pro window 13
.VegasWindowLayout files 527
velocity envelopes 151
vertical video projects *See* rotated projects
video
adding effects 287
capturing 104
converting to 24p 111
importing from DVD camcorder 87
inserting video tracks 98, 212
keyframes 268
preferences 533
speeding up or slowing down 142, 151
track controls 224
track motion 261
video bus track 230
video cameras
capturing video 104
importing from DVD camcorder 87
Video CDs 476
video effects
applying 287
bypassing 287, 423
keyframes 558
Video FX window 32
video output effects 291, 423
video envelopes
default type 558
inserting 240
Mute 240
Track Composite Level 240
Track Fade to Color 241
track keyframes 270
Transition Progress 296
Velocity 151
video events
effects 287
properties 173
video monitor *See* video previews
video motion keyframes 558
Video Only 149
video output effects 287, 291, 423
Video preferences 533
video previews
dynamic RAM previews 431, 533
external monitor 432
split-screen previews 429

Video Preview window 423
video profiles and auto-detection 94
Video project properties 41
Video Scopes window 441, 446
video supersampling envelopes 232
video tracks
effects 287
inserting 98, 212
video waveform monitor 442
View transform 45
Vimeo 63
Visual Basic scripts 519
.vob files 87
volume
audio tracks 220
rendered AC-3 files 410
.vro files 87
VST effects
assignable effects 280
audio track effects 276
bus effects 279
preferences 550
presets 284
VU meters 322, 326, 333, 339

W

Warp Flow 133
Wave64 files 530
waveform monitor 442
waveform, displaying while recording 542
What's New 11
window docking area 27
window layouts 527
Windows Graphics Card 195, 432, 540
Windows Media Player
captions 421
closed captions 414
commands 206
wireless adapter 365
wireless control 509

X

.xcc closed captions 411
XDCAM
edit lists 372
editing clips on the timeline 374
essence marks 140, 205, 372, 375
proxy files 374
setting up 370
wireless proxy-first workflow 365
workflow 370
XDCAM discs
exporting 375
importing 373
XDCAM EX
rendering 370, 472
smart rendering 370, 472, 531
workflow 369
XDCam Explorer 560
XDCAM Explorer 371
XDCAM Station (XDS) 88

Y

yellow plug-in icon 99, 276-277, 279-280
YouTube 61
3D 61, 201
captions 420

Z

Zoom Edit tool 17
zooming 181