

SONY

Vegas[®] 5

Learn To Use The New Features

A tutorial approach to mastering the powerful new features that make Vegas 5 software more robust and indispensable than ever.

Gary Rebholz and Michael Bryant

Vegas 5: learn to use the new features

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Introduction

There can no longer be any doubt about it: Vegas® video and audio editing software has made a definite mark on the nonlinear video and audio editing fields. Anyone who insists on overlooking Vegas hasn't been paying attention for the past few years. Vegas 4 shook the industry in 2003. Vegas 5 will blow the doors off!

Major enhancements on the video side will once again set the standard that other editing software programs will be forced to live up to. Numerous audio enhancements further cement the Vegas reputation as containing the most incredible set of audio tools in the industry.

In this document, we'll walk you step-by-step through learning about all of the new features. Not only will you learn what the features are, but more importantly, you'll learn how to use them. You'll learn quickly and thoroughly so that you can get started creating great projects that take advantage of all of the new features.

Keep in mind that we've written this document under the assumption that you already have a working knowledge of Vegas from previous versions. We necessarily have to take for granted that we can gloss over some steps, or this document would be a book! If you don't have a working knowledge of previous versions of Vegas, you will still be able to use this document. However, you may need to rely on the on-line help files more often to fill in some of the gaps between your knowledge and our assumption of your knowledge.

You're going to have fun with Vegas 5! Let's get started learning about the new features. We hope you find this document helpful, and we wish you the best of luck with your video and audio productions. Thank you for your support of Vegas 5 and all of the Sony Media Software products!

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*Sony Pictures Digital
Media Software Consulting and Training*

Note: The revision date of this document is August 4, 2004. This is the last planned update. If an unforeseen error or circumstance warrants it, we will update this document and post it to the website. If you want to be notified of these updates (and other training materials and opportunities) click the following link to send us an email request:

<http://mediasoftware.sonypictures.com/corporate/contact.asp?id=27>.

We'll send you an e-mail message letting you know that an update has been posted and exactly what the update includes. If you've already requested updates based on an earlier version of this document, you don't need to submit another request—we'll continue sending you every update notification.

I: Enhancements to video tools



Enhanced Track Motion tools

Version 5 introduces an extensive overhaul to the track motion tools of Vegas. You've already used track motion in previous versions to resize video streams and still images, move objects around the screen, create picture-in-picture effects, and so on. The enhancements introduced in version 5 make track motion a much stronger tool, and open up a whole new world of creative possibilities. Before we talk about the star of the new track motion tools—3D motion and compositing—let's spend a little time creating familiar edits with the Track Motion window so that you can get comfortable with the new look and feel.

Add a piece of generated media or video to a new project. Create another video track below the first one, and add another piece of video or generated media to that track. Place the event on track two directly below the one on track one. Click the **Track Motion** button for track one to open the Track Motion window. You notice the window's new layout immediately.

Choose the desired composite mode from the Composite Mode drop-down list. This list mirrors the Composite Mode button on the track header, and you can change the composite mode with either of these tools. Later, we'll explore the 3D Source Alpha composite mode in detail, but for now, leave the composite mode set to Source Alpha.

Enable Rotation button

The buttons across the top of the window aid you in making the exact adjustments to the position box that you want. Click the **Enable Rotation** button to toggle between rotation enabled and bypassed. As you toggle back and forth with this button, notice that the rotation circle in the position box disappears and reappears depending upon the state of this button.

If necessary, click the button again to place the button in its selected state (rotation enabled.) For the sake of this discussion, click the **Edit in Object Space** button (if necessary) to enable that button. (We'll discuss the Edit In Object Space button in detail a bit later.)

Hover over the rotation circle in the position box. The cursor changes to the rotation tool (an arched arrow) indicating that you can now rotate the position box. Click the rotation circle and drag the mouse to a new location. As you do, the angle of the position box changes. Also, notice that in the Properties area on the left side of the Track Motion window, the value of the Angle field (under the Orientation heading) changes to reflect the changes you make to the position box. If the Orientation heading is collapsed, click the **Expand (+)** button in front of it to expand the section so you can see the Angle setting. Under the Orientation heading, click the value in the Angle field and enter 0 in the box, then press the **Enter** key on your keyboard. The position box returns to its normal position.

Toggle the **Enable Rotation** button off again. You can no longer drag the position box to change its orientation. This prevents you from inadvertently changing the Angle of your position box when you are trying to change other parameters. You can still enter a value in the Angle field (under the Orientation heading) to change the angle if you want to.

In fact, the Angle field has controls of its own with which you can adjust the orientation of the box. Notice that when you click in the Angle field, a drop-down arrow and two smaller arrows appear on the right side. Click the small arrows to nudge the value in the Angle field up or down

in one-degree increments. Point your mouse right in between the up and down arrows and drag up or down. You see that you can use this spinner control to make larger adjustments to the value in the Angle field. Finally, click the large drop-down arrow. A slider appears under the Angle field. Drag the slider left or right to change the value of the Angle field and the orientation of the position box. To move the slider in finer increments hold the **Ctrl** key as you drag the slider.

As you'll see when we discuss the other tools in the Track Motion window, each field in the Properties section (with one exception that we'll note a bit later) contains similar controls for adjusting values. Right-click the position box, and choose **Restore Box** from the menu to set the box back to its original position.

Enable Snapping button

Click the **Enable Snapping** button to toggle snapping on and off. To see how snapping works, click the button again if necessary and leave it in its disabled state (snapping off.) Click the **Enable Rotation** button to toggle it back on if you left it off after the last section. Drag the rotation circle in the position box to change the angle of the box. As you do so, watch the value in the Angle field under the Orientation heading and notice that it registers changes in tenth-of-a-degree increments.

Drag the position box (make sure not to point at the rotation circle) to a new position. As you drag right and left, notice that the X value under the Position heading changes in increments of 100ths of a pixel to reflect the box's new position along the X axis. As you drag up and down (along the Y axis), the value of the Y field changes. As with the Angle field, the X and Y fields have their own controls with which you can change their values directly.

Now, click the **Enable Snapping** button to toggle snapping on. Drag the rotation circle again, and note that this time the value in the Angle field under the Orientation heading changes in five-degree increments. Point to the middle of the position box and drag it to a new location. Notice that now the box snaps to the grid dots on the position box area. This demonstrates how when you toggle snapping on, any movements you make to the position box with your mouse conform to specific snapping rules. You can change these snapping rules if you want to.

If necessary, click the **Expand (+)** button in front of the Snap Settings heading in the Properties area of the Track Motion window. The Grid Spacing field specifies the number of rows and columns in the grid. The grid can contain as few as four rows and columns (each column is 180 pixels wide and 120 pixels high) and as many as 40 (each column is 18x12.) The more rows and columns present in the grid (that is, the higher the value in the Grid Spacing field), the finer the grid snapping, and thus the finer the movements you can make with snapping enabled.

The value in the Rotation field specifies the increments (in degrees) by which you can rotate the position box by dragging the rotation circle with snapping enabled. You can set this field to a value as low as 0 degrees (which is essentially the same as disabling snapping) and as high as 45 degrees.

Click the **Enable Snapping** button to toggle snapping back off. Right-click in the position box and choose **Restore Box** from the menu.

Edit in Object Space button

In Vegas 5, the Track Motion window now distinguishes between *object* space and the *camera* space and lets you choose which space you want to use for your positioning moves. Think of camera space as the video preview window, and object space as the positioning box in the Track Motion window.

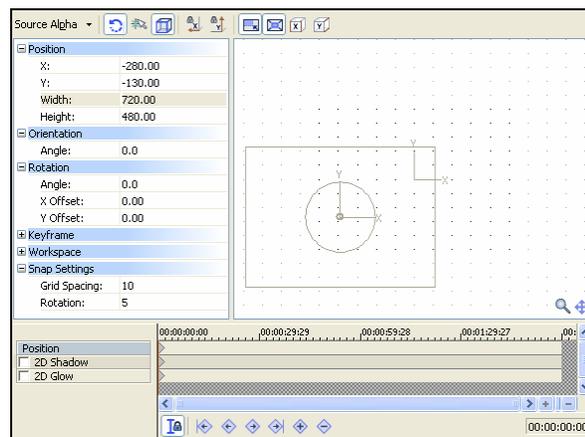
To understand these two spaces, look at the position window in the Track Motion window. The graphic shows a right angle representing the X and Y axes, and each axis is labeled. When you look a little closer, you see there are actually two Xs and two Ys. One of the X, Y pairs represents camera space, while the other represents object space. Before you make any adjustments to the position box, camera space corresponds exactly to object space, which means that the video track exactly fills the Video Preview window. This explains the two sets of X, Y labels. At this point, the intersection of the X and Y axis represents the center of both camera and object spaces.

Now, point your mouse at the position window in the Track Motion window. One of the sets of X, Y labels turns darker than the other. The darker set represents the object space labels. Drag the position box down and to the left until the X value in the Position heading of the Properties area reads approximately -280 and the Y value approximately -130 (the exact values really aren't important to this discussion, so close is good enough.)

In **Figure 1** you can see the difference between camera space (which never changes, and therefore the coordinates of its center never change) and object space. When you moved the position box, you changed the coordinates of its center relative to the center of camera space. In other words, you separated camera space and object space.

Figure 1

Moving the position boxes illustrates the difference between camera space and object space.



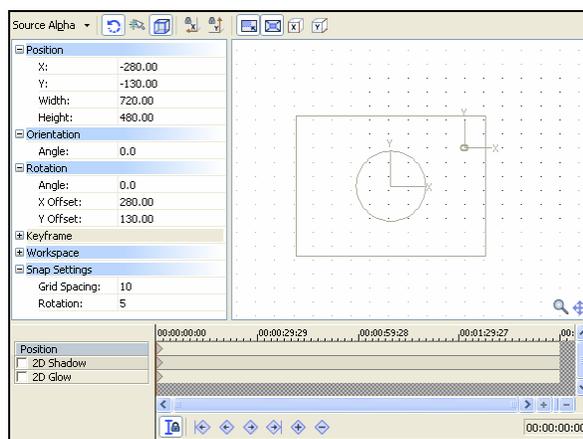
Now that you've separated the centers of these two spaces, let's see how editing in one space can end with different results than making the same edit in the other space. When you dragged the rotation circle earlier to change the value of the orientation angle, you were rotating the position box in object space. In other words, you were rotating the position box around its own rotation anchor, which is always the center of the position box.

Now let's rotate the box in the camera space. The small circle that encompasses the intersection of the X and Y axis in the position box represents the rotation anchor of camera space. Notice that when you changed the location of the position box, the rotation angle of camera space changed along with it. But you can offset the position of the camera-space rotation anchor relative to the center of the position box.

Let's set the camera-space rotation anchor back to the center of camera space. Note the X and Y values under the Position heading, and enter the exact opposite values in the X Offset and Y Offset fields under the Rotation heading (For example, if the X value is negative 280, enter positive 280 in the X Offset field.) This changes the location of the camera-space rotation anchor back to the center of camera space as in **Figure 2**.

Figure 2

In this figure the camera-space rotation anchor is aligned with the center of camera space.



If you've been following our instructions, the Edit in Object Space button is still selected, so you'll be editing in object space. Notice that the rotation circle encompasses the rotation anchor of the position box (which, remember, is always at the center of the position box.) Drag the rotation circle and watch the results in the Video Preview window. Notice that as you change the rotation angle, the value of the Angle field under the Orientation heading changes.

Click the **Edit in Object Space** button again to deselect it. Now you'll be editing in camera space, and the rotation circle now encompasses the camera-space rotation anchor (which you offset from the position box and set back to the center of camera space.) Drag the rotation circle and watch how the results of this edit differ from the edit you made while rotating in object space. This time, notice that as you change the rotation angle, the value of the Angle field under the Rotation heading changes.

This technique is useful in two-dimensional space. Later, when you start working in three dimensions, you'll discover even more sophisticated differences between editing in object space and camera space.

Click the **Edit in Object Space** button to engage it, and then right-click the position box and choose **Restore Box**.

Prevent Movement buttons

Sometimes when you're dragging the position box to a new location, you want movement only along one axis or the other. Engage the **Prevent Movement (X)** button if you want to move the box up and down without worrying about inadvertently moving it left or right too. Engage the **Prevent Movement (Y)** button if you want to move the box right and left without worrying about inadvertently moving it up or down.

Scaling buttons

The scaling buttons help you control how your position box reacts to scaling edits. To scale—that is, change the size of—the position box, point your mouse to one of the corners of the box. When you do, a circle encompasses that corner to indicate that you can now scale the box. Drag the corner of the box to a new location. As you do, the size of the box changes, and the Width and Height settings under the Position heading reflect this change with the exact dimensions of the resized box. As always, you can enter exact values in these fields or use their controls to change the size of the box.

With the Lock Aspect Ratio button selected, you cannot change the ratio of the position boxes width to height. This prevents you from accidentally distorting your video. Note that changes you make directly in the position Height and Width fields do not conform to the state of the Lock Aspect Ratio button.

With the Size About Center button selected, the position box will be anchored in its center so that any changes you make will affect the position of all four corner points equally. This button works exactly the same as it did in previous versions of Vegas.

The Prevent Scaling (X) button locks the X value so that you can drag a point to change the height of the position box without worrying about changing width. The Prevent Scaling (Y) button enables you to change the width of the position box without affecting the height. Both of these buttons override the Lock Aspect Ratio button.

Remaining properties

Throughout this discussion, we've talked about all of the controls in the properties area of the Track Motion window except for those under the Keyframe and Workspace heading.

Select a keyframe in the keyframe controller area at the bottom of the Track Motion window. Choose a keyframe type from the **Type** drop-down list. This has the same result as right-clicking the keyframe and choosing a type from that menu. Set a smoothness level in the **Smoothness** field. The Smoothness setting affects the interpolated frames between keyframes.

The Workspace heading provides controls that enable you to adjust the view of your workspace. You can change the magnification of the workspace with the Zoom field, and offset the center point of the workspace with the X Offset and Y Offset values.

Shadow and Glow

As in previous versions of Vegas, you use the Track Motion tools to add a shadow and/or a glow to your tracks. Start a new project. Use the **Default Text** preset of the Text media generator to add text to your project. Use the **Red** preset of the Solid Color media generator to add a red event to a new track (position it directly under the text event.)

Click the **Track Motion** button for track one. In the keyframe controller area, select the **2D Shadow** checkbox. The Video Preview window shows that the text now has a shadow. The Track Motion window now contains the controls you use to adjust your shadow. Everything works just as it did in previous versions, but again the Track Motion window interface has undergone some changes. You are already familiar with the Properties area, so we don't need to go through all of the options here. Use the properties in the 2D Shadow heading (the only new heading here) to control the attributes of the shadow. To change the color of the shadow, click the drop-down arrow for the **Color** property and specify a color with the color picker.

Back in the Keyframe controller area, select the **2D Glow** checkbox. The Properties area changes again to show the properties that control the glow on your track. Click the drop-down arrow in the **Color** property and select a yellow color from the color chooser. The Video Preview window shows the resulting glow.

3D motion and compositing

3D motion and compositing represents one of the most exciting new features of Vegas 5. While previous versions of the application restricted your movements to two dimensions (the familiar X and Y axis), Vegas 5 enables you to utilize a third dimension, the Z axis. You can easily visualize the Z axis as the axis that comes straight at you. So now, in addition to moving the Track Motion position box left and right (along the X axis), and up and down (along the Y axis), you can also move it toward you and away from you (along the Z axis).

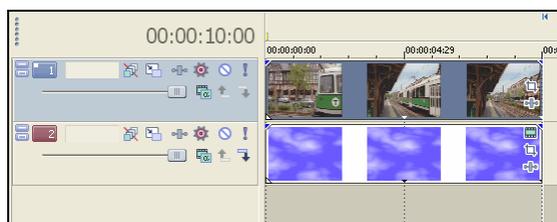
Things really get interesting when you start rotating the position box. In the standard two dimensions, when you rotate the position box, you are rotating around the Z axis. But with the introduction of the third dimension, you can rotate the position box around any of the three available axes, and doing so will create many interesting effects. Let's dive in and learn how it all works.

Setting up a project to edit in 3D

Start a new Vegas 5 project. Add a video clip to your project. In the Media Generators window, select **Noise Texture** and add the preset **Puffy Clouds** to a second video track in the timeline. Dismiss the Video Event FX window and position the puffy clouds even directly under the video event in track 1 as shown in **Figure 3**. Place the cursor somewhere within the events, and note that in the Video Preview window, you can only see the video event. This makes sense based on what you know about previous versions of Vegas: the topmost video track obscures any media on the tracks below it until you create some type of compositing. That's what we're going to do now using the new 3D tools.

Figure 3

Place a video clip in track one and the Puffy Clouds preset from the Media Generators window on track two.



What you already know about track motion in 3D

Click the **Track Motion** button for track one to open the Track Motion window. You are now familiar with the new layout of the Track Motion window from our earlier discussion. Choose **3D Source Alpha** from the Composite Mode drop-down list. Note the change in the appearance of the Track Motion window. You have a number of new controls along the top of the window, several views of the position box in the Workspace area, and several new property options in the properties area. These new items have all been added to accommodate the introduction of the Z axis.

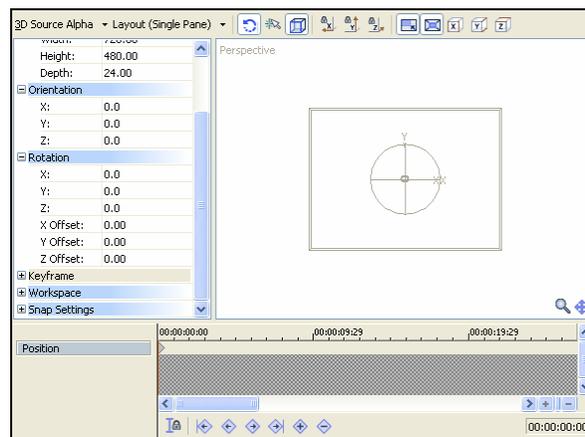
It's really not that difficult to make sense of all of this new information. We can start by identifying the tools we already know how to use. In the Properties section, the Keyframes, Workspace, and Snap Settings sections have not changed at all, so we don't need to discuss any of them. Click the **Collaps (-)** button in front of each of those headings to collapse them.

Now, look at the buttons at the top of the window. You used all but two of them in our earlier discussion of track motion in two dimensions, so we don't need to talk about those here either. We'll talk about the two new buttons shortly.

A new drop-down list, the Layout list, gives you several choices of how you want to look at the position box in the workspace. Choose **Layout (Single Pane)** from the Layout drop-down list now. This simplifies the workspace view to only the Perspective window as shown in **Figure 4**. Let's work with that for just a few moments. In many ways, the Perspective view works much like the two-dimensional view you used previously when making track motion adjustments in two dimensions. In this view, you are looking straight at the position window. In other words, the position window's Z axis points right at you.

Figure 4

Choose Layout (Single Pane) from the layout dropdown to show only the Perspective view in the workspace area.



Click inside the position box (aim for an area that doesn't have any lines or circles in it) and drag the position box up and down, then left and right (that is, along the Y axis, then along the X axis.) Nothing different there – the X and Y values in the Position section of the Properties area change according to the changes you make in the location of the position box.

Drag one of the corners of the position box to change its size. This also works much the same as in two dimensions, but with one slight exception. Notice that, in the Position section of the

Properties area, as you resize the box, the Width and Height values change as usual, but so does the value in the new Depth field. We'll talk about depth shortly.

You can even rotate the position box around the Z axis, just like you did in two dimensions. Enable the **Edit in Object Space** button. Point your mouse to the rotation circle. The letter Z appears in the center of the circle. This visual clue reminds you that you are about to rotate around the Z axis. Get used to watching for these visual clues because they become very helpful when you start rotating around the other two axis. Drag the rotation circle for the position box. The box rotates in the same familiar way as it did when you rotated it in two dimensions earlier. In the Orientation section of the Properties area, you see the Z value changing as you rotate around the Z axis. Right-click the position box and choose **Restore Box** from the menu.

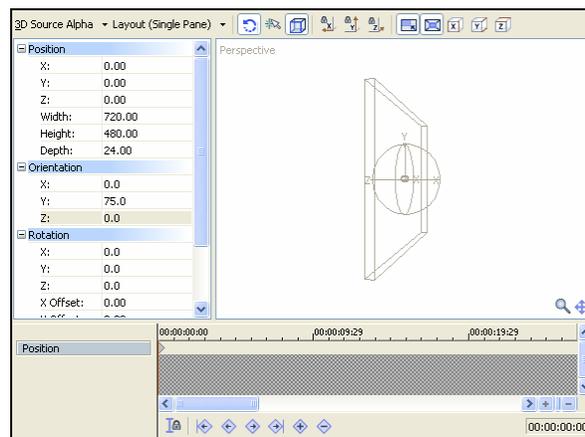
So far, you haven't really learned much that's new, but this quick review should serve to help make you comfortable working in 3D since it points out how much you already know. Now let's talk about what you can do in 3D that you weren't able to do in 2D.

Rotating around the X and Y axis in Perspective view

The perspective view enables you to rotate around any of the three axes. Notice that the rotation circle is cut into quarters by lines running along the X and Y axes. These lines are actually the edges of the other two rotation circles that control rotation of the position box along the X and Y axis. Drag the horizontal line and notice that you are now rotating the position box along the Y axis, and in the process, you are creating perspective as shown in **Figure 5**. Watch the Orientation values and notice that only the Y value changes. Stop when you reach about 75.0. In the Video Preview window, you can see the effect of your first 3D move. Right-click the position box and choose **Restore box** from the menu.

Figure 5

Drag the horizontal line to rotate in 3D around the Y axis.



Now drag the vertical line to rotate the box along the X axis. Stop when the X value under the Orientation heading reaches about -50.0. Take a look at your Video Preview window to see the results. Right-click the position box and choose **Restore Box** from the menu.

Adjusting your workspace offsets

In the previous section, you found that (when using the Perspective view) it is a little more difficult to identify the rotation circles for rotating around the X and Y axis than for the Z. Since

in the default Perspective view you're looking straight at the front of the 3D object, the X and Y rotation circles look like lines rather than circles.

Think of the rotation tools in the Track Motion window as a sphere—the three rotation circles run along the outside of the sphere. It would be a lot easier to identify the X axis if you could just move off the front of the object around to the top or bottom. Likewise, if you could get around to the side of the object, it'd be much easier to see the Y rotation circle. The Workspace Offset properties enable you to get around to the top, bottom, left, or right of the rotation sphere.

Drag the workspace (outside of the position box) to see how you can change your Workspace Offsets. Drag up to look move your view of the rotation sphere more to the top of the sphere (enabling you to better see the Y rotation circle.) Drag left to move your view more off to the side of the sphere (enabling you to better see the X rotation circle.) Right-click the position box and choose **Restore View** to return to a straight-on view of the front of the sphere.

Using different views

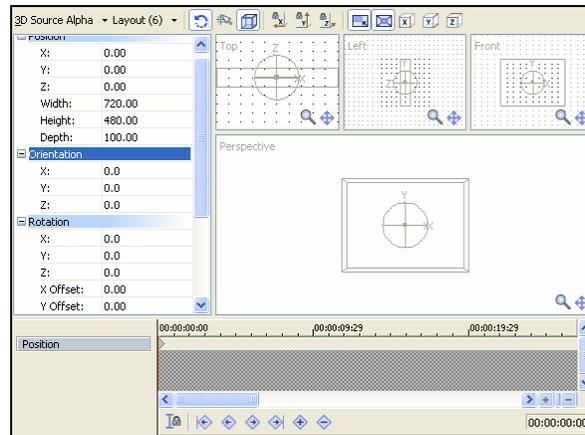
Remember that the Perspective view is only one of the available views, and as you've discovered, there are some moves you can't make with that view. Specifically, in the Perspective view, you can't move along the Z axis (move the box toward or away from you), or resize the box in the Z axis (increase the depth of the box.) Remember that dragging the corner points to change the *size* of the position box does not achieve the same results as moving the box in the Z axis (that is, moving the box closer to or farther from you) even though in the Perspective box it can appear that both of these operations achieve the same results. That's why Vegas provides several different views.

From the Layout drop-down list, choose **Layout (6)**. This takes you back to the default layout where you have the Perspective view at the bottom and three alternate views along the top. Of these three alternate views, the Front view is the most like the Perspective view. In the front view, you are looking at the position box from the front, and you can make all of the same edits that you can make in the Perspective view. The only real difference between these two views is that the Perspective view draws the position box with perspective when you rotate it around the X or Y axis (thus the name of the view) while the front view does not.

In the Top view, you're looking down on the top edge of the perspective box. This makes it possible for you to move the position box in the X axis and the Z axis. Here's where control over the depth of the position window can make a big difference for you. When you're looking down on the top edge of the position box, it can be difficult to grab the box with the mouse to move it. Increase the depth to make a wider target as shown in **Figure 6**. Drag the perspective box in the Z axis (up and down in the Top window), and watch as the video in the Video Preview window comes towards you or away from you. You can also see the change in the Perspective view, and watch the value in the Z field of the Position section of the Properties area change as you move the box.

Figure 6

Increase the depth to make it easier to grab the position box in the Top view.



The top view also makes it easier to rotate the position box around the Y axis because now the Y rotation circle encompasses the position box. Drag the rotation circle and view the results in the Video Preview window. You can also see the value change in the Y field of the Orientation section in the Properties area. Right-click the position box and choose **Restore Box** from the menu.

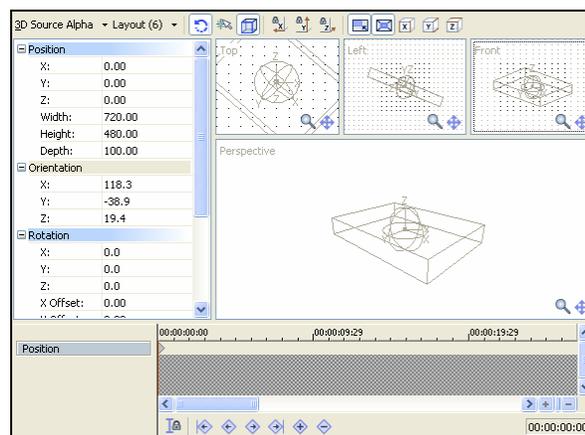
Experiment with the Left view and see how it makes it possible to move the position box in the Y and Z axis. The rotation circle that encompasses the position box in this view rotates the box around the X axis. Right-click the position box and choose **Restore Box** from the menu.

Strategies for using the Track Motion tools when editing in 3D space

We're sure that you've already noticed that some changes to the position box—especially rotations—can quickly change the view from a fairly straight-forward interface to one which is a bit more cluttered and difficult to understand as in **Figure 7**. You can utilize the various tools in the Track Motion window to help you achieve the results you want even if the various views become too confusing for you.

Figure 7

The interface can become cluttered after you make changes in X, Y, and Z rotation.



The Prevent Movement and Prevent Scaling buttons can help you limit your edits to just the axis you want. Earlier you saw how these buttons work in 2D, and they work the same in 3D. The only difference is that you now have one additional button in each set to cover the Z axis. Click the **Prevent Movement (Z)** button to ensure that you don't inadvertently change the position of the box along the Z axis. Click the **Prevent Scaling (Z)** button to keep from changing the depth of the position box. Keep in mind that you can prevent movement and scaling along any combination of axis that you want.

Perhaps the best and least confusing way to achieve the results you want—particularly when working with rotation—is to use the controls in the Properties area. For instance, if you know you want to make an adjustment to the rotation around the X axis, use the slider for the X value under the Orientation section. This method works great any time—even when the views get complicated because you've already rotated around more than one axis.

For example, restore your position box back to normal. In the Top window, rotate the position box around the Y axis until the Y value in the Orientation section of the Properties area is about 55.

Now, it can be very difficult to identify the other two rotation circles in any of the views. Say you want to rotate 55 degrees in the Z axis. Instead of trying to find the Z axis rotation circle in any of the views, use the slider control for the Z value in the Orientation section of the Properties area, or just type 55 directly into the Z value.

Other times you don't know the exact move you want to make. In these cases, trial and error experimentation with the rotation circles in the various views can be the perfect method because you can really discover interesting edits in this fashion. Right-click the position box and choose **Restore Box** from the menu.

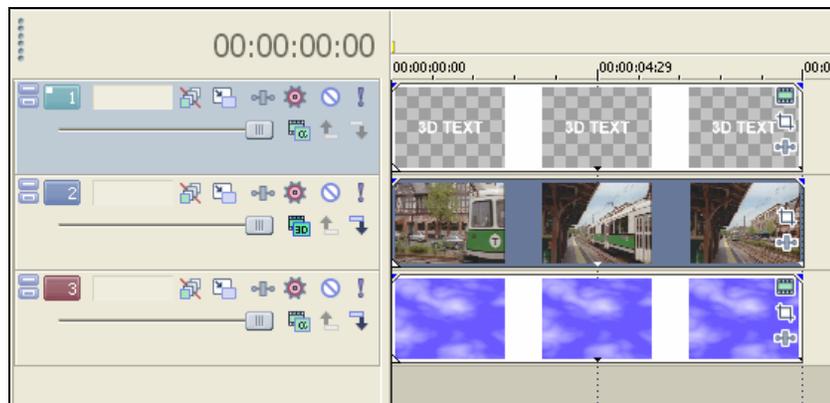
Object space versus camera space

We introduced the concept of these two different spaces when we talked about track motion in two dimensions. Now let's see how these work in 3D.

So far throughout our discussion of 3D track motion, you've been making all of your adjustments in object space. Add a new video track in the track one position in the project on which you've been working. Add a text media generator to the new track—use the default text preset. Change the text to read "3D TEXT" and position the event so that it is above the events on tracks two and three as shown in **Figure 8**.

Figure 8

Add a new track with a text event in it to the project.



Click the **Track Motion** button for track one, and choose **3D Source Alpha** from the Composite Mode drop-down list. Look at the position box. As in 2D track motion, when you first open the Track Motion window, object space matches camera space. Select the **Edit in Object Space** button if it is not already. Enter **-100** in the X field under the Position section of the Properties area, and **-75** in the Y field. This repositions the text box, and as before you can see that now you have separated camera space and object space.

Also as before, notice that the rotation anchor for camera space has moved to match the new object space. Enter **100** in the X Offset field under the Rotation section of the Properties area, and **75** in the Y Offset field to offset the movement of object space and place the camera space rotation anchor back in the center of camera space. In the Perspective view, notice that the rotation circle for rotating around the Z axis encompasses the center of object space. Drag the Z axis rotation circle and note how the text reacts to the changes. As you rotate around the Z axis, visualize just where the Z axis is—it comes right out of the center of the text and straight at you. Right-click the position box and choose **Restore Rotation** from the menu.

Click the **Edit in Object Space** button to turn it off. Back in the Perspective view, notice that the rotation circles now encompass the camera space rotation anchor. Drag the Z-axis rotation circle again, and notice how the results of rotating in camera space differ from those of rotating in object space. Again, visualize the Z axis. This time (in camera space) it comes out of the center of the Video preview window (since that's where you placed the camera-space rotation anchor), regardless of where the text is.

So far, we have demonstrated camera versus object space in familiar 2D. In fact, this demonstration is almost identical to the one you followed earlier when you were editing track motion in 2D. We took you through this exercise just so that you would see that again you already know much of how to work in 3D from your experience working in 2D. Now that we've established that, it's time to really put your imagination and visualization skills to the test. Let's look at another, more complicated example of editing in 2D versus 3D space.

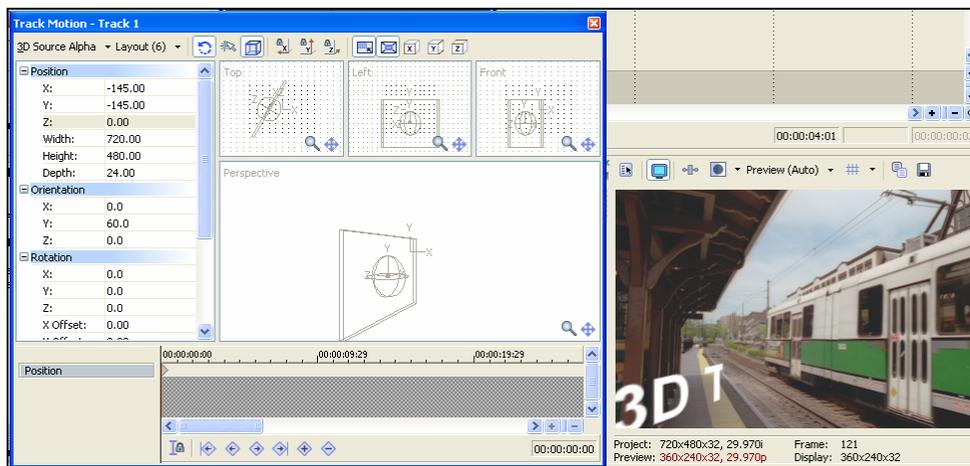
Right-click the position box and choose **Restore Box** from the menu. Click the **Edit in Object Space** button to select it. In the Top view, use the rotation circle to rotate around the Y axis.

Rotate the box until the value in the Y field under the Orientation section of the Properties area reads approximately 60.

In the Perspective view, drag the position box until the text starts in the lower-left-hand corner of the Video Preview window as shown in **Figure 9**. In the example in that figure, the X and Y fields under the Position heading of the Properties area both read -145. Set the both X Offset and Y Offset fields under the Rotation section of the Properties area to 145 to place the rotation anchor of object space back to the center of camera space.

Figure 9

Drag the position box in the Perspective view until the text starts in the lower-left-hand corner of the Video Preview window.



In the Top view, use the Y rotation circle to rotate the track. Notice how the text seems to spin around its own center (the object space Y axis.) Set the Y field under the Orientation section of the Properties area back to 60.

Click the **Edit in Object Space** button to deselect it so that you can edit in camera space. Once again, drag the Y rotation circle in the Top view. Notice how the text now seems to orbit around the Video Preview window's Y axis (it's rotating around camera space's Y axis.) Set the Y field under the Rotation section of the Properties area back to 0.

Now let's rotate around the X axis in both spaces. Click the **Edit in Object Space** button to select it again. Visualize the object space X axis. Adjust the slider control for the X field under the Orientation section of the Properties area to rotate the position box around the object space's X axis. Again, notice in the Video Preview window how the text seems to spin about its own X axis. Set the X field under the Orientation setting back to 0.

Now visualize the X axis of the camera space. Adjust the slider control for the X field under the Rotation section to rotate the position box around the camera space's X axis. Notice in the Video Preview window how the text seems to orbit around the camera space X axis. Note also that when you make adjustments directly to the fields in the Properties area as we did here with our X-axis experiments, the state of the Edit in Object Space button has no effect. In other words, these controls override the Edit in Object Space button. This illustrates that you can always edit in either space with the controls in the Properties area regardless of the state of the Edit in Object Space button. Just remember that when you make adjustments to the Orientation settings, you

are editing in object space. When you make adjustments to the Rotation settings, you are editing in camera space. Set the X field under the Rotation heading back to 0.

Now run a similar experiment by rotating around the Z axis in both object and camera space and note how the results differ.

Using keyframes to create 3D motion

As when working with 2D track motion, you can set keyframes in the 3D Track Motion window and adjust your 3D settings differently for each one. Then, when you play your project, Vegas interpolates the frames between the two keyframes to create the motion from one keyframe to the next. You're already familiar with how keyframes work, so we'll walk you through a simple example so you can see how you can use them in 3D.

Right-click the position box and choose **Restore Box** from the window. In the timeline, click the edge of the text event to place the cursor there. Back in the Track Motion window, click the **Sync Cursor** button if it is not already selected so the keyframe controller cursor syncs with the timeline cursor.

Now, change the Y orientation to 60 (use the Top view's rotation circle, or enter the value directly into the Y field of the Orientation section.) As usual, this change creates a new keyframe at the cursor location in the keyframe controller area. Return the play cursor to the beginning of the project, and play the project. Watch the Video Preview window to view the 3D motion that you just created.

Obviously, this example is only one simple option. Now that you know how to use the 3D track motion tools, you can come up with countless ways of using keyframes to create complex moves in 3D.



Video track nesting and nested-track 3D compositing

In previous versions of Vegas you established parent/child relationships between video tracks in order to create masking techniques. In fact, that was the sole purpose of creating these parent/child relationships. With Vegas 5, the parent/child relationship has become a much more sophisticated and powerful tool. We now refer to these parent/child relationships as track nesting. In this section we'll explore all of the aspects of the new video-track nesting capabilities.

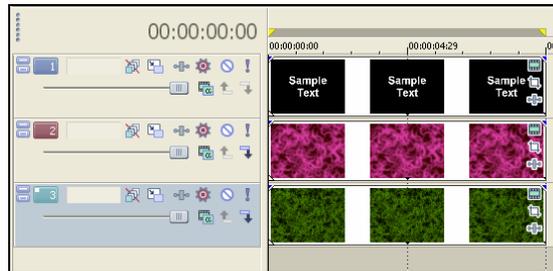
Creating masks

As a result of all of the new nesting features, there are many reasons that you may want to create a parent/child relationship between tracks. Now, it no longer makes sense to assume that you want to create a masking track just because you nest one track inside another. Therefore, the process of creating masking tracks is not quite as automatic as it was in previous versions. However, it's still quite simple to do.

Start a new project and add three video tracks. On the first track, add the **Solid Background** preset of the Text media generator. On track two, add the **Microscopic Threads 2** from the Noise Texture media generator. On track three, add a video clip or any of the other Noise Texture media generators. Position the three events so that they line up perfectly one under the other, and place your cursor within the events as shown in **Figure 10**. In the Video Preview window you can only see white text on the black background. We'll use this text as a mask for the second track.

Figure 10

Create three tracks of video.



Click the **Make Compositing Child** button on track two. This button looks different and is in a different location than in previous versions. **Figure 11** shows what the button looks like and where to find it in the track header. Notice that the track header for track two is now indented slightly as compared to the track headers for the other tracks. Track two is now a child of track one. Notice that the Make Compositing Child button for track two is no longer available. This point will come into play a bit later.

Figure 11

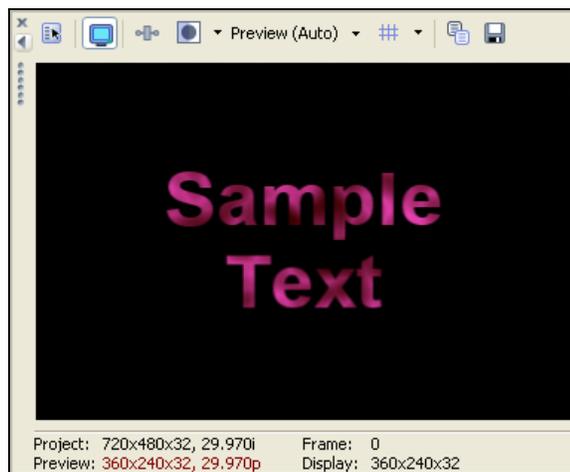
Click the Make Compositing Child button on track two.



Click the **Compositing Mode** button for the parent track (track one) and choose **Multiply (Mask)** from the drop-down list. In the Video Preview window, you can now see the generated noise on track two through the white portions of the text on track one, as shown in **Figure 12**.

Figure 12

The generated noise now shows through the white portions of the text on track one.



Now, open the **Video FX** window. Select **Mask Generator** from the list of filters and effects on the left side of the window. Drag the **Luminance Mask** preset to the track one track header. This completes your mask. **Figure 13** shows that in the Video Preview window, you can now see the generated noise on track two through the white areas of the event on track one, and the video (or generated noise) on track three through the black areas of the event on track one. Keep the project that you've been working on open so that you can work on it further in the following section.

Figure 13

You can now see the generated noise on track two through the white areas of the text on track one and the video or generated noise on track three through the black areas of the event on track one.



Controlling nested tracks with parent motion

One of the most useful features of the new track nesting, called *parent motion*, enables you to control the movement of entire groups of tracks in one operation. If we use track motion on track one to move the words, they will move, but the noise texture that fills them will not. Try it.

Click the **Track Motion** button for track one. Sync the keyframe controller cursor with the timeline cursor, and click toward the end of the text event in the timeline. Back in the Track Motion window, drag the text from the center of the screen to the lower-right-hand corner. Play the project from the start. Notice in the Video Preview window how the text moves, but the noise texture on track two does not. This is not the effect we're after. Delete the second keyframe in the keyframe controller area. Naturally, this removes the motion from the text track.

Now, click the **Parent Motion** button for track one, as shown in Figure 14. This opens the Parent Motion window. This window looks and acts almost identical to the track motion window.

Figure 14

Click the Parent Motion button for track one.



Place the project cursor toward the end of the text event. Back in the Parent Motion window, sync the keyframe controller cursor with the project cursor. Drag the position box to position the text in the lower-right-hand corner of the Video Preview window. As in the Track Motion window,

this creates a new keyframe at the location of the keyframe controller cursor. Play the project from the beginning and watch in the Video Preview window as the text moves while the noise texture on track two moves along with it. This illustrates how you can use a parent track and parent track motion to move the parent track and all of its children tracks with one operation.

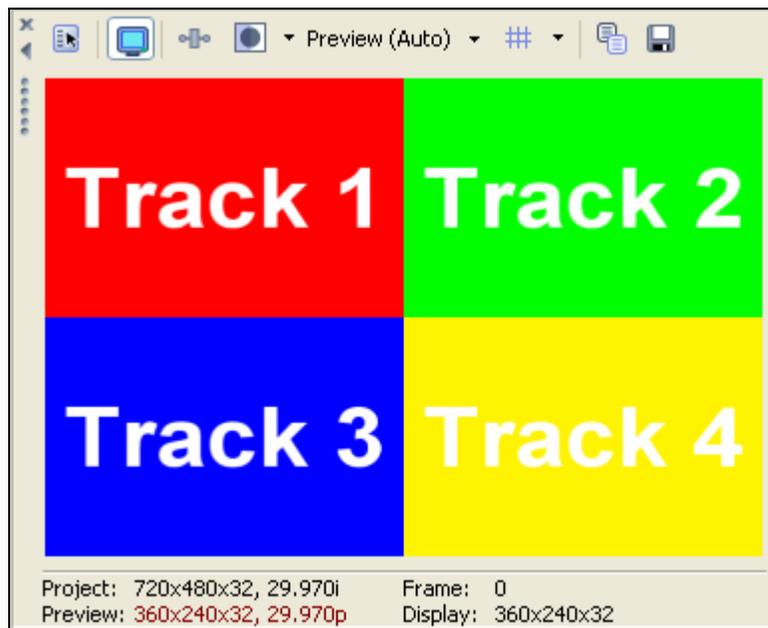
Creating a more complex nesting scenario

The example we went through above displays a very simple use of track nesting and parent track motion. Let's take a look at more complex scenarios.

Start a new project. Add four video clips to four separate tracks (you can use video or generated media for this experiment.) Adjust the track motion on each track so that the four video clips occupy four different corners of the Video Preview window as shown in **Figure 15**. To ensure that this whole experiment works as we want it to, make sure that the video on track one sits in the upper-left corner, the video on track two sits in the upper-right corner, the video on track three in the lower-left corner, and the video on track four in the lower-right corner.

Figure 15

Create four video tracks and use track motion to position them in four different corners.



Set up track motion for tracks three and four that causes them to swap position over the course of 10 seconds. Play the project from the beginning. You have four video streams that occupy the four quarters of your Video Preview window, and over the course of the project, the video clips in tracks three and four shuffle to exchange places.

Now we'll move all of these video clips – track motion and all – together as a single unit. Add a new video track as the top track in your project. You don't need to put any video on this track; its sole purpose is to control the motion of the other four tracks. In actual practice, you might want to give your control track a label in the track Scribble Strip so that you remember its purpose as the complexity of your project grows.

Click the **Make Compositing Child** button for track two. It's now a child of track one. You could continue to add tracks one by one to the parent/child relationship. Instead, select the track headers for tracks three through five simultaneously, then click the **Make Compositing child** button for any one of them. They all become children of track one along with track two.

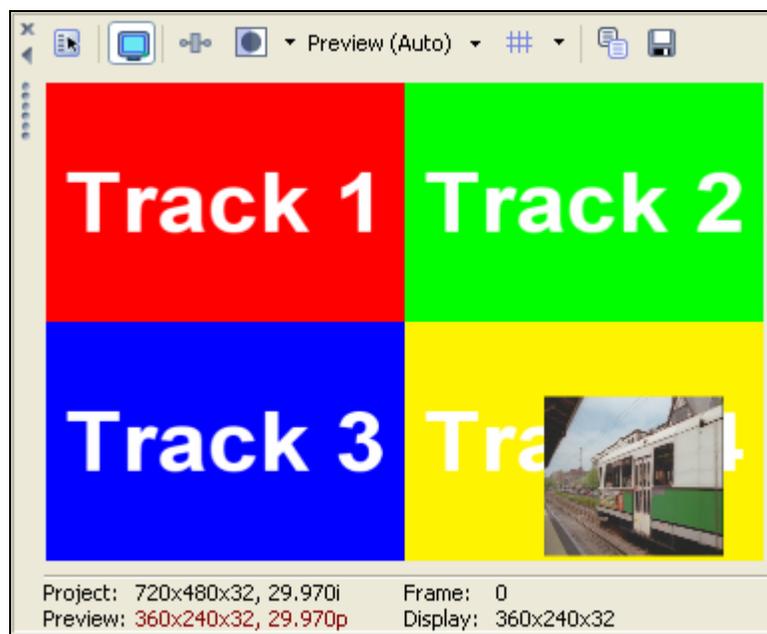
Click the **Parent Motion** button for track one (the parent track). Place the keyframe controller cursor at 10.0 seconds. Set the Y field in the Position section of the Properties area to 247. Play the project from the beginning. Notice that while the track motion you set up earlier still swaps the two video clips, the entire set of four video clips moves up as a unit.

Add another video clip on a new track at the bottom of your track list (track six.) Solo track six, and use its track motion to make it 180 pixels wide by 120 pixels high. Set its X and Y Position coordinates to 230, -155. This places a small video toward the lower-right-hand corner of the screen. Unsolo track six and play the project from the beginning. The parent motion you created moves the other four video streams to reveal the new video on track six.

Now let's set up a picture-in-picture effect that shows the video currently on track six inside the video currently on track five. Drag the track six track header between tracks four and five. Notice that the original track six is now track five, and more importantly, that it is now part of the parent/child relationship with track one. In the Video Preview window, you see the picture-in-picture effect as shown in **Figure 16**. We've almost got just what we want, but when you play the project from the beginning, you see that we still have a problem. As the tracks move, the picture in picture does not move along with the track it is supposed to be with.

Figure 16

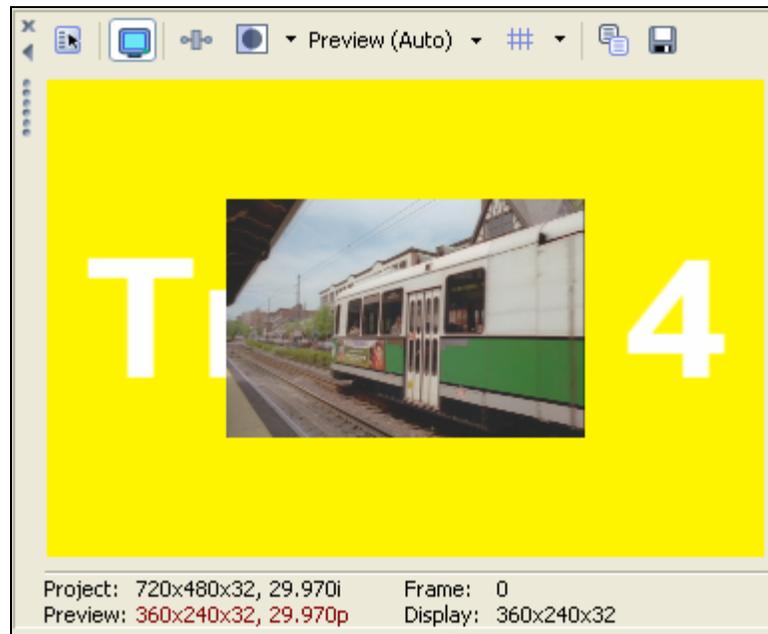
Use track motion to create a picture-in-picture composite.



We can solve this problem too. Solo tracks five and six so you can concentrate on the picture-in-picture relationship between them. Even though they look like you want them to now, the relationship between the tracks needs to be constructed differently in order for them to move as a single unit, thus preserving the picture-in-picture effect. Restore the track motion settings for both tracks to their defaults so that they occupy the entire Video Preview window and track five obscures track six. Make sure to remove all of the extra keyframes you added that created motion in the earlier example. Now, use track motion on track five to create the picture-in-picture effect you want as shown in **Figure 17**.

Figure 17

Create a picture-in-picture effect with tracks 5 and 6.



Now the picture-in-picture looks right, but the entire unit is much too big. To solve this final problem, add a new video track, and drag it to the track five position. Don't put any video on this track because it will act as another control track. Notice that even though tracks six and seven are already nested, their **Make Compositing Child** buttons are still available. Select the track headers for both tracks six and seven, and click the **Make Compositing Child** button for one of them. This nests both tracks into track five, which in turn is nested into track one. Multiple levels of nesting like this make nesting a very powerful feature indeed.

Finally, click the **Parent Motion** button for track five. Resize and move the position box until the nested video tracks fill the lower-right quadrant of the Video Preview window. At the 10-second mark, add another keyframe and move the position box to the lower-left to create the swapping motion we had before. Play the project from the beginning. The video in the lower right now swaps with that in the lower left, and the inset picture comes along with it. All this happens while the entire group of video files moves to the top of the screen.

Moving nests between nesting levels

As you discovered while working on this example, you can have multiple levels of nesting so that one nest can be nested as a whole unit into a higher-level nest. You can move tracks and nests in and out of different nesting levels. For instance, in the project you've been working on, you may decide that although you want to continue nesting tracks six and seven into track five, you no longer want that nest nested into track one. Click the **Make Compositing Parent** button on track five. Track five moves out of the nest with track one and brings its child tracks along with it. So now you have to unrelated nests at the same level. Play your project from the beginning and see that the track five nest no longer moves up along with the track one nest.

If you decide to move the track five nest back into the track one nest, you'll want to preserve the track five nesting relationship. Click the **Make Compositing Child** button on track five. Notice that this makes track five a child of track one, *but does not preserve the parent/child relationship*

between tracks five, six, and seven. Click the **Undo** button to reestablish that parent/child relationship. To move track five into the track one nest and still preserve the track five nest, first hold down the **Ctrl** key and then click the **Make Compositing Child** button for track five. This time track five moves into the track one nest, and tracks six and seven stay within the track five nest.

Working with solo and mute within nests

Nesting creates its own solo and mute behavior. Click the **Solo** button for track six. This solos that track within its nest (muting all other tracks in the same nest), but does not mute all other tracks in the project as the solo button does with a non-nested track. Click the **Solo** button again to turn solo off.

You can also solo or mute an entire nest. Click the **Solo** button on track five, which is the control track into which tracks six and seven are nested. This mutes every track that is not part of the soloed nest. Click the **Mute** button on track five. This mutes the entire nest.

Moving nests in 3D

You can combine 3D techniques with video track nesting to create some very interesting graphic elements in your video. You really already know everything you need to know in order to do this, so we'll just walk you through one example and let you explore the myriad possibilities from there.

Start a new Vegas project. Add two video tracks. Add the **Bumps** preset of the Checkerboard media generator to the top track. Edit the right edge of the event so that it lasts for 30 seconds. On the bottom track, add the **Hot** preset of the Text media generator, and make that event last for 30 seconds as well. In the Video Preview window, the bumps obscure the text.

Click the **Track Motion** button for track one. Choose **3D Source Alpha** from the Composite Mode drop-down list. Set the Z field of the Position section in the Properties area to 260. In the Rotation section, set the Z Offset to -260. Place the cursor at the 10-second mark in the keyframe controller area. In the Properties area, set the Y field under the Rotation section to 360. Play the project from the beginning. You see the bump plane rotate in 3D space, but that 3D space is completely in front of the text. This is because the text is not yet in 3D space.

Click the **Compositing Mode** for track two (the text track), and choose **3D Source Alpha**. This immediately places the text in the 3D space, and since you moved the bumps backward along the Z axis earlier, the text is closer to you than the bumps. Play the project from the beginning. The bumps now orbit around the text.

Now add some rotation to the text. Click the **Track Motion** button for track two. Reposition the keyframe controller cursor to the ten-second mark. In the Properties area, change the value in the X field under the Rotation section to -1440. Now play the project from the beginning to see the results.

Click the **Make Compositing Child** button on track two. Click the **Parent Motion** button on track one. In the Parent Motion window, choose **3D Source Alpha** from the Composite Mode drop-down. Set the keyframe controller cursor at the 10-second mark, and change the X value under the Rotation section of the Properties area to 360. Change the X offset to -250, the Y Offset to 100, and the Z Offset to 100 also. Play the project. You now have rotation around three different axes simultaneously.



Keyframable Bézier masks

As with the Track Motion window, Vegas 5 introduces significant changes to the Event Pan/Crop window. There have been a few cosmetic changes to the window, but the most

significant change involves the new masking feature that utilizes sophisticated Bezier curve drawing tools like the ones found in many graphics and drawing applications. With these tools, you create any conceivable shape to crop (or mask) out portions of the video to which they are applied. Naturally, you can use keyframes to change the shapes of your masks over time, or to move them so that they follow the video. These masks can be used for many purposes such as color correction to just a specific area of the video, masking out complex shapes, and creating interesting special effects. In this section, you'll learn to make Bézier masks.

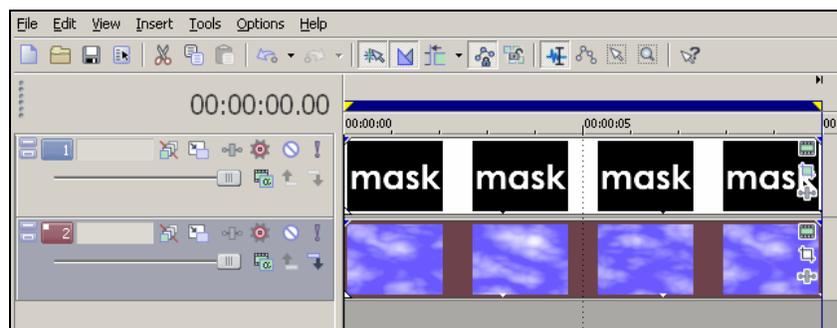
Setting up a masking project

In a new project, use the **Solid Background** text preset to add a text event to the timeline. Change the text to the word, "mask" in all lower-case letters. Set the font to Century Gothic, the font size to 180, and make the text bold. Close the Video Event FX window.

Now use the **Puffy Clouds** preset from the Noise Texture generator to add a cloud event to a new track directly below the text on track one. In the Video Event FX window, place the cursor at the end of the keyframe controller and adjust the **Progress (in degrees)** slider to 10.000. This creates a new keyframe with a different setting than the first keyframe, which results in animated clouds when you play the project. Close the Video Event FX window. **Figure 18** shows what the project looks like so far.

Figure 18

Set your project up to look like the one shown in this figure.



Exploring the Event Pan/Crop tools

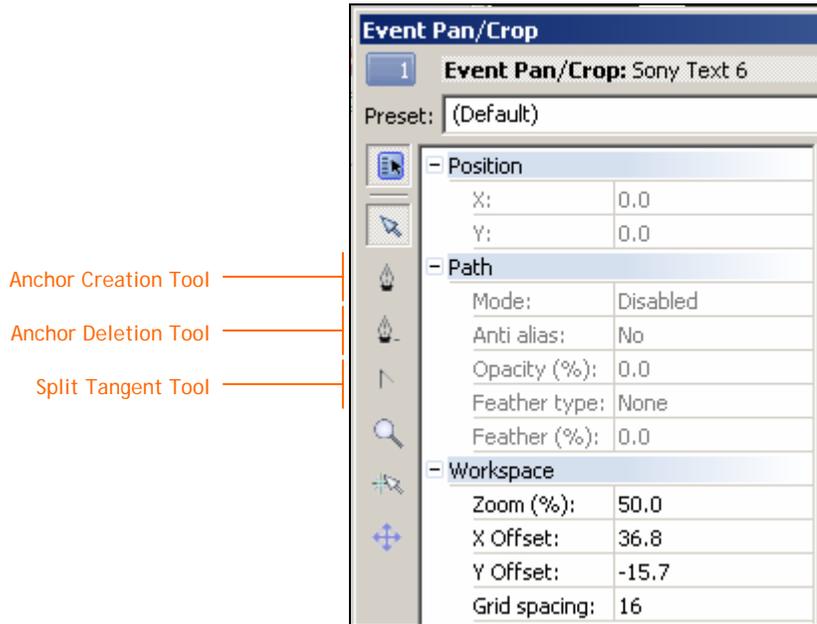
Now, click the **Event Pan/Crop** button on the event in track one (the text event.) All the tools you've used in previous versions of Vegas still exist in version 5, but they have taken on a new look. On the far left edge of the window you see the familiar Show Properties, Normal Edit Tool, Zoom Edit Tool, Enable Snapping, Lock Aspect Ratio, Size About Center, and Move Freely buttons. These tools work just like they did in previous versions.

To the right of these buttons, a Properties area arranged in a tree structure makes it easy for you to find the information and controls you want. The controls with which you set exact values for the fields in this structure work identically to the ones you already learned to use in our discussion of the Track Motion window, so we don't need to go over them again.

The window now contains two keyframe controllers. The Position keyframe controller is the traditional one that you have used in previous versions. The new Mask keyframe controller area activates and controls the Bézier masking tools. To work with Bézier masks, click the **Mask** check box. A new set of tools and parameters appear in the Properties area of the window as shown in **Figure 19**. You'll use these tools to create Bézier masks.

Figure 19

New tools and parameters appear when you select the Mask checkbox in the keyframe timeline.



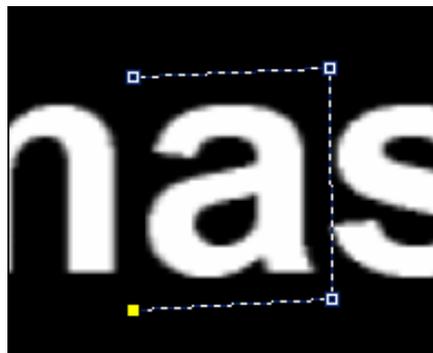
Let's create a very simple mask so you can get a feel for the masking techniques and familiarize yourself with these new tools. For now, click the **Collapse (-)** button in front of both the Path and Workspace headings in the Properties area to collapse those headings. Click the **Anchor Creation Tool** button. You use the Anchor Creation Tool to place points (anchors) in the workspace. As you add these anchors, Vegas connects them with lines. Eventually, you'll create a closed shape that acts as a mask.

Creating a simple mask

In this example, we're going to create a rectangular mask around the letter "a" in the word "mask." With the Anchor Creation Tool selected, click just above and slightly to the left of the letter "a" in the workspace. This drops an anchor at that point. Next, click above and slightly to the right of the "a" to add a second anchor. Vegas automatically connects the two anchors with a dotted line segment. Add two more points so that you have four corner points for a box around the letter "a." Your box is now complete on three sides as shown in **Figure 20**.

Figure 20

Add anchors to create a rectangular mask around the letter "a".



To complete the box, hover over the first point you added. When you do, notice that the cursor changes and that the dotted line segments turn yellow. These changes indicate that you are ready to close the shape. Click on the existing first point to complete the shape. You immediately see the results of your new mask in the Video Preview window. As shown in **Figure 21**, just the portion of the text clip that falls within the masking shape you created shows up in the Video Preview window.

Figure 21

This figure shows the result (in the Video Preview window) of the mask we created around the letter “a”.



Setting path properties

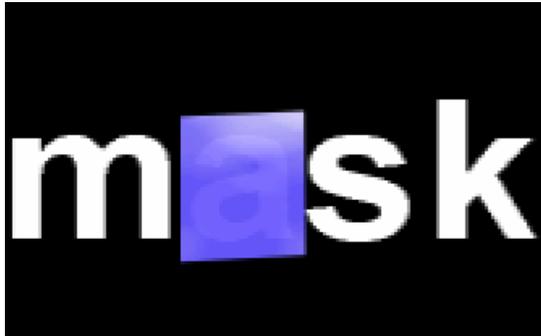
Once you’ve drawn the mask shape, you can work with its properties to achieve the exact masking results you want. For instance, often you’ll want a mask that hides the area *inside* the mask instead of hiding everything *outside* of the mask (as your mask does now.) Let’s create such a mask now. Click the **Expand (+)** button in front of the Path heading in the Properties area to expand that heading again. Note that the Mode property is set to Positive. From the Mode drop-down list, choose **Negative**. Now your Video Preview window shows that your mask cuts a hole in your text event over the letter “a” through which the event below shows. Play the project to see the clouds moving inside the hole. If you want to keep your mask, but don’t want it to actually be active, choose **Disabled** from the Mode drop-down.

The Anti Alias property helps create a smooth transition between the colors inside your mask and those outside of it. It does so by adding intermediate colors that make a more smooth blend between the inside and outside colors. Typically you’ll want to leave this property set to **Yes**.

Perhaps you don’t want the “a” to completely disappear. You can adjust the opacity of the mask with the Opacity property. Set the Opacity property for the mask to 95%. You can now see the “a” (albeit faintly) as in **Figure 22**.

Figure 22

As you drop the opacity of your mask you can begin to see the masked section showing through.



Finally, you may not want a hard edge to your mask. If not, you can feather the edges. You can create a feather that starts on the edge of the mask and feathers in, one that feathers out, or one that feathers in both directions. Then you can specify the amount of feathering you want. From the Feather Type drop-down, choose **Out**. The Feather property now becomes available. Use the Feather slider to try different feather values for your mask. Settle on a Feather value of 10% as shown in **Figure 23**.

Figure 23

You can feather the edges of your mask for a softer look.



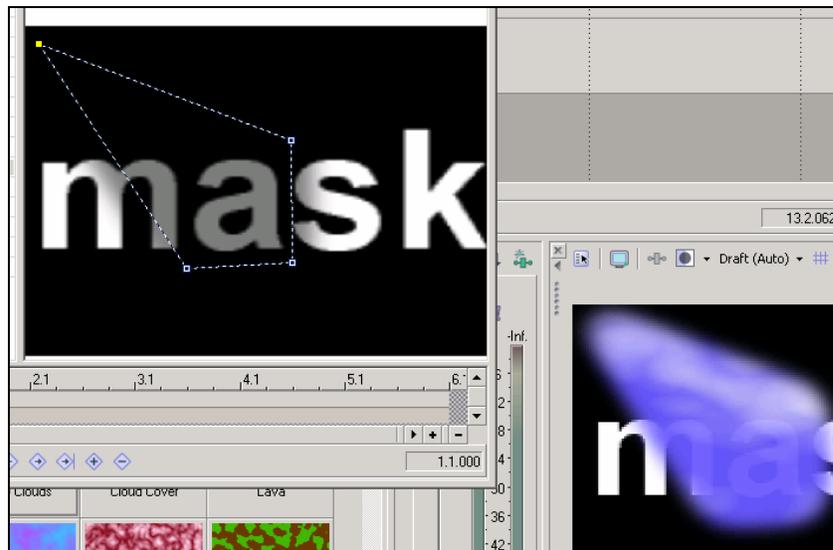
Selecting, deselecting, moving, and deleting points and masks

You might decide that you want to change the shape of your mask, or you might want to move the entire mask to a new location. At the moment, all of the anchors on your mask are solid. This indicates that they are selected.

Click the **Normal Edit Tool** button, and then click anywhere in the workspace other than on the mask. Now all of the anchors disappear, although the dotted line segments still let you know that the mask exists. Click in the upper-left-hand corner of the mask. This selects the anchor at that position as the solid dot indicates, while leaving the other anchors unselected (as their hollow dots indicate.) Notice that the Position heading in the Properties area gives you the X and Y coordinates of the anchor. Drag the selected anchor to a new location and notice how this changes the shape of the mask as shown in **Figure 24**. Drag the point back (or click the **Undo** button) to restore the mask's original shape.

Figure 24

To change the shape of an existing mask, drag its anchor points to new locations.



Click on the anchor in the upper-right-hand corner of the mask. This deselects the first anchor and selects the one you click on. Now you could move that anchor.

You can also select multiple anchors. With the top-right anchor still selected, hold the **Shift** key and click the top-left anchor to add it to the selection. Now drag the top-right anchor to a new position, and notice that you also change the position of the top-left anchor (because they are both selected.)

To select all of the anchors in a mask, you could add them one by one with the shift+click method we just described, but there is a faster way. Hold the **Alt** key and click anywhere on the mask. This selects all of the anchor points on the mask. Now you can easily move the entire mask. Drag any of the selected points and the entire mask moves with it.

Now that you know how to move a mask, use that knowledge in conjunction with keyframing techniques that you've used in previous versions to create a moving mask. Position the mask over the "m" in the workspace. Place the cursor at the end of the keyframe controller area. Now move the mask so that it sits over the "k" at the end of the word. Play your project and watch in the Video Preview window as the mask moves across the word. When you're done watching the movie, delete the second keyframe and reposition the mask so that it covers the "a" once again.

To delete an anchor, click the **Anchor Deletion Tool** button and click the anchor. Deselect all of the anchors (click away from the mask with the Normal Edit tool.) Delete the lower-right corner anchor now. Vegas removes the anchor and closes the mask by connecting the remaining anchors. You now have a triangular mask. Click the **Undo** button to return the mask to a rectangle.

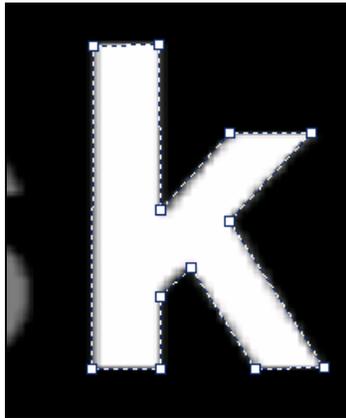
Creating a more complex mask

Now that you have the basics down, let's create a more complex mask that outlines the letter "k" in mask. First, set the Mode property for the mask you've already created to **Disabled**. Click the **Zoom Edit Tool** button, and click in the center of the letter "k" in the workspace. This zooms in to make things easier to see. Click the **Anchor Creation Tool** button and click to place a control point on top left corner of the "k". Move to the top right corner and click again to create another

control point. As before, a dotted line segment connects the two points. Continuing clicking at every corner around the outline of the “k” until your mask defines the entire letter. Remember, to complete the outline, click the first anchor point you added. **Figure 25** shows the completed mask.

Figure 25

Click at every corner of the letter “k” to create a mask that outlines it.



In the Properties area, set the Mode property to **Negative**. In the Video Preview window, you see that the clouds on track two now fill the letter “k” as shown in **Figure 26**. Click the **Normal Edit Tool** button, and click on the first mask that you created earlier. In the Properties area, set the Mode property for this mask back to **Negative**. In the Video Preview window, you can see the results of both masks. You can add as many different masks as you need.

Figure 26

When you switch the mask mode to Negative, the clouds fill the letter “k”.



Creating curved masks

Now let’s create one more mask – this one with curved lines. Right-click the first mask you created (the Normal Edit Tool should still be selected) and choose **Select | Path** from the menu. This selects all of the anchors in the mask. (For future reference, note all of the other options available in the right-click menu.) Drag the entire mask to a new location (remember to select all of the points and drag one of them to drag the entire mask) so that it is completely away from the letter “a.”

This time we’ll create a mask that covers the circle that makes up the inside of the letter “a.” If you’ve used a Bézier curve tool in your favorite graphics or drawing program, you’ll find that the tools in Vegas work much the same way, so you’ll quickly be right at home. If you’ve never used such tools before, you’ll quickly find that Bézier tools are not so mysterious – and not really difficult to use – after all.

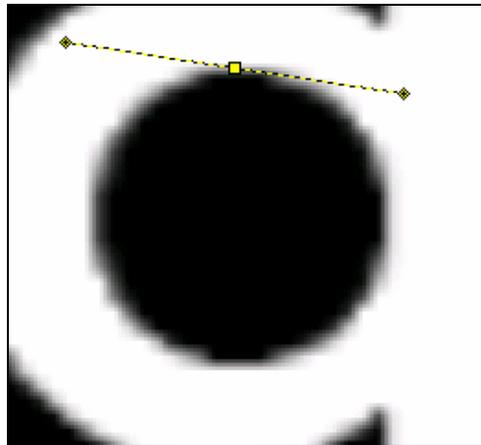
Up to this point, all of the anchors that you've added to your masks have been corner points. As such, the line segments on either side of an anchor are perfectly straight. As you've learned, creating corner anchors is a breeze. It's almost just as easy to create curve anchors. A curve anchor contains curve handles – called tangents – that enable you to manipulate the curve of the line segments on either side of the point. Describing these curve anchors is definitely far more complex than actually using them, so let's jump right in and learn by doing.

When you're working with curves, you'll quickly find knowing the keyboard shortcuts for the various tools an incredible time saver. Since you already know how to select tools manually, we're going to leave the Normal Edit Tool button selected and use the keyboard commands to access the tools we need. The really good news is that there is essentially one keyboard technique that you need to know: holding the **Ctrl** key. Depending upon what you point to, when you hold the Ctrl key as you point, you switch to an alternate – and most relevant – tool. So, you'll notice in the following discussion that you repeatedly hold down the Ctrl key to toggle to the tool you need to complete the task.

Point your mouse to the top of the inside of the letter "a." (You might want to zoom in a bit to see things better.) Hold the **Ctrl** key to change from the Normal Edit tool to the Anchor Creation tool. Alternately release and hold the **Ctrl** key to toggle between the Normal Edit and Anchor Creation tools. Hold the **Ctrl** key again. Now hold the **Ctrl** key and drag to the right and slightly downward. **Figure 27** shows that as you drag, tangent handles for this curve point appear and you are actually manipulating one of those handles. The length and angle of the tangent work together with the tangent for the next anchor in the mask to define the curve of the line that connects those two anchors. When you've dragged your tangent to a similar location as the one in **Figure 27**, release the mouse button.

Figure 27

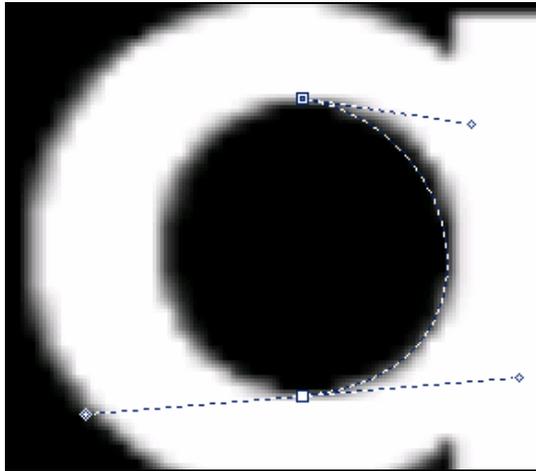
When you click and drag to create an anchor, you create a curve anchor with curve handles or "tangents."



Now point to the bottom of the circle, hold the **Ctrl** key (to toggle to the Anchor Creation tool), click and hold the mouse button, and drag slightly down and to the left. This creates the second anchor and its curve handles, and connects the two anchors with a curved line. As you can see in **Figure 28**, our curve doesn't quite follow the curve of the circle, so we'll have to make some adjustments to the curve handles.

Figure 28

Create a second curve anchor and a curved line connects the two anchors.

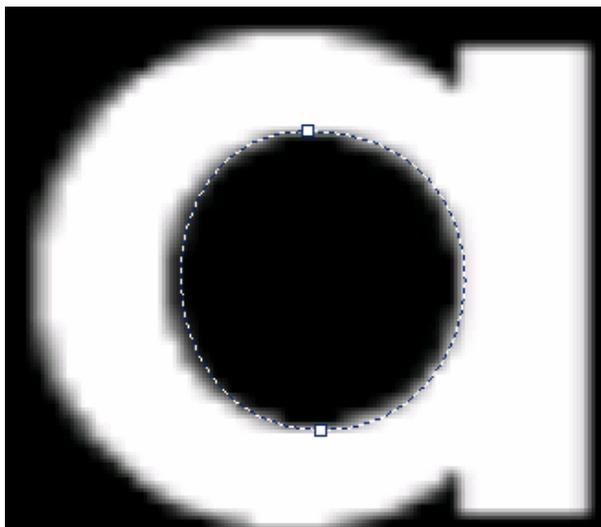


Hover over one of the endpoints of the tangent for either of the anchors. Notice that the mouse icon changes. Drag the tangent end point to different locations – try making the tangent longer and shorter and changing its angle. As you manipulate the tangent, you see that the curve changes. With a little trial and error, you can get the curve to match the curve in the letter “a” quite accurately. If manipulating the tangent of one point doesn’t give you the results you’re after, manipulate the tangent on the other anchor. Most likely, you’ll need some combination of manipulations to both tangents to get the curve just right.

When you’re happy with the curve, hold the **Ctrl** key to toggle once again to the Anchor Creation tool and click – but don’t drag – the first anchor. Since both of the anchors are already curve anchors, the line that connects them on the second half of the circle is curved, as you see in **Figure 29**.

Figure 29

Click the first anchor point again to close the mask.



Again, you’re probably not totally happy with the second curve, so you’ll have to make a few adjustments to get it right. Click away from the mask path to deselect both points. Click where

you know the top point is. Now you can see the tangent handles. Manipulate them to correct your second curve. As you do, notice that you have a problem. The tangent handles for the second curve are connected to the tangents for the first curve, so when you manipulate the second curve you alter your first curve, which you already had just as you want it. If you've done this, click the **Undo** button to repair your first curve.

Now, point at the endpoint of a tangent and hold the **Ctrl** key. This changes your tool to the Split Tangent tool. Alternate between holding and releasing the **Ctrl** key while pointing at the endpoint of a tangent to toggle between the Normal Edit and Split Tangent tool. Press the **Ctrl** key again and drag one of the tangent points for the second curve. The Split Tangent tool breaks the relationship between the two ends of the tangent, so now you can manipulate the tangent handle for the second curve without altering the first curve. If necessary, split the tangent for the second tangent too and manipulate both tangents until you're happy with the second curve. Note that if the tangent is already split, the Split Tangent tool will join them back together.

Vegas provides some visual clues so you can tell when two ends of a tangent are still connected. Point to one of the tangent endpoints. If the tangent has been split, only the end of that tangent to which you're pointing turns yellow. If the tangent has not been split, the entire tangent (from end point to end point) turns yellow

Another method for manipulating a curve is to drag the curve segment itself. When you do this, you'll see the tangents move in reaction to your manipulations. It often works to use this method to get the curve close, and then use the tangent handles to fine tune the curve.

Here's another tip. If you're having trouble making a curve work, hold the **Ctrl** key and click the midpoint of the curve. This adds an anchor at that point. Now you can manipulate the two smaller curves individually which may help you get the exact curve you are after. After you have some experience with curves, you'll develop a good intuition regarding how many anchors you need and exactly where to put them in order to construct the curve you want.

Now that your circle mask is complete, change the Mode property setting in the Properties area to **Negative** and check the results in the Video Preview window. **Figure 30** shows the results. Play your project to see the clouds moving within the masked areas.

Figure 30

The finished mask lets the clouds show through in the center of the "a."



Converting anchors

As you've seen, you can create corner anchors and curve anchors. You can easily convert one or more anchors from one type to the other. Click away from each of the three paths you have in your project to deselect them all. Now click the first mask you made (the triangular mask.) Point to the selected anchor. Hold the **Ctrl** key. Notice that again you have the Split Tangent tool, but when you point to an anchor, this tool has a different function: It converts the point. Click the point, and notice that it changes to a curve point. Note the tangent handles, and the different shape of the line segments attached to the anchor.



Macromedia® Flash™ .swf import

You can now import Flash (.swf) files into your Vegas 5 projects and use them right along with other media. The process does not require you to convert the .swf file to another format first. Just like any other format that you use in your Vegas 5 project, just drag the .swf file from the Explorer window onto the timeline. Once it's there, you can add fades to it, create slow or fast motion on it, trim the event that holds it, add video effects to it, and perform all of the other operations that you can with any video media.

Support for .swf files adds even more possibilities for creating animated text and graphics that you can use in your Vegas projects.

As always, .swf files can be scaled to any project size with no loss of resolution. To see this, start a new project and use the Explorer window to browse to the folder where you have some .swf files. Drag an .swf file to the timeline and play the project. As always, Vegas 5 plays the file in real time.

Now let's experiment with scaling the .swf file. Undock the Video Preview window and double-click its title bar. This ensures that the Video Preview window size matches the project property setting (most likely standard NTSC DV – 720x480 unless you've changed it from the default.) Choose **File | Properties** and click the **Video** tab. From the **Template** drop-down list, choose **Multimedia (320x240, 15.000 fps)** and click **OK**. Double-click the title bar of the Video Preview window again and notice that the window resizes to fit the 320x240 project settings. Play the project and notice that the .swf file has scaled to fit the project properties.

Try the experiment again using the NTSC DV 24p Widescreen (720x480, 23.976 fps) template. Remember to double-click the title bar to adjust the Video Preview window size. Again, notice the scaling of the .swf file to match the project settings.



Improved MPEG-2 support

Vegas 5 software features improved, high-quality MPEG-2 encoding for DVD, broadcast and other delivery targets. Enhancements include 2-pass variable bit rate encoding, 4:2:2 High profile/Main level, and Transport stream support.

2-pass variable bit rate encoding

When you encode your video to MPEG-2, complex sections of your video require a high bit rate for the best encoding results, while less complex areas can get by with a much lower bit rate. In 2-pass variable bit rate encoding (sometimes called multi-pass encoding) the encoder makes multiple passes through the project before the actual encoding begins. On each pass, the encoder analyzes the video and writes information about the original video to a log file. This log file provides information that enables Vegas 5 to determine the optimal way to fit the video within the bit rate limits originally set by the user.

For example, if during the analysis the encoder identifies a section of the video where very little changes (for instance, several frames of black during a scene change) it encodes that section at a much lower bit rate. This saves precious bandwidth that can then be allocated to sections that require greater detail. This varying bit rate results in higher quality for those complex sections while at the same time not wasting valuable bandwidth on the less complex sections of the video. This type of encoding offers the potential of better encoding results, but takes more time than traditional constant bit rate encoding. But then, life's full of trade offs, isn't it?

To use 2-pass variable bit rate encoding, choose **File | Render As** to open the Render As dialog. From the Save as type drop-down, choose **Main Concept MPEG-2**. Click the **Custom** button and click the **Video** tab in the Custom Template dialog. Select the **Variable bit rate** radio button and

the **2-pass** checkbox. Change the values in the **Maximum (bps)**, **Average (bps)**, and **Minimum (bps)** fields to tweak your encode exactly as you want it.

4:2:2 High Profile/Main Level

These new options in the Video tab of the Custom Template for MPEG encoding enable you to encode High Definition MPEG-2 files. The numbers 4:2:2 represent a specific digital video sampling format and describe the ratio of luminance and chrominance sampling frequencies. Standard DV uses the 4:1:1 sampling format. This format encodes less chrominance information than 4:2:2 and therefore results in lower resolution.

The High Profile/Main Level settings go hand in hand with these sampling formats. The choices in the Profiles drop-down dictate which algorithms are used, while the choices in the Level: drop-down dictate sample rates, frame dimensions, and bit rates. Here are a couple of examples of different combinations of Profiles and Levels and their associated settings:

Main Profile/Main Level

This is the output of current standard definition MPEG-2 decoder chips

720 x 576 (PAL) or 720 x 483 (NTSC)

30 Hz progressive, 60 Hz interlaced

Maximum bit rate is 15 Mbits/s

Main Profile/High Level

High definition progressive frame

1152 x 1920, 60Hz progressive

80 Mbits/s

Transport stream support

You are now able to choose between two different Stream types--Program (the default) and Transport. MPEG Transport streams were originally used by satellite broadcast systems. More recently this is the format used by HDV cameras. If you want to print to tape using an HDV camera, click the **Systems** tab of the MPEG-2 Custom Template dialog and choose **Transport** from the Stream Type drop-down.

Elementary stream support

You can encode your MPEG-2 files to elementary streams instead of the standard .mpg format. When you do this, Vegas 5 creates two files, one for video (an .m2v file) and one for the audio portion (an .mpa file.) To render to elementary streams, select the **Save as separate elementary streams** checkbox on the System tab of the Custom Template dialog for the MPEG-2 encoder.



Subtitle time/text export to DVD Architect® 2

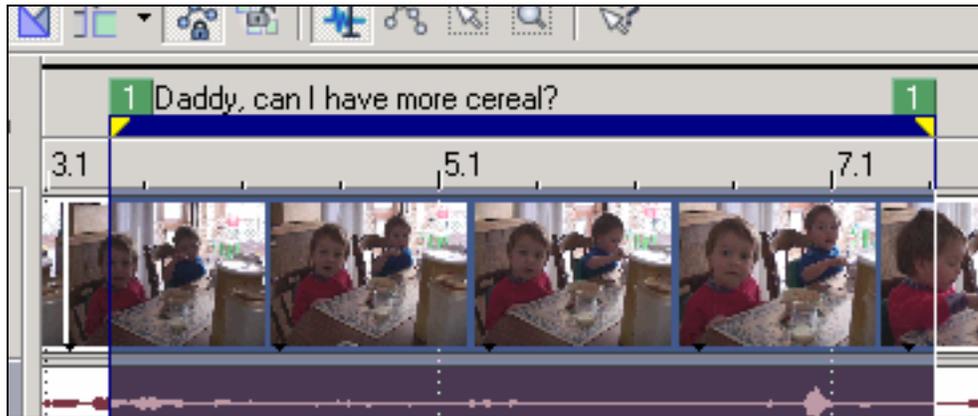
Vegas 5 and DVD Architect 2 work seamlessly together to give you powerful new subtitle capabilities on the movies you edit in Vegas 5 and then burn to DVD with DVD Architect 2. Create perfectly synchronized subtitle information for your movies as you edit them inside Vegas 5, export the subtitles in a text file format, and then import those subtitles into DVD Architect 2—all the while preserving the synchronization.

Vegas 5 utilizes regions to create subtitles. Create a region that encompasses the dialog for which you want subtitles. The start of the region corresponds to the exact point in the video at which the

subtitle appears on screen, and the end of the region corresponds to the point at which the subtitle disappears from the screen. In the text field where you would normally name the region (right-click the region tab and choose **Rename** from the menu), type the desired subtitle as shown in **Figure 31**. Create a new region every time you want the subtitles to change.

Figure 31

Create a region and type the subtitle line into the region's name field



Once you have all of the subtitle regions in place, choose **Tools | Scripting | Export Regions as Subtitles**. This runs a script (included and installed with Vegas 5) that creates a text file that lists each region's start time, end time, length, and name (the subtitles you entered.) In the Save Regions as Subtitles window, select a save location for the text file, and give it a file name. From the Save as type drop-down, choose **DVD Architect subtitle script (*.sub)** if you do not need to use the text file for anything other than importing it into DVD Architect 2. If you intend to send your subtitle file to a translator, choose **Vegas Region List (.txt)** since the .txt format is more widely supported by text editors than the .sub format.

Once you have your subtitles in either the .sub or .txt format, you can import them to a subtitle track attached to the movie in the DVD Architect 2 Timeline window. When you import them in this manner, DVD Architect 2 preserves the exact timing of the subtitles so that they remain perfectly in sync as you created them in Vegas 5.

Let's put this information to use. Start a new project and choose **Insert | Audio track**. Arm the track for recoding and record the following dialog,

"In this example we will create subtitles in English, and then translate the subtitle information into Spanish. Later we will import both versions into a DVD Architect project."

Create three regions, each of which encompasses one line of the dialog. Copy the first line of text from this document, and paste it into the Region Name field for the corresponding region (or if you prefer, just type it directly into the Region Name field. Do the same for the other two lines of dialogue.

Now, to create a video portion for your movie, open the Media Generators window and add a noise texture to a new video track. Adjust the length of the noise texture event so that it corresponds with the first line of your recorded dialog. Add two different noise generators to correspond to the other two lines of dialogue.

Choose **Tools | Scripting | Export Regions as Subtitles**. Save the file to your My Documents folder as a .txt file, and call it English.txt.

Now you'll play the roll of translator. Open the file English.txt in Notepad or another text editor. Replace each of the three subtitle lines with the following Spanish translation,

“En este ejemplo crearemos subtítulos en Ingles
y despues traducimos la informacion subtitulada al Español.
Luego importaremos las dos versiones dentro el programa DVD Architect.”

Perform a Save As in your text editing application, and save this Spanish version to your My Documents folder as Spanish.txt.

Finally, back in your Vegas 5 project, use the default MPEG-2 template to render an MPEG-2 version of your movie. Call it SubtitleExample.mpg. Remember where you saved these files. When you read the New Features Series document that explains the new features of DVD Architect 2, you'll import the files you created in this section into a DVD project to complete the subtitle experience.



Transition progress envelopes

Although you've always been able to control the parameters of a transition over time to create customized transitions in Vegas software, the progress of the transition has always been linear and unchangeable. In other words, once a transition between two clips started, it continued on through the transition area at an even rate without interruption until it was complete.

Version 5 introduces a new concept to transitions: the transition progress envelope. Transition progress envelopes enable you to interrupt the steady progress of a transition and change it however you want. The envelope tools are identical to all of the other envelopes that you already work with in previous versions of Vegas software, so let's move right into an example to demonstrate how you can control the progress of a transition.

In a new project, create a four-second linear wipe transition (use the Left-Right, Hard Edge preset) between two clips. Close the Video Event FX dialog since you won't need to change any of the transition parameters for this exercise. Place your cursor in front of the transition and play the project. Notice that the linear wipe creates a steady transition between the clips.

Right-click the transition and choose **Insert/Remove Envelope | Transition Progress**. An envelope now appears starting at 0% at the beginning of the transition and ending at 100% at the end of the transition. The envelope uses the smooth curve. Play through the transition again. The default envelope shape provides the same uniform transition that you see when you have no envelope present. In other words, adding the envelope does not change the progression of the transition. But the envelope gives you the power to do so, and that's what we'll do now.

Add four new point to the envelope so that it has a total of six evenly spaced points (the four you just added, and the two default endpoints) as shown in **Figure 32**. Right-click the second point from the left and choose **Set to 50% Transition Progress** from the menu. Set the third point to 0%, and the fourth and fifth points to 50%. The envelope now looks like the one in **Figure 33**.

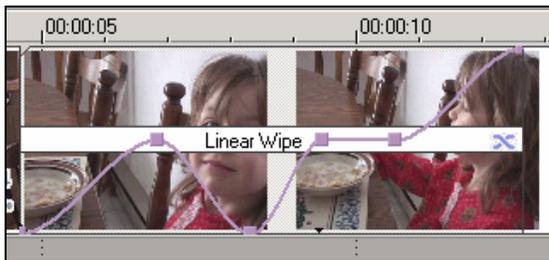
Figure 32

Add four additional points to the transition progress envelope.



Figure 33

Change the settings of the newly added points to create a custom transition progression



You can use the values of the points to predict the progress of the transition. At the beginning, the transition starts at 0% complete. The transition proceeds uninterrupted up to 50% at the second point. There it reverses back to 0%, then moves forward again until the fourth point where it reaches 50%. The transition sits at 50% complete until the fifth point, at which the transition progresses on again until it completes at the final point.

Now see what it looks like when you play your project. Play through the transition and notice how the transition reacts to the instructions you gave it with the transition progress envelope.

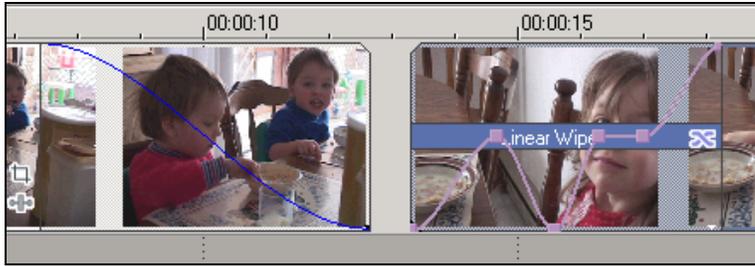
Once you create the envelope you want, you can make adjustments to the transition with confidence that the envelope persists through those changes. For example, drag the second clip to the left to increase the amount of overlap (and thus the length of the transition.) The envelope adjusts along with the length of the transition so that all of the points maintain their proportional relationship with one another. Decrease the amount of overlap and again the envelope adjusts accordingly.

You can also change the transition just as you've always been able to. From the Transitions window, drag any of the presets from the Clock Wipe transition to the overlap area. This replaces the Linear Wipe transition with the Clock Wipe transition. Play through the transition and notice that the transition progress envelope still works. Experiment with several other transitions to see how they look when affected by the transition progress envelope.

Consider exactly what happens when you apply a transition progress envelope to a transition area. Although it appears that the envelope is associated with the transition, it actually belongs to the second of the two clips involved in the transition. To see this, drag the second clip to the right so that it no longer overlaps the first clip at all. Use the ASR envelopes to add a fade out to the first clip and a fade in to the second clip. **Figure 34** shows that the fade out on the first clip uses a standard ASR fade, but the fade in on the second clip uses the transition that was applied between the two clips. In addition, the fade still contains the transition progress envelope just as you built it.

Figure 34

The transition progress envelope is actually attached to the front of the second event in the transition.



Now create a fade out on the end of the second clip. Drop a transition into the fade out area, and notice that a Transition Progress envelope already exists, and you can add points to the envelope and edit it just as you did the other one. All of this demonstrates that when you add a Transition Progress envelope to a transition area, Vegas actually adds the envelope to the second of the two events, and further, adds an envelope at both the beginning and end of the event.

II: Enhancements to audio tools



Envelope automation recording

In previous versions of Vegas, you used various envelopes to create automation. For instance, perhaps you used a track volume envelope to duck a music bed out of the way so that a narration track could be better heard. Or maybe you used a track pan envelope to create the illusion of a train passing through the stereo field from left to right. To create such effects, you added the appropriate envelope, added points to the envelope, changed the settings of the points, and listened to evaluate the results.

Envelope automation recording enables you to make on-the-fly adjustments to certain settings while you play your project, and have Vegas record those adjustments and create an envelope that reproduces the adjustments the next time you play the project.

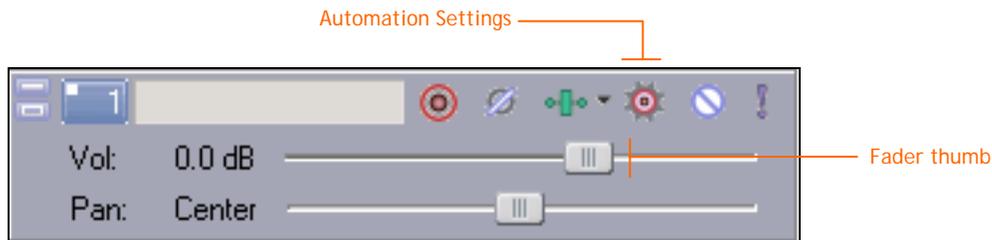
We list this feature here under the Enhancements to audio tools section because this type of automation is so common in multitrack audio mixing. Still, the techniques we talk about here can also be applied to video tracks as you'll see a bit later.

Showing the automation controls

To get familiar with the techniques, let's take a look at automation on an audio track. Start a new project and add an audio file to the timeline. Notice that the track header contains a new button called the Automation Settings button, which you can see in **Figure 35**. In a moment, we'll click that button, but before you do, notice the familiar fader thumbs for the Volume and pan controls (again, refer to **Figure 35**.) You've never had to pay much attention to the graphical look of these thumbs before, but with the new automation recording, the appearance becomes an important clue.

Figure 35

The Automation Settings button enables you to access the automation controls.



Just to remind yourself of how the Volume and Pan controls work, play your project and as it plays, adjust the volume and pan settings for the track. As with previous versions of Vegas, these adjustments lower and raise the volume and change the pan settings of the track. Stop playback and play the project again. The volume and pan settings remain where you left them when you stopped adjusting the faders. So far, nothing new here—we just wanted to remind you of what you already know!

Now, click the **Automation Settings** button. From the menu that pops up, choose **Show Automation Controls**. Now take another look at the Volume and Pan thumbs and notice the new appearance. Click the **Automation Settings** button again and notice that Automation Write (Touch) is the default automation mode. Let's explore each of the modes in this menu.

Ignoring automation with Automation Off mode

In this mode, Vegas ignores the track's automation envelopes. The envelopes have no effect on the track regardless of how complex they might be. To see this, start a new project and add an audio file (choose one that lasts for at least a minute) to the timeline. Use the techniques you know from previous versions of Vegas to add a volume envelope to the track. (We should note that it is not necessary to insert an envelope before you use automation. We do so here only to better illustrate the example you're about to work through. Later you'll learn how to record your automation on the fly. If you do this before inserting an automation envelope, Vegas inserts the envelope for you automatically.)

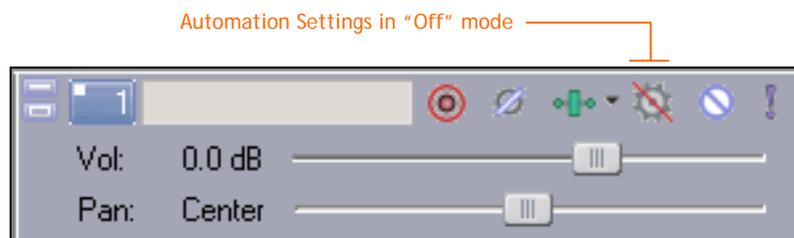
Add a point to the envelope at five seconds into the project. Add another point at 10 seconds. Leave the five-second point set to 0.0dB (meaning it doesn't raise or lower the volume,) and drag the 10-second point down to -Inf. Play the project from the beginning. As you'd expect, the envelope creates a 5-second fade out of the music.

Now, click the **Automation Settings** button and choose **Show Automation Controls** from the menu. Click the **Automation Settings** button again and choose **Automation Off** from the menu. Play the project again and notice that this time, although the automation envelope is still there, Vegas ignores it completely.

Stop playback. Notice that the icon for the Automation Settings has changed as shown in **Figure 36** to give you a visual indication that automation is off. Notice also that while the Volume (and Pan) controls raise and lower the volume of the track (or adjust the panning), they do not alter the automation envelope. Essentially, in automation off mode, these faders have the exact same effect as the normal Volume (and Pan) controls.

Figure 36

The new icon indicates that automation is set to "Automation Off".



Reading existing automation in Automation Read mode

In Automation Read mode, Vegas reads and reacts to the envelope settings, but you cannot adjust the envelopes on the fly with the automation controls. Using the same project that you started in the previous section, click the **Automation Settings** button and choose **Automation Read** from the menu. Notice the new icon for the Automation Settings button shown in **Figure 37**.

Figure 37

The new icon indicates that automation is set to "Automation Read".



Play the project from the beginning. This time, Vegas reacts to the automation envelope and the audio fades out. Watch the Volume fader. As the project plays through the automated fade, the Volume fader moves in reaction to the envelope. This emulates the flying faders you often hear people talk about when referring to hardware mixers that record and play back automation.

As the project continues to play (restart playback if necessary), attempt to drag the Volume fader to a new position. You find that you cannot grab the fader (since you are in read mode.) In fact, if you look a little more closely, you'll notice that the fader graphics are somewhat dimmed to indicate that you can't adjust them in read mode. Stop playback.

Recording automation in Automation Write (Touch) mode

Vegas offers two automation writing modes. In Automation Write (Touch) mode, Vegas reads and reacts to existing envelope settings and also updates the envelopes in response to adjustments you make to the automation controls. As soon as you release the automation control, the envelope setting returns to the point at which it was when you began making adjustments.

Click the **Automation Settings** button and choose **Automation Write (Touch)** from the menu. Notice the graphic for the Automation Settings button, shown in **Figure 38**. Play your project from the beginning again. Vegas reacts to the automation that already exists (notice that moving fader). This time, however, note that the fader graphic is no longer dimmed. After Vegas passes the point in the envelope where the volume has faded out completely, drag the Volume automation fader to the right. Notice that as you increase the volume, Vegas updates the envelope in order to record the adjustments you make to the automation settings.

Figure 38

The new icon indicates that automation is set to "Automation Write (Touch)".

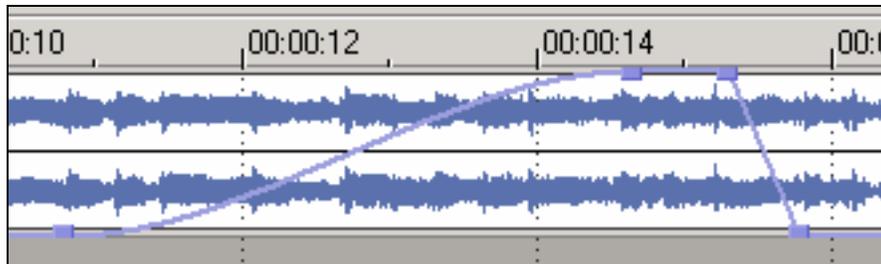


Slowly drag the Volume fader all the way to the right (a 6dB gain in volume). When you can't go any farther, release the mouse button. As soon as you do, the envelope immediately returns to -Inf because that was the setting of the envelope before you started recording new automation.

Figure 39 shows the newly modified volume envelope.

Figure 39

In Write (Touch) mode, the envelope returns to its start settings as soon as you release the mouse.



You also notice that until you release the mouse button, the envelope contains a large number of points that you create as you record automation. As soon as you release the mouse button, many of these points disappear. This is due to the new envelope thinning feature. We'll talk more about envelope thinning shortly.

Play your project from the beginning again. Listen to the audio and watch the fader move as the project plays through the new automation you just recorded.

Recording automation in Automation Write (Latch) mode

In Automation Write (Latch) mode, the second of the two automation write modes, Vegas reads and reacts to existing envelope settings and also updates the envelopes in response to adjustments you make to the automation controls—just like in Automation Write (Touch) mode. However, here when you release the automation control, the envelope setting remains at the point at which it was when you stopped adjusting it.

Click the **Automation Settings** button and choose **Automation Write (Latch)** from the menu. Notice the new icon for the Automation Settings button, shown in **Figure 40**. Play the project and notice the effects of the automation that already exists. After the project has played through all of the automation you've already recorded, raise the automation volume fader slowly until you reach +6dB (all the way to the right) again. When you've moved the fader all the way to the right, release the mouse button. This time the envelope does not return to -Inf (as it did when you recorded the automation in Touch mode earlier.) The automation envelope maintains the last setting you recorded with the volume fader. Stop playback and restart it from the beginning. Play through all of the automation you've recorded.

Figure 40

The new icon indicates that automation is set to "Automation Write (Touch)".



Automating a track's pan settings

You can also automate a track's pan settings. The pan automation controls react to the different automation modes in exactly the same way as the volume automation controls do. In fact, follow the entire discussion we just had regarding the different modes again, only this time use the pan controls instead of the volume controls in order to see exactly how these modes affect pan automation recording.

You can also record panning automation in your 5.1 surround projects. Change your project properties to 5.1 surround. In either of the two automation write modes, play the project and make adjustments to the surround panner. Vegas adds the surround panner keyframes beneath the track to record the moves you make in the surround panner interface.

Automating a track's mute state

In addition to Volume and Pan envelopes, each track now also supports a Mute envelope. This envelope is a bit different from the other two in that it has only two possible settings. The mute for a track is either on or off—there is no in between or partial mute state. Use the Mute envelope to automate the mute state of a track so that the track is muted in some parts of the project and

not muted in other parts. Of course, you can also record this automation on the fly as you've been doing with volume and pan settings.

Start a new Vegas project and add an audio file to the timeline. In the track header, notice the familiar Mute icon. When you're not in automation mode, the Mute button works just as it always has. Click it to mute the track and click it a second time to unmute the track.

Click the **Automation Settings** button and choose **Show Automation Controls** from the menu. Notice that the Mute icon has changed. Remember that you're in the default Automation Write (Touch) mode. Play the project. After a few seconds, click the **Mute** button. Vegas inserts a mute envelope and sets it so as to mute the track. Click the **Mute** button again and Vegas changes the envelope to unmute the track. You can mute and unmute the track as many times as you want and Vegas records all of this automation.

Switch to **Automation Write (Latch)** mode and toggle the **Mute** button on and off. Notice how this mode differs from Touch mode.

Recording track effects automation

You can also record automation for any assignable track effects. Start a new project and add an audio file to the timeline. In the track header, click the **Track FX** button to open the Audio Plug-In dialog. Like all audio tracks, this track contains a default chain of track effects that includes the Track Noise Gate, Track EQ, and Track Compressor plug-ins. Each of these plug-ins is automatable. Let's record some automation with the Track EQ plug-in. Click the button for **Track EQ** in the plug-in chain at the top of the Audio Plug-In dialog.

Click the **Configure FX Automation** button and from the FX Automation Chooser dialog, select the checkbox for **Band 3 Frequency** to add an automation envelope to the track for that parameter. Click **OK** to close the FX Automation Chooser dialog. Back in the Audio Plug-In dialog, adjust the gain of point #3 to 12dB.

Now play the project. As the project plays, drag point #3 of the EQ plug-in left and right. As you do so, Vegas records your moves in the track envelope for the band 3 frequency. Notice that you've recorded your moves even though you had not chosen to show the automation controls. It's important to realize that by default automation is on and in Automation Write (Touch) mode, so even if you are not currently showing the automation tools, you can still record track effects automation.

Notice also that Vegas has recorded only the changes you made in the band 3 frequency. Even if – when you were adjusting the frequency – you inadvertently also adjusted the gain, only the frequency moves have been recorded since that was the only parameter you selected for automation. You can use the same techniques to record automation for any automatable parameter of every plug-in that supports automation.

Recording automation on buses and assignable effects

Every audio bus in your project—including the Master bus, all auxiliary buses, and all assignable effects buses—has its own automation controls. The automation controls on audio buses are identical to those that we've already discussed for audio tracks. Let's automate the Master bus to demonstrate how automation works on all audio buses.

Choose **View | Audio Bus Tracks** to make the bus tracks visible. Click the **Automation Settings** button in the track header for the Master bus track. You see all of the same options in the menu as you did for individual audio tracks. Choose **Show Automation Controls** from the menu. The volume faders in both the Master bus track header and the Master bus in the Mixer window change to the automation faders. Adjust them just as you learned to adjust the faders for individual tracks. The Mute button also changes to an automated mute control button. You can

use the automation tools in either the bus track or the busses in the Mixer window to record your automation.

Note that the Master bus does not contain pan controls, so naturally it does not contain pan automation controls. All other audio buses do contain pan controls so you can automate the panning of these busses as you did earlier with individual audio tracks. You might want to hide the audio bus tracks before continuing on.

Recording automation on a video track

Video tracks have also inherited automation-recording controls similar to those used on audio tracks. Start a new project and add two different video files to the timeline on separate video tracks. In the track header for the top video track, click the **Automation Settings** button and choose **Show Automation Controls** from the menu. Play the project and as it plays, click the **Mute** button. Click the same button again. Vegas records these mute operations just as it did with audio tracks earlier.

You can also automate the track's Composite Level envelope and its Fade to Color envelope. Continue playing the project while you experiment with recording automation with these controls.

Recording automation to video track effects

When you add a video effect at the track level, you can record automation for that effect just as you did when you recorded automation for audio track effects earlier, although Vegas records the automation a bit differently for video effects. Add an effect at the track level. If the keyframe controller area cursor for the plug-in is not synced with the timeline cursor, click the **Sync Cursor** button. Play the project, and adjust the parameters of the effect as the project plays. Instead of using envelopes as with audio track effects, Vegas uses keyframes in the keyframe controller area of the effect interface to record the changes you make to the video effect parameters. Again, remember that you can record automation to track effects even without showing the automation controls.

Recording automation to custom composite mode settings

When you create a composite between two video tracks and use one of the custom composite modes, you can change the parameters of the custom composite mode on the fly and record those changes. As with video track effect automation, Vegas creates keyframes in the custom composite mode dialog to record the automation.

Start a new project and add two separate tracks of video. Drop the composite level of the first track to 50% so you see the video on both tracks. Click the **Compositing Mode** button for track one and choose **Custom** from the list. The Plug-In Chooser for the Track Composite Mode opens. Click **Sony Bump Map** from the chooser and click the **Add** button and then the **OK** button. The parameter controls for the bump map custom compositor appear in the Track Composite Mode dialog. Again, make sure that the keyframe controller cursor is synced to the timeline cursor and play the project. As it plays, adjust the parameters of the bump map compositor. When you're done, stop playback and restart it from the beginning. Vegas plays back the exact parameter adjustments that you made the first time through.

Recording automation to the master video track

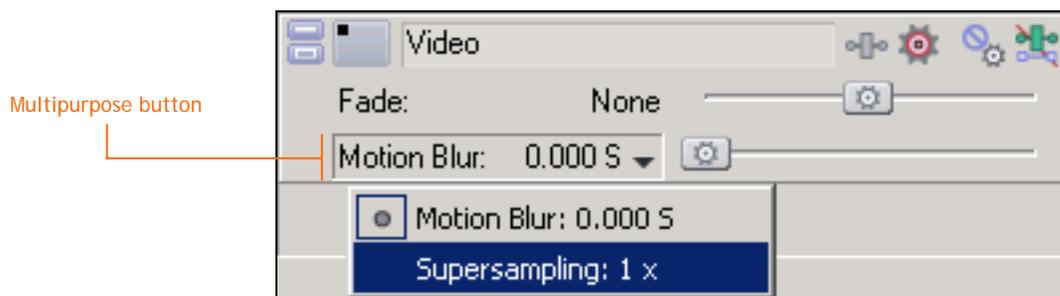
Choose **View | Video Bus Track** to make the video bus track visible. Click the **Automation Settings** button on the video bus track header and choose **Show Automation Controls** from the menu. You can now automate the video bus track mute, fade to color, motion blur, and supersampling settings. The controls for mute, fade to color, and motion blur are immediately

obvious and by now you know how these controls work based on your experience with similar controls that you've used during our automation recording discussion thus far.

The control for supersampling does not automatically appear in the track header. Since another control in the track header would begin to make the track header appear cluttered, Vegas utilizes the familiar Multipurpose fader (like the Pan control used in audio track headers which also enables you to access controls for any additional buses and assignable effects in your project.) The control for the motion blur settings is actually a multipurpose control that controls both motion blur and supersampling. Click the drop-down arrow just to the left of the Motion Blur fader. From the drop-down list (shown in **Figure 41**), choose the Supersampling option. The fader now controls the supersampling settings.

Figure 41

Click the Multipurpose Fader button and choose Supersampling from the list.

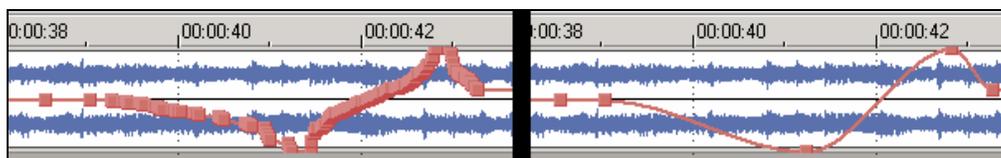


Envelope point thinning

You've undoubtedly noticed that when you record automation to a parameter that utilizes track envelopes (for instance, volume), Vegas creates many points on the envelope while you're recording the automation. You've also seen that as soon as you stop adjusting the parameter that you're automating, many of the points on the envelope line disappear. We call this feature envelope point thinning. The left side of **Figure 42** shows a volume envelope just after recording automation but before releasing the mouse button. Note the large number of points. The right side of the figure shows the same envelope after the mouse button has been released and Vegas has thinned the number of points.

Figure 42

You can turn envelope thinning off if you don't want Vegas to automatically thin your envelope points.



The more points on an envelope, the more processing power it takes for Vegas to interpret the automation represented by the envelope. In most cases, you don't really need all of those points, and you can free up computer resources by reducing the number of points. Vegas analyzes the shape of the curve you've created when you record automation and automatically applies the fade type that most closely matches the curve between the first point in the automation and the last. You'll find that this works extremely effectively in most cases.

However, there may be times when you don't want Vegas to interpret the curve. Instead, you may want exactly the curve you created when you adjusted the parameter to record the automation. In other words, you don't want the envelope-point-thinning feature. To turn off this feature, choose **Options | Preferences** to open the Preferences dialog. Click the **External Control**

& **Automation** tab. Deselect the **Smooth and thin automation data after recording** checkbox and click **OK**.

Now record some type of envelope-based automation (for instance, automate the volume of an audio track.) Notice that when you release the mouse button after making your adjustments to the parameter, Vegas no longer removes any of the points on your envelope.

If you're recording automation with envelope point thinning disabled, and you later decide that you would rather have the points thinned after all, you can manually thin the envelope points. To do so, right-click the envelope that you want thinned and choose **Thin All Points** from the menu. This thins all of the points across the entire envelope.

Perhaps you want to thin the points on one section of an envelope, but not the points on another section of the same envelope. To do this, first make a time selection over the points you want to thin. Then, right-click the envelope within the time selection and choose **Thin Selected Points** from the menu.



Enhanced punch-in recording

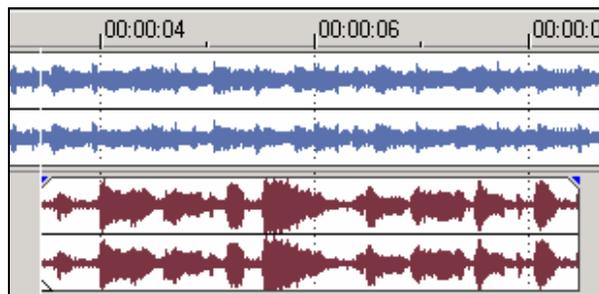
Vegas now features true on-the-fly punch-in recording that emulates punch-in recording on an analog recording device. This enables you to play your project and click the **Record** button at any time to instantly place Vegas into (and back out of) record mode without first having to stop playback.

Punching into an empty track

First let's punch into a new track so you can see how this works. Start a new project and add an audio file to the timeline (or record a new one.) Add another audio track to the project (but don't put any audio on the new track), and arm the second track for recording. Click the **Play** button and let the project play for a few seconds. As the project continues to play, click the **Record** button in the transport bar. Vegas switches to recording mode, and whatever signal you have routed to the armed track is recorded. When you're done with your recording, click the **Record** button again. Vegas switches out of record mode, but continues to play the project. As shown in **Figure 43**, a new event has been recorded to track two. You can punch in like this as many times as you want to.

Figure 43

Track two contains the newly recorded event.



Punching into an existing track – creating a separate event

You can also punch into an existing track. Here there are two different scenarios, and you have to pay attention to the details in order to ensure that you get the exact results you're after. In this first example, you'll punch into a track that already contains audio, and in so doing, you'll create a completely separate event that holds the newly recorded audio.

Start a new project, and add (or record) an audio file to the timeline. Make certain that the audio event that you just added is not selected (this is key to successfully following this example!) If necessary, arm the track for recording. Click the **Play** button and at some point while the project plays the audio on the track, click the **Record** button to punch in and begin recording. Notice that as you record, you can still hear the original track playing back. Click the **Record** button again to end the punch-in recording.

The new recording has been added to a completely separate event that lays right over the top of the original event on the same track. Click the new event to see that it is indeed separate from the original. **Figure 44** shows the results of this punch-in recording with the new event selected. Just like any other event, you can move the new event, delete it, trim it, add fades to it, and so on.

Figure 44

When you punch into an existing but non-selected event, a new, separate event lays over the top of the original event. In this figure, we've selected the new event to make it stand out more effectively.



Punching into an existing track – creating a new take to an existing event

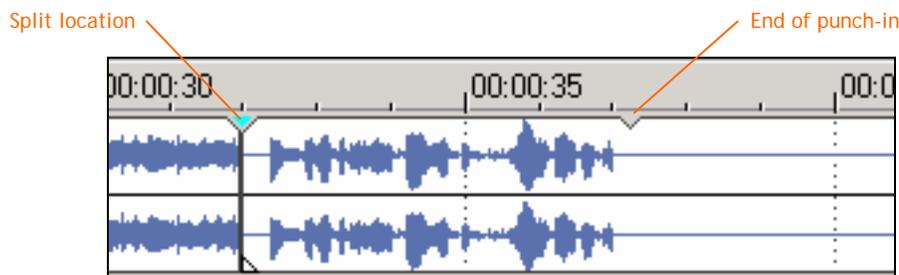
Your punch-in recording yields different results if you first select the event into which you intend to punch. In the same project you started a couple minutes ago, click the original audio event somewhere past the event you recorded in the previous exercise. As usual, this does two things. First, it places your project cursor at the click location, and second, it selects the event on which you clicked.

Click the **Play** button, and while the project plays, click the **Record** button to punch into record mode. Notice that you can no longer hear the original track playing back. When you're done recording, click the **Record** button again to punch back out of record mode.

Figure 45 shows the results of this punch in. Most noticeable is that the waveform for the original audio is no longer visible starting at the point of the punch in. In fact, the original event has been split at the punch-in location. Right-click the newly recorded event and choose **Takes** from the menu. You see in the Takes list that the new event has two takes: The newly recorded take and the original audio. Press your keyboard's **ESC** key twice to close the menus without making any choice from them.

Figure 45

When you punch into an existing, selected event, Vegas splits the original event and adds a new take to the second of the two resulting events.



Notice that the event that holds the newly recorded material has a notch in the top that indicates where the recording stopped. Click the event at this notch and split the event at that point. Right-click the event to the right of the split, choose **Takes** from the menu, and choose the original audio file from the takes list. Your track is now complete with the original audio before and after the splits and the newly recorded take between them.



Auto input monitoring

A new mode has been added to the input monitoring capabilities: auto input monitoring. This mode works for times when you want to punch-in record to an event and only want to hear the input signal when you're actually recording into that event. This enables you to hear the good portion of the audio (the part you want to keep) without interference from the input signal, and then listen to your new input signal while you replace the bad section of the original recording (the part you are replacing with the punch-in recording).

Start a new project and add an audio file to the timeline. Split the audio event two times to create a small event (five seconds long will work fine) somewhere in the middle of the audio file. Click the small event to select it.

Get set up to record from a microphone or a direct signal of some sort. Switch to your ASIO drivers and arm the track for recording. Click the **Input Selection** button and choose **Input Monitoring** from the menu. As you can see in the submenu, input monitoring is off by default. Choose **On** from the submenu menu.

With input monitoring in On mode, input monitoring is always active. Whether or not you are recording, and regardless of where the project cursor is or whether or not the timeline contains a selected event, you can hear the signal from your input device. This is the input monitoring mode to which you have become accustomed in previous versions of Vegas.

Click the **Input Selection** button and choose **Input Monitoring | Auto** from the menu. Make sure that the small event you created earlier is still selected. With your track set up this way, you are set to make an automatic punch-in recording to the selected event. Position the cursor to a location earlier than the selected event (but make sure not to deselect the small event) and click the **Record** button. As the project plays, you cannot hear the signal from the input source as long as the cursor is over the nonselected event. As soon as the cursor touches the selected event, Vegas records the input signal into the event, and you can hear the signal through the Vegas mixer. In other words, Vegas switches into input monitoring mode when the cursor reaches a selected event (and thus begins to record into that event) so that you can monitor your input signal as you record. When the cursor passes the end of the selected event, input monitoring switches back off and you no longer hear the input signal.



ACID loop support

Vegas now reads ACID® information from ACID loops, and utilizes that information when you drop ACID loops into the Vegas timeline. You can make use of this feature to add audio loops to your Vegas project with confidence that those loops will match your Vegas project tempo setting.

Start a new Vegas project and insert a new audio track—don't add any audio to the track. Choose **File | Properties** to open the Properties dialog. Click the **Ruler** tab and note that the **Beats per minute** box is set to the default of 120. Also notice that the Beats per measure and Note that gets one beat fields work together to define the time signature for this project as 4/4. Close the Properties dialog, and choose **Options | Metronome** to turn the Vegas metronome on. Click the **Play** button. You hear the metronome clicking, and as the project plays, make a mental note of the metronome's tempo. Stop playback.

Add an ACID loop to the audio track. Make sure the loop you add has a time signature that matches your Vegas ruler property settings. In other words, your Vegas ruler is set to 4/4 time, so make sure you use an ACID loop that was recorded in 4/4 time. Trim the right edge of the event to make it last for half a minute or so (make sure to end on beat one of a measure – you might change your time ruler to measures and beats for this discussion.) Play the project and notice that the tempo of the ACID loop matches perfectly with the tempo of the metronome. Stop playback.

Go to the Ruler properties again, and change the value in the **Beats per minute** box to 140. Close the Properties window and play the project again. Notice that the metronome tempo matches the new project tempo of 140, but the loop you added to your project does not.

Now, add the same loop to the audio track and snap it to the right edge of the event that's already there. Stretch the new event out for a half a minute. Play the project from the point where the new event starts. This time, you hear that the loop file matches the faster metronome tempo.

Turn the metronome off, and play the project from the beginning. The first loop event plays at the original (slower) tempo, and the second event plays at the faster tempo. Ta-da! You've created a tempo change in the middle of your song!

To summarize what happened in the example above, Vegas uses the ACID information in an ACID loop to match the tempo of the loop to the Vegas project tempo. If you change the tempo of your project, the ACID loops already on your timeline retain the tempo at which they were added to the project. New loops that you add to your project (or the same loops added again) will match the project tempo at the time you add them. So, you can create tempo changes by adding your initial loops, changing the project tempo, and adding more loops. If you want the initial loops to match a new project tempo, just delete them from the project and re-add them to the timeline under the new tempo. Leave this project open while you read through the following discussion.



Improved audio time stretching

In part, the support for ACID loops that we just finished discussing is made possible by the improved audio time stretching found in Vegas 5. In the project you were working on in the previous section, right-click the first event that holds the ACID loop and choose **Properties** from the menu to open the Properties dialog for the loop file. You see that the time stretch Method drop-down list has automatically been set to **ACID**, which is a new type of stretch method introduced in Vegas 5. The Original tempo box shows you the original tempo of the ACID loop, and the New tempo box shows you what tempo the loop was assigned when it was added to your project (that is, the Beats per minute setting in the Ruler tab of the Properties dialog when you added the loop to the project.)

Look at the properties of the second event, and notice that the New tempo box again shows you that this second event was added at a different tempo.

By default with the ACID method, the Pitch change section of the Properties dialog shows that pitch change is not locked to the tempo of the loop. Select the **Lock to stretch** check box and note that the value in the Pitch change text box changes. This emulates the speeding (or slowing down) of an analog tape recording where when you increase the tempo, you also increase the pitch of the audio. It may be an effect you want from time to time.



Keyboard event pitch shifting

Vegas 5 makes it much easier to fix pitch problems in your audio tracks. You can now use your keyboard to shift the pitch of an event in various amounts so that you can quickly dial in on the exact pitch correction you want.

Add an audio file to a new Vegas project. Try to use something simple such as a flute or other instrument playing solo with distinctly different notes, and an ACID loop would be the best yet because it contains information about which key the file was recorded in. Click the event to select it. Choose **Options | Preferences** to open the Preferences dialog. In the General tab, select the **Show active take information in events** checkbox and click OK.

In your timeline, you now see information about the file printed in the event. At the top of the event, you see the name of the file used in that event. If the file you added has ACID information, you see the key in which the file was recorded in the lower-left-hand corner of the event. To the right of that, you see a percentage followed by a number. The number represents the tempo of the event based on the discussion we had earlier of adding ACID loops to your Vegas project. The percentage indicates at what percent of the file's original tempo it has been brought into Vegas.

Click the event to select it. Keep your eye on the lower-left-hand corner of the event and press the **Equal (=)** key on your keyboard. This raises the pitch of the event by one semitone as indicated by the +1 that appears in the event. If the event holds an ACID loop, the event shows not only the +1, but also the new pitch of the event. For example, if the loop was recorded in the key of G, the event will show +1 (G#) to indicate that you have shifted the pitch of the event from G one semitone up to G#.

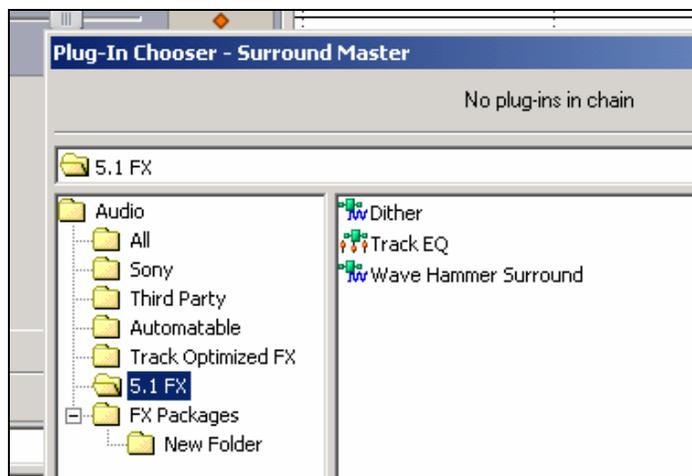
Press the **Minus (-)** key to lower the pitch of the event one semitone to its original pitch. Next, hold the **Shift** key and press the **Equal** key. This raises the pitch of the event by one octave as indicated by the +12 in the event. Press **Shift+Minus** to lower the pitch by an octave. Finally, for those ultra-fine pitch adjustments, press **Ctrl+Equal** or **Ctrl+Minus** to raise or lower the pitch in one-cent increments (there are 100 cents in a semitone.) Press and hold **Ctrl+Equal** or **Ctrl+Minus** to quickly increment up or down by cents.

5.1 audio plug-in support for the master bus

 Some plug-ins are designed specifically to take advantage of all six channels in a 5.1 surround project. Three of the plug-ins that ship with Vegas have 5.1 functionality built into them. Open a 5.1 surround project (or create a new one.) On the Master bus, click the **Master FX** button to open the Plug-In Chooser. In the tree view on the left side of the Plug-In Chooser, click the **5.1 FX** folder. The contents of the folder appear in the right side of the Plug-In Chooser. By default, Vegas includes three 5.1-enabled plug-ins as shown in **Figure 46**.

Figure 46

Vegas ships with three 5.1-enabled plug-ins.



We'll use the Track EQ plug-in to demonstrate this feature. Click the **Track EQ** from the list and click the **Add** button and then the **OK** button. This applies the Track EQ plug-in to the 5.1 Master bus plug-in chain and opens the Audio Plug-In window where you see the interface for the Track EQ plug-in.

You're already familiar with the Track EQ interface and everything that you already know works the same in this case. In addition, the 5.1 Track EQ plug-in features a Channels tab at the bottom of the interface. Click the **Channels** tab.

The Channels tab provides a way for you to dictate which channel or channels should be affected by the plug-in. You have one check box for each speaker in your 5.1 system. Select or deselect the checkboxes for the various speakers according to how you want to manipulate the sound in your project.

The same EQ settings (as dictated by the controls in the EQ tab) are applied to every speaker for which you've selected a check box. If you want to apply equalization to two or more speakers—but you want the EQ settings to be different for each speaker—add more instances of the track EQ to the effects chain. For instance, if you want different EQ settings on both the front speakers, add two instances of the Track EQ plug-in to the plug-in chain. Select only the **Enable Left** check box for the first instance of Track EQ and make your EQ adjustments. Then, select only the **Enable Right** check box for the second instance and make your adjustments there. With this method, you could apply different EQ settings to every speaker in the system.

You can also apply 5.1 plug-ins at the track level. In fact, since every track has (by default) an effects chain that includes the Track EQ plug-in, you can use the Channel tab to route the EQ on that track however you want. It probably doesn't come as much of a surprise then that you can also use these techniques with assignable effects too.



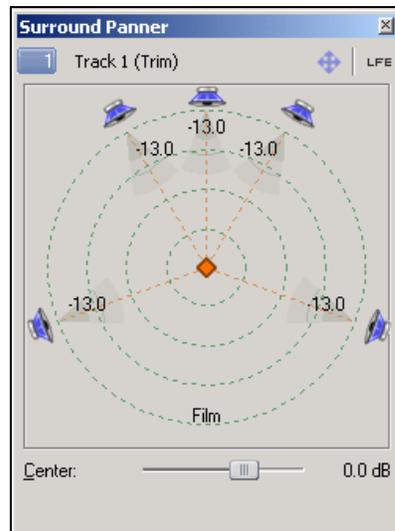
Film-style 5.1 surround panning

We've added a new 5.1 surround panning model to Vegas 5. Double-click the **Surround Panner** for any track or bus to open the larger version of the panner. Notice the placement of the speaker icons in the Surround Panner. Right-click the **Surround Panner** and notice that in the menu, Add Channels (0dB Center) is the default panning method. Choose **Film** from the bottom of the menu.

As you see in **Figure 47**, The film panning method more closely emulates the speaker arrangement in a movie theater, and thus gives you a more realistic tool with which to create surround sound for videos that will be shown in a theater. Use the same techniques you already know to adjust the panning in this mode.

Figure 47

The film panning method adjusts the speaker placement to emulate speaker arrangement in a theater.



For a bit more detail on the Film panning method, see the **5.1 Surround Projects | 5.1 Surround Panning and Mixing | Change the pan mode** entry in the on-line help files.



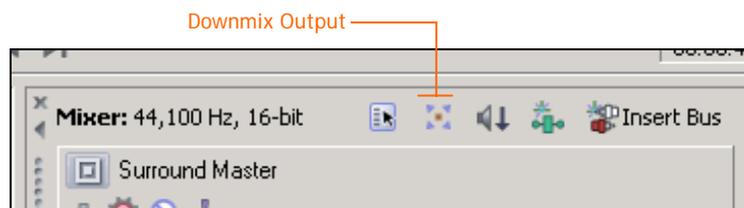
Real-time downmix monitoring

When you're mixing a project in 5.1 surround, it makes sense to check what your mix will sound like if someone listens to it on a playback system that supports only stereo. Similarly, when you're mixing in a stereo project, you should know what the project will sound like to someone listening on a mono playback system. Downmix monitoring provides an easy way to evaluate these different listening scenarios.

To hear your 5.1 project in stereo, click the **Downmix Output** button, shown in **Figure 48**. Vegas routes all of your channels to a stereo mix through the front speakers, and you get an accurate idea of what your project sounds like in stereo. Click the **Downmix Output** button again to switch back to monitoring in 5.1.

Figure 48

The Downmix Output button enables you to hear what your mix sounds like when listened to through a system that contains fewer speakers than the system for which you mixed it.



Now open a stereo file. Click the **Downmix Output** button. Vegas mixes the stereo signal from your project into a mono signal and sends that same mono signal out of both speakers. Click the **Downmix Output** button again to switch back to stereo monitoring.



Bus-to-bus routing

Bus-to-bus routing expands your mixing possibilities. Here's one example of when the ability to route one bus to another might come in very handy.

Let's say you have a music bed and a narration track. Further, you want the music to duck out of the way when the narrator speaks so the music doesn't overpower the narrator. It would be easy to create the duck if the music was in a single mixed file on one track, but what if it isn't? For instance, perhaps the music mix is a multitrack project with 20 or more audio tracks. To create the duck, you could insert volume envelopes individually on every single track and create the duck 20 or more times. That would not only be time consuming, but potentially inaccurate.

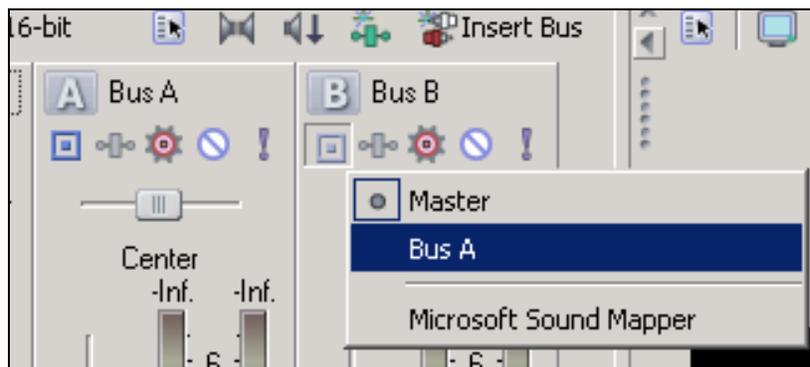
To make the task a lot easier, add another bus to your project, and route all of the music tracks (but not the narration track) to that bus. Now you can insert a volume envelope on the music bus track and create the duck just once there. That would work great if you were happy routing all of your music tracks to the same bus, but many engineers prefer to create submixes while they work. For instance, if your project has eight tracks of drums, you'd probably want to send those tracks (and only those tracks) to their own bus so that you can control the volume and panning of the entire drum mix with just one set of faders.

In the same way, you might have several submixes set up in your project. And the more submixes you have (the more separate buses in your project), the more volume envelopes you have to insert to create the overall music mix duck.

The solution to this problem lies within bus-to-bus routing. Just add one more bus to your project. Label it "Music Mix Control" and route it to the Master bus (which it does by default.) Route all of your submixes (and any music track that currently routes directly to the master) to the Music Mix Control bus. To route a bus to another bus, click the **Bus Routing** button. All of the buses in your project now appear in the routing list that pops up, as shown in **Figure 49**. Choose your Music Mix Control bus from the list. Leave the narration routed directly to the Master bus. Now, you can control the volume of the Music Mix Control bus and once again create your duck with just one volume envelope.

Figure 49

You can now route one bus to another—or several buses to the same bus.



Undoubtedly there are numerous other uses for bus-to-bus routing, but this example gives you one idea.

III. Interface and workflow



User configurable window layout

Depending upon the type of project you're working on, you'll likely access different Vegas windows at various times. For instance, the windows you want open in your video editing project may be quite different than the ones you want open when working on a multitrack audio mix. You can now save up to 10 different window layouts and call different layouts up instantly.

Before we start moving windows around, let's save your current layout so that you can get back to it when we're done experimenting. To save your present layout, press **Ctrl+Alt+D**. Let go of all three keys, and immediately press the **1** key in the number row at the top of your keyboard (the number pad will not work for storing your layouts.) You've now stored your present layout.

Now, change the layout of your Vegas window in some obvious way. For instance, close all of the windows in the window docking area. Once you've made that change, press **Alt+D**. Let go of those two keys and immediately press the **1** key. This recalls your saved layout.

Use this same technique to assign and recall alternate layouts to all of the numbers across the top of your keyboard. You can even recall layouts that include windows that you've docked in a floating dock as discussed earlier. If you want to assign a different layout to a number that already contains a layout, just follow the same procedure as if you were assigning a layout to that number for the first time.



Floating docks

In Vegas, you can now create floating docks. This feature breaks the limitation of docking windows only to the window docking area at the bottom of the application window. With floating docks, you add two or more windows to a docking group that you can move to any location on your computer monitor or monitors.

As an example, let's create a floating dock that holds the Explorer window and the Media Pool. First, tear the Explorer window from its docking location at the bottom of the screen, and position it toward the middle of your computer screen (or, better yet, on a second monitor if you have a dual-monitor setup) so that when you release the mouse button the Explorer window floats freely on the screen. Now, tear the Media Pool from its location, and drag it directly on top of the floating Explorer. (Note that the docking handles look different in Vegas 5. They now appear as six vertical dots at the left side of the docked window.) You'll know you're in the right spot when the Media Pool's title bar disappears and docking handles appear. Release the mouse button and the two windows now share a floating dock. Since you docked the Media Pool directly on top of the Explorer window, you can no longer see the Explorer. Click the Explorer window's tab at the bottom of the floating dock to bring that window to the front. You can add as many windows to a floating dock as you want.

As with the window docking area, you can add as many sections to a floating dock as you want. You still have the Media Pool and the Explorer window docked in a floating dock. Click the Media Pool tab to bring it to the front. Use the docking handles to tear the Media Pool away from the floating dock, then drag the window back to the floating dock, but this time, drop it somewhere on the right half of the Explorer. This creates a floating dock again, but this time the two windows occupy their own sections in the floating dock so that one does not obscure the other.

Don't forget that if you want to stack one window on top of another without creating a floating dock, hold down the **Ctrl** key before you release the mouse button to drop the window.

The next time you open Vegas, all windows open exactly as you last arranged them. If you want to quickly return to the default layout, hold **Ctrl+Shift** as you start the application, or save the default configuration as a custom layout as described in the previous section.



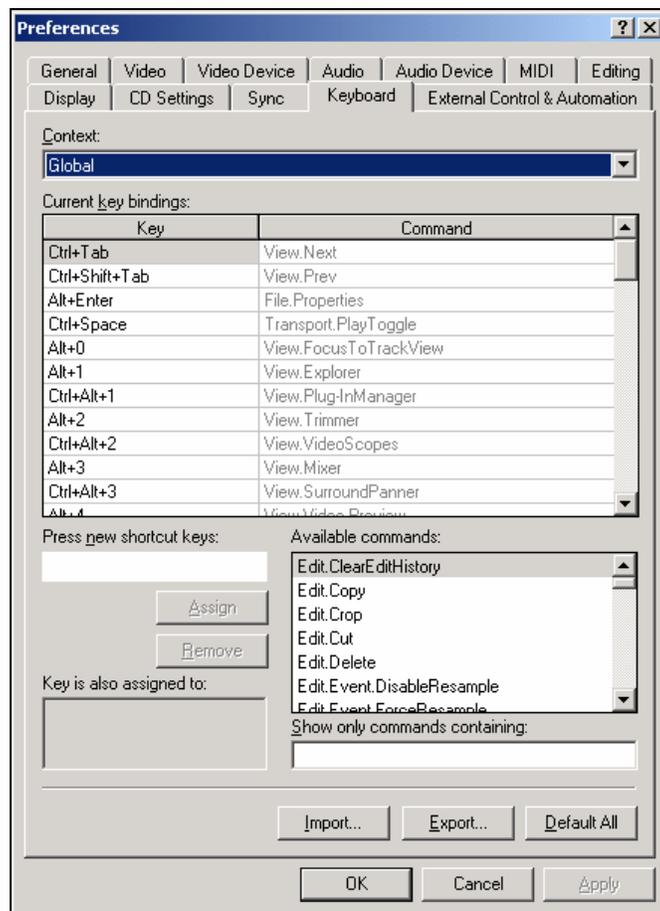
Customizable keyboard shortcuts

The default keyboard shortcuts may not always suit your needs perfectly. If that's the case for you, you can customize the Vegas keyboard shortcuts so that you have exactly what you need right at your fingertips. You can create totally new keyboard shortcuts or reprogram current shortcuts so that they perform different functions.

Choose **Options | Preferences** to open the Preferences dialog and click the **Keyboard** tab. **Figure 50** shows the Keyboard tab. The Context drop-down list shows you the keyboard shortcuts that are active when certain areas of the project window have focus. As you probably know, many times the same shortcut performs different operations depending upon which area of the Vegas window has focus. The Current key bindings table lists all of the keyboard shortcuts for the context you've chosen and what operation they perform. The contents of the table change as you change the context.

Figure 50

The Keyboard tab of the Preferences dialog enables you to create custom keyboard shortcuts.



The Available commands list also changes depending upon the context. It shows all of the commands in that context that can be accessed with keyboard shortcuts. Type a key phrase or word into the Show only commands containing box to narrow the choices shown in the Available commands list.

Assigning a keyboard shortcut

Let's go ahead and create a new keyboard shortcut. Choose **Mixer** from the Context list. Notice that there are only a few current bindings in the Mixer context, but the Available commands list shows that many more commands can be controlled with keyboard shortcuts. We'll create a keyboard shortcut to toggle the new Downmix Output button in the Mixer. In the Available commands list, select **Downmix**. Click in the **Press new shortcut keys** box to place your cursor there. Type the letter "D" (for Downmix.) Click the **Assign** button. Look in the Current key bindings list and see that your new shortcut is now listed.

Another available command in the Mixer context is Dim, which toggles the Dim button in the Mixer. You might also logically think that "D" is a good keyboard shortcut for Dim, but when you select Dim in the Available commands list and enter "D" into the Press new shortcut keys (or if it's still there from when you entered it earlier) the Key is also assigned to box indicates that "D" is already being used. You have two choices at this point. First, you can click the Assign

button to reassign the “D” shortcut to the Dim command. Second, you can add a modifier key to the “D” to create a new keyboard shortcut. For instance, place the cursor in the Press new shortcut keys field and type **Ctrl+D**. Click the **Assign** button to make Ctrl+D the shortcut for the Dim command.

Removing a shortcut

You can also delete any of the shortcuts listed in the Current bindings table. Say for instance that you decide you really don’t need or want the shortcut you just created to toggle the Dim button on and off. To remove that shortcut, select Dim from the Command column of the Current bindings table. Click the **Remove** button.

Exporting and importing key bindings

You may have created many custom key bindings on your computer workstation at your studio. What happens if you now need to move your project to another computer and work there for a while? That other computer will not have all of your custom key bindings, and your workflow could be significantly hampered as you keep using keyboard shortcuts that do nothing—or worse, shortcuts that are bound to different commands than those you’re used to.

If you find yourself in this situation, export the key bindings from your copy of Vegas on your machine and then import them to the new machine. To export your current bindings, click the **Export** button. The Export Keyboard Map To File dialog opens. Specify a save location, give the file a name, and click the **Save** button. Vegas saves the file as an .ini file (a Vegas Keyboard Map File.)

Transport the .ini file to the other computer, go to the Keyboard tab of the Preferences dialog in Vegas on the other computer, and click the **Import** button. Navigate to the .ini file, and click **OK**. This loads the keyboard binding into Vegas, and you’re on familiar ground again.

Loading the default bindings

At any time, you can get back to the default key bindings. To do so, click the **Default All** button. If you’ve been experimenting during this section, you might want to click the button now.



Media subclips

Media subclips help you to organize your media. As you know, when you add a media file to your project, a reference to the media file appears in the Media Pool window so that you can easily find the file again and look at important information regarding the file. And of course, you can always add a media file to the Media Pool without actually adding the file to your timeline. Once in the Media Pool, you can organize your media files with Media Bins. All of this functionality is carried over from previous versions of Vegas.

Vegas 5 supports media subclips so that you can organize the media you use in your project even further. For instance, perhaps you have a video file that is 20 minutes long. You can add that file to your Media Pool if you know that you’ll want to use it later in your project. But what if you only want to use small chunks of the whole file? Media subclips are perfect in such a case.

A subclip is basically just a small portion of a larger media file. In our example above, you might have 10 30-second sections of your 20-minute video file that you want to use in your project. Instead of adding the entire file to your project, you might create subclips of the sections you want and have them available in the Media Pool for when you need them.

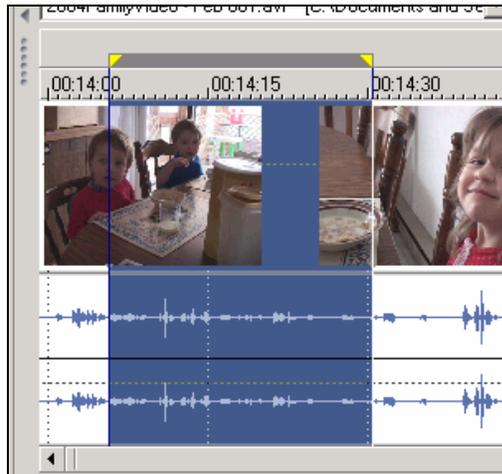
Creating media subclips from the Trimmer window

The trimmer window provides a great way to create subclips for your project. Start a new Vegas project. Look at the Media Pool to see that it doesn’t yet contain any media. Use the Explorer

window to navigate to the media file from which you want to create the subclips. When you find the file, right-click it and choose **Open in Trimmer** from the menu. Now, use the Trimmer window's transport controls and selection tools to select the exact portion of the file that you want to convert to a subclip. **Figure 51** shows an area that we have selected in our Trimmer.

Figure 51

Select an area in the Trimmer from which you want to create a subclip.



Right-click the selected portion of the media file in the Trimmer and choose **Create Subclip** from the menu. The Create Subclip dialog opens with a default name for the subclip. The default name appends the name of the original media file from which the subclip comes with "subclip 1." This approach to naming subclips has the benefit of making it obvious where the subclip came from. Another approach might be to rename the subclip according to its contents. To give the subclip a different name, type the name into the Name box. Click **OK** to finalize the subclip.

In the Media Pool, you see that the subclip now appears (as does the media file from which the subclip was created.) You can add the subclip to the timeline directly from the Media Pool

Creating a reversed subclip

You probably noticed in the previous exercise that the Create Subclip dialog has a check box labeled Reverse. Use the method described above to create another subclip using the same selection in the Trimmer window that you used above. This time, before you click OK to finalize the subclip, select the **Reverse** check box. Now click **OK**.

The Media Pool now contains a subclip. If you accepted the default name Vegas assigned to it, the subclip is named with the name of the media clip appended with "- subclip 2 (reversed)." Add that subclip to the timeline, and play the project. You notice that when the project plays the event created by the reversed subclip, both the audio and the video play in reverse.

Naturally, the original media clip remains unaffected by the reversing of the subclip.

Creating media subclips from the timeline

Another approach to creating subclips involves events in the timeline. Sometimes you realize after you have added a clip to the timeline and trimmed it, that it might be useful to be able to instantly find that same section of the media file for use later in your project.

To see how this would work, add a media file to the timeline. Trim the edges of the events (the audio and video portions), to use just a portion of the media file. Right-click either event (audio or video) and choose **Create Subclip**. The entire portion of the media file shown in the events

now appears in the Media Pool as a subclip. Note that when you use this method you do not have the option to change the subclip's name. Of course, you can always rename it in the Media Pool if you want to.

Locating a subclip's parent media

If you have created a subclip, it may be helpful to go back to the parent clip and find the exact area that you turned into a subclip earlier. For example, perhaps you want to adjust the subclip to include a bit more or less of the parent media. You can quickly locate the subclip in its parent media file.

In the Media Pool, right-click the subclip and choose **Open in Trimmer**. With the subclip open in the Trimmer, click the **Select Parent Media** button. This opens the parent media in the Trimmer with the subclip selected.



Real-time A/V event reverse

In the previous section, you learned one way to create reversed audio and video in your project. You can also create reverse audio and video directly from the Timeline. Add a media file to the timeline, and trim it to use just a portion of the file. Click away from the events (audio and video) to deselect them. Right-click the video event and choose **Reverse** from the menu. Play the project and watch the event. Notice that the video event plays in reverse, but the audio event still plays forward. Click the **Undo** button to make the video event forward again.

Right-click the audio event and choose **Reverse** from the menu. Play the project again. This time, only the audio event plays in reverse. Click the **Undo** button to make the audio event forward again.

Finally, click the video event to select it. Now hold the **Ctrl** key and click the audio event to add it to the selection. Right-click either event and choose **Reverse** from the menu. Play the project and notice that both events now play in reverse. In fact, the reverse command affects every event that you have selected in the timeline.

Note that when you reverse an event in this manner, Vegas adds a reversed subclip to the Media Pool.



Global opacity/volume envelope changes

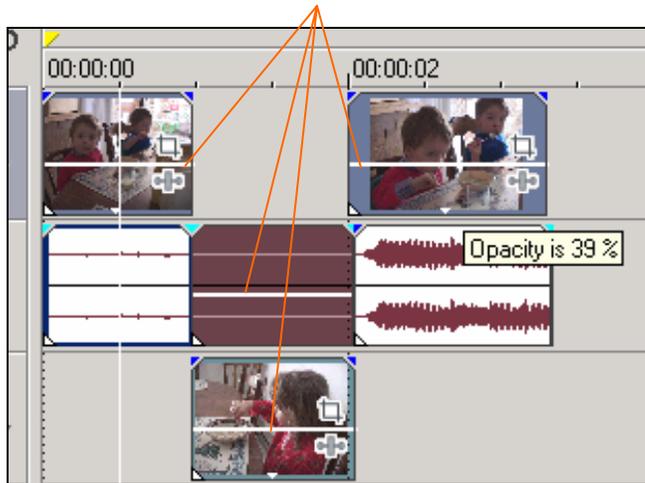
From previous versions of Vegas, you already know that you can point to the top of an event and drag an envelope to change the event's opacity (video events) or volume (audio events.) Now you can make these changes to several events at once.

Open or create a project that has several events in it. Use the **Ctrl+click** method to select several events at once. Hover over the top of one of the selected events and drag the envelope that controls opacity (or volume.) Notice (as in **Figure 52**) as you drag the envelope that you are simultaneously adjusting the envelopes for all of the selected events.

Figure 52

You can now change the opacity/volume of several envelopes at once.

All of the selected events are being adjusted simultaneously



Draggable edit cursor

In both the timeline and the Trimmer window, Vegas 5 lets you drag the edit cursor to a new location. This acts as a quick (video only) scrub tool and can help you find a precise edit point in your file. The precision with which you can drag the cursor depends upon the zoom level at which you are viewing the timeline (or Trimmer.) The farther in to your project you zoom, the finer the movements you can make when you drag the cursor.

If you decide that you don't want this functionality, you can disable it. Choose **Options | Preferences** to open the Preferences dialog. On the General tab, deselect the **Allow edit cursor to be dragged** preference.



FX package folders

Once you've saved a chain of audio plug-ins (track FX, bus FX, or assignable FX), the Plug-In Chooser now makes it easy to find the chain when you want to use it again in the same or a different project. Open a project (or create a new one) and click a **Track FX** button. Click the **Plug-In Chain** button to access the Plug-In Chooser.

As usual, the Track FX chain already contains three plug-ins. You can save the chain as an FX package. Click the **Save As** button. In the Save Plug-In Package dialog, give the new package a name and click **OK**.

In the tree view of the Plug-In Chooser, click the icon for the **FX Packages** folder. This shows the contents of the FX Packages folder in the right half of the Chooser. You see that the FX Packages folder contains the package you just saved.

You can add subfolders to the FX Packages folder to further organize your FX packages. Click the **New Folder** button to do so. Select a folder or a chain from the list and click the **Delete** button if you want to remove it from the FX Packages folder.



Enhanced marker support

New marker functionality gives you more power to work with markers in your project.

Navigating to markers by the numbers

You've always been able to quickly navigate to any of the first 10 markers in your project with a single push of a keyboard button. For instance, if you wanted to navigate to marker number six, you'd press the **6** key on your keyboard.

Vegas 5 expands this capability to the first 99 markers in your file. To navigate to a marker with a two-digit number, just type the number. If you wait for too long before pressing the second of the two numbers, Vegas may not register that you're trying to type a two-digit number, so you need to press the second digit reasonably quickly.

Selecting multiple markers

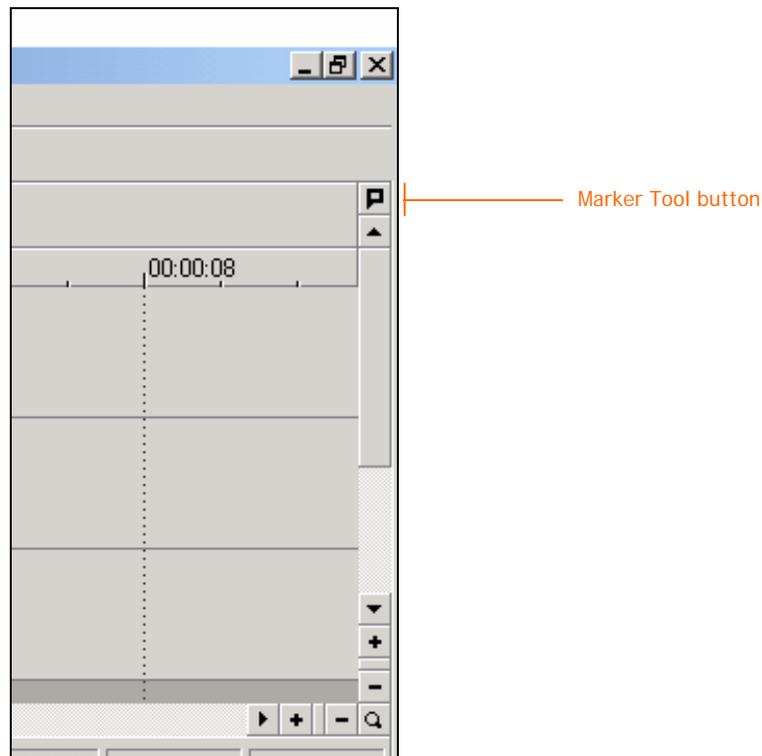
You can select two or more markers at once and move them as a group. Click a marker flag to select the marker. Hold the **Ctrl** key and click other marker flags to add them to the selection. When you've selected all the markers you want, drag any of the selected markers and all other selected markers move along with it.

Using the Marker tool

The new Marker tool gives you even more control over your markers. Click the **Marker Tool** button, shown in **Figure 53**. Click a marker tag to select the marker. Press the **Right** and **Left Arrow** keys to select the marker to the right/left of the selected marker. Hold the **Shift** key and press the **Right/Left Arrow** key to select the next marker to the right/left while leaving the current marker selected.

Figure 53

The marker tool provides extra functionality with markers.



To select a range of markers, click the first marker in the range, hold the **Shift** key, and click the last marker in the range. This selects both of the markers you clicked and every marker in between them.

Deleting selected markers

When the Marker tool is active, press the **Delete** key on your keyboard to remove all of the selected markers from your project.

Deactivating the Marker tool

As soon as you click in your timeline, the Marker tool becomes inactive and the edit tool that was active before you clicked the Marker Tool button becomes active again.



Enhanced scripting capabilities

When Vegas 4 introduced scripting, an exciting dimension was added to your workflow. Scripting enables you to automate many of the repetitive tasks that you do, thus helping you to streamline your production process. Before we go too far with our scripts discussion, it's important to note that scripts that worked in Vegas 4 may need to be slightly modified before they will work in Vegas 5. This is because the namespace has changed from SonicFoundry.Vegas to Sony.Vegas. To make scripts created for Vegas 4 useable in Vegas 5, change the line in your scripts that reads "import SonicFoundry.Vegas" so that it reads "import Sony.Vegas" before you run the script.

Scripts included with Vegas 5

With Vegas 5, scripting has been refined to be easier to use and more powerful than ever. As in Vegas 4, you access your Vegas scripts through the Tools menu, but once you get there, you'll notice some significant changes in the way Vegas 5 presents your scripting options. Choose **Tools | Scripting** now, and notice that the bottom portion of the cascading menu already contains a number of scripts. When you installed Vegas, these scripts were installed as well. To run a script, choose it from the menu.

Although these are scripts that have proven useful to other users, they may not be right for you. You might not need some of them, and at the same time, others that you do need might not appear in this menu. The good news is that this menu is completely customizable, which means that you can delete any scripts you don't want, and add any scripts that you do want.

Removing a script from the Scripting menu

Notice the second item in the Scripting cascade menu: *Rescan Script Menu Folder*. This is your key to customizing your Scripting menu so that it includes exactly the scripts you want. When you install Vegas, the installer now creates a folder called the Script Menu folder. Whatever you include in this folder appears in the Vegas Scripting menu. So, it follows that the scripts you see when you first open the Scripting cascading menu have been automatically installed in the Script Menu folder for you.

Let's customize your Scripting cascading menu now. To do so, all we have to do is edit the contents of the Script Menu folder. First, take another look at the cascading Scripting menu, and notice that it contains a script called Batch Render.

Now, navigate to the location at which you installed Vegas 5. If you used the default installation destination, navigate to *C:\Program Files\Sony\Vegas 5.0*. At that location, find and navigate into the *Script Menu* folder. In the Script Menu folder, you see all of the script files that appeared in the Scripting cascading menu back in Vegas, including the *Batch Render.js* file.

Create a new folder called *ScriptHolder* on your desktop. Now, drag the file *Batch Render.js* from the Script Menu folder into the new folder you created. You'll temporarily store that script file in the ScriptHolder folder while you learn how to customize the Scripting cascade menu. Keep both the ScriptHolder and the Script Menu folders open on your desktop as you make your way through the following discussion.

Back in Vegas, choose **Tools | Scripting | Batch Render**. After a few moments, you receive an error message. Why? Because you removed the Batch Render.js script from the Script Menu so Vegas can no longer find it. Click **OK** to dismiss the error message.

We need to let Vegas know about the change we made in the Script Menu folder. Vegas scans that folder automatically whenever you start the program, so you could close the application and then restart it, but that might not be practical if you're in the middle of a project. Therefore, Vegas also gives you a manual way to force a rescan of the Script Menu folder. Choose **Tools | Scripting | Rescan Script Menu Folder**.

Now, choose **Tools | Scripting** again, and note that the Batch Render option no longer appears in the list.

Running a script from a different location

A script does not actually have to be in the Script Menu folder in order to be useable in Vegas. You can run any script regardless of where it's stored on your system. For instance, you can still run the Batch Render.js script even though you moved it out of the Script Menu folder. To do so, choose **Tools | Scripting | Run Script**. This opens the Run Script dialog. Navigate to the ScriptHolder folder that you created earlier and you'll see that you could choose the Batch Render.js script and run it from there. For now, just cancel the Run Script dialog.

Organizing the Scripting menu

You have a lot of flexibility in building your Scripting menu. For instance, you can organize scripts into submenus if you want to. In Windows explorer, navigate back to the Script Menu folder. Inside the Script Menu folder, create a new folder and call it "Scripts for Exporting." Now, move the three scripts that contain the word "Export" in their names (Export EDL.js, Export Regions as Subtitles.js, and Export XML.js) into the Scripts for Exporting folder.

Return to Vegas. Choose **Tools | Scripting | Rescan Script Menu Folder** to update the Scripting menu. Notice that the three scripts you moved no longer appear in this level of the Scripting menu. However, at the bottom of the menu you see that you have a new option called "Scripts for Exporting." Choose **Scripts for Exporting** and you see that it is a submenu that contains the three export-related scripts that you moved to the new folder. If you want to, you can continue to nest folders inside each other in the Script Menu folder to create more submenu levels in the Scripting menu.

Before we move on, go back to Windows Explorer and move the three export-related scripts out of the Scripts for Exporting folder that you created and back to the root level of the Script Menu folder. Delete the Scripts for Exporting folder.

Adding scripts to the Scripting menu

By now you're probably able to figure out how to add scripts to the Scripting menu—just drag the script file into the Script Menu folder (or any of its subfolders.) Let's add the Batch Render script back to the menu. In Windows Explorer, drag the file *Batch Render.js* from the ScriptHolder folder back into the Script Menu folder. Delete the ScriptHolder folder.

Return to Vegas and choose **Tools | Scripting | Rescan Script Menu Folder**. Choose **Tools | Scripting** and notice that now the Scripting menu appears just as it did before you started moving folders in and out during this discussion.



Customizable application display colors

A new tab in the Preferences dialog—the Display tab—enables you to customize the look of various objects in the Vegas interface. To see how this works, first let's make sure that your project looks like ours. (We'll assume that if you are using XP you have the desktop theme set to

Windows XP and if you are using Windows 2000 it's set to Windows Classic. By the way, Vegas 5 supports XP themes, so the application will take on the look of whatever XP theme you choose. Make sure to close Vegas before changing your XP theme.) Click the **New** button to start a new project.

Customizing your track colors

The first section on the Display tab, the Track colors section, enables you to change the colors that Vegas uses to color code the track icons in each track header. Before you go to the Preferences dialog, add a new audio track your project. Notice that, as usual, the track header contains a "track icon" which is the color square that contains the track number. Right-click the colored track icon and choose **Track Display Color** from the menu. This shows a submenu that contains eight color squares. Choose a different color from the list and notice that your track icon changes to that color. You've always been able to do this in Vegas, but now, in Vegas 5, you can customize each of these eight color squares to colors that better suit your working style.

Click the **New** button to start a new project, and add two audio tracks to the project. Right-click the track icon for the first track and choose **Track Display Color**. Don't pick a new color, but notice that Vegas has assigned it the first color in the list to the first track, and the second color in the list to the second track. As you add tracks, Vegas assigns the next color in the list to the new track, so that, for example, the third track you add would get the third color in the list and so on. On the ninth track you add to your project, the colors cycle through and start with the first color on the list.

Now, choose **Options | Preferences** to open the Preferences dialog, and click the **Display** tab. The Track colors section of the Display tab contains the Track drop-down list which is currently set to Color A, and the color square to the right shows you the current color assigned to Color A. Choose **Color B** from the Track drop-down list. The color square changes to show the color of Color B and you'll notice that it corresponds to the color of track two in your project.

Click the color square to the right of the Track drop-down list. A color chooser pops up, and you can use this color chooser to specify a new color for Color B. You've used color choosers in Vegas before, so go ahead and choose a color that is drastically different from the current color – perhaps a bright yellow. When you've chosen your color, click **OK**. Back in the Preferences dialog, click the **Apply** button and notice that the color of the track icon for track two changes to the color you just specified. You could go through all eight colors in this way to customize each of them. When you're done experimenting, click the **Default All** button if you want to get back to the Vegas default colors. Click **OK** to dismiss the Preferences dialog.

Customizing envelope colors

The second section of the Display tab in the Preferences dialog enables you to customize the colors of every type of automation envelope in your project. We'll demonstrate this with a volume envelope on one of the tracks you've added to your project. Right-click the track icon for track one and choose **Insert/Remove Envelope | Volume** to insert a volume envelope on the track. Notice that the envelope is blue, but we can easily change that.

Choose **Options | Preferences** to open the Preferences dialog and navigate to the **Display** tab. Click the drop-down arrow for the Envelope type drop-down list. From this list you can choose any of the envelope types. For now, leave *Volume* chosen.

Use the same technique as described above for customizing the track icon colors to choose a new color for your volume envelopes. When you apply the new color, every volume envelope in your project (whether existing or added from this point on) displays in the new color. Again, click the **Default All** button to reset any colors that you've changed back to their default values. Leave the Preferences dialog open while you work through the following section.

Changing the color saturation

The Icon color saturation slider gives you control over the intensity of the color of certain buttons. Position the Preferences dialog so that you can see the buttons in your track headers. Note the colors of these buttons. Now, drag the **Icon Color Saturation** button all the way to the left (0%) and click the **Apply** button. The color has been removed from the buttons, and the elements that were once in color now appear shades of gray. Next, drag the **Icon Color Saturation** slider all the way to the right (100%) and click the **Apply** button. Notice the more vibrant colors in the buttons now.

Changing the Icon color tint

The Icon Color Tint slider yields much more subtle results when you've got Windows configured with its default colors. This slider adds a tint to the Vegas application's buttons. Your Windows color scheme determines the tint that this buttons adds. Notice the color of the title bar at the top of the Preferences dialog. By default, this bar is a gradient that starts with light blue at the top, blends to dark blue in the middle, and then blends back to dark blue at the bottom (in Windows 2000, the title bar starts from dark blue on the left end and ends with light blue on the right end.) The Icon Color Tint slider adds a tint made up of the average values of these Title bar colors to the Vegas buttons.

To really notice the effects of this slider, change the colors assigned to window title bars by the operating system. To do this, open the Windows Control Panel, and then double-click the **Display** icon to open the Display Properties window. Click the **Appearance** tab. From the **Color scheme** (in Windows 2000, it's the **Schemes**) drop-down list, choose **Default** (in Windows 2000, choose **Windows Standard**) if it's not already chosen. In Windows XP, click the **Advanced** button.

From the **Item** drop-down list, choose **Active Title Bar**. To the right of the Item drop-down, notice the two color boxes. Click on the first color box, and choose a red color square from the choices that appear. Click the second color box, and choose a yellow color square. In Windows XP, click the **OK** button. If necessary, click the **Apply** button in the Display Properties window to assign this color scheme to your Windows title bars. Now, return to the Display tab of the Vegas Preferences dialog. Adjust the **Icon Color Tint** slider all the way to the right (100%), click the **Apply** button, and notice that now your buttons contain an entirely new tint. If you don't want to keep these new settings, click the **Default All** button and then the **Apply** button. Then return to the Appearance tab of the Display Properties window and choose your desired color scheme from the **Color scheme** drop-down (in Windows 2000, from the **Scheme** drop-down list.) Finally, click the **Apply** button to set Windows back to standard colors, and the **OK** button to dismiss the Display Properties window.



Expanded external surface control capabilities

You can now use an even wider variety of external surface control devices to manipulate your Vegas 5 projects. This provides a more tactile feel to your editing work. Although using an external mixer or controller to manipulate your projects is not for everyone, many Vegas 5 users will love working this way.

Vegas 5 can now communicate with many MIDI-based external devices. MIDI, which stands for Musical Instrument Digital Interface, has many uses and can be a rather complicated subject in and of itself, but for our purposes you need only understand that MIDI technology enables electronic commands to pass between your external device (called a MIDI controller) and Vegas 5. MIDI controllers come in many different forms. A controller could be a keyboard (like on an electronic piano), or a unit that contains faders and buttons much like a traditional audio mixing

board. In short, a controller could be designed in any way imaginable as long as it outputs MIDI information.

Once you have a MIDI controller with which to generate the MIDI information, you must have some sort of MIDI interface (such as a MIDI-capable sound card or a MIDI input/output box that plugs into a USB port) on your computer. Some devices can plug directly into your computer's USB ports and send the MIDI information that way. For the sake of this discussion, we'll assume that you have a MIDI-enabled sound card. If you don't, when we say "the MIDI jack on your soundcard" you may have to translate that statement to match your particular setup.

Because you can create custom mapping schemes in Vegas 5, you can use a number of different MIDI controller devices as your external surface device. Vegas 5 comes pre-mapped to one external controller device – the Mackie Universal Control. We'll talk more about that device later, but for now, let's talk about how to set Vegas 5 up to communicate with your MIDI controller.

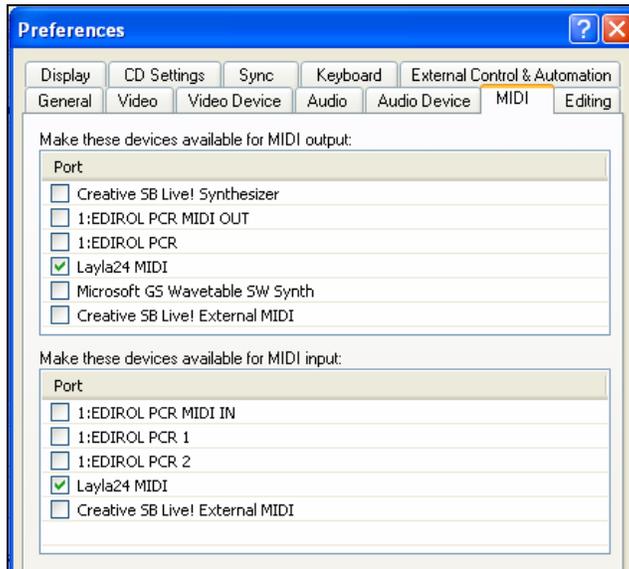
Connecting your MIDI controller to Vegas 5

Before you can use your external controller device in Vegas 5, you must (of course) connect it to your computer. To do so, use a MIDI cable to connect the MIDI Out jack on your controller to the MIDI In jack on your sound card. This provides the physical path through which MIDI information will pass from your controller to your computer. Some controllers (like the Mackie that we'll discuss later) can also receive and respond to MIDI information coming out of Vegas. If your controller has this capability, connect the MIDI Out jack on your sound card to the MIDI In jack on your controller. This establishes the path for MIDI to pass from your computer to your controller.

With the physical connections in place (by the way, don't forget to turn your MIDI controller on if it has an on/off switch!) you must now enable Vegas 5 to receive the MIDI data coming in from your controller, and to transmit MIDI data to your controller. To do so, first choose **Options | External Control**. Next, choose **Options | Preferences** to open the Preferences dialog and click the **MIDI** tab. The MIDI tab has two sections: one for establishing the MIDI connection out from Vegas to the controller, and one to establish communication in the opposite direction. In both sections, select the checkbox that corresponds to the MIDI port (that is, the MIDI jack) into which you've plugged your controller as shown in **Figure 54**. Click **Apply** to finalize your choices.

Figure 54

Before your MIDI controller can communicate with Vegas 5, you must open the appropriate lines of communication—the MIDI ports for MIDI input and output.



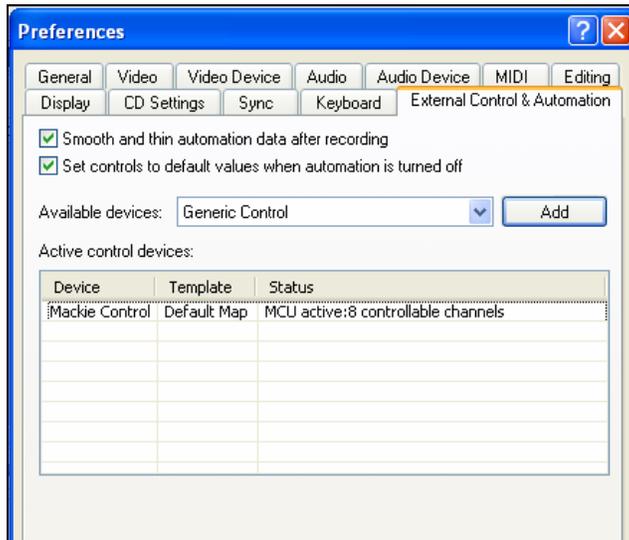
Mapping your MIDI controller to Vegas 5

The device needs to be mapped to Vegas 5. In other words, your device has several buttons, keys, faders, and perhaps other types of controls. You need to tell Vegas 5 what you want to happen when you manipulate these controls. For instance, say you have eight faders on your controller. If you want the first fader to control the volume of track one in your Vegas 5 project, you must create a direct connection between the controller's fader and the volume fader on track one in Vegas 5. We refer to this as mapping the fader to a fader in Vegas 5.

Click the **External Control & Automation** tab in the Preferences dialog. Here you choose your external device. Click the **Available Devices** drop-down arrow. You have two choices. If you use the Mackie Universal Control device, choose **Mackie Control** from the list. If you use any other MIDI device, choose **Generic Control** from the list. Once you've made your choice, click the **Add** button. The new device now appears in the Active control devices area as shown in **Figure 55**. If you decide to remove the device from the Active control devices area, right-click the listing for the device and choose **Remove**.

Figure 55

Add either the Generic Control or the Mackie Control to the Active control devices list.



If you use the Mackie Universal Control device, the mapping already exists. If you want to use that default mapping, click **OK** to dismiss the Preferences dialog.

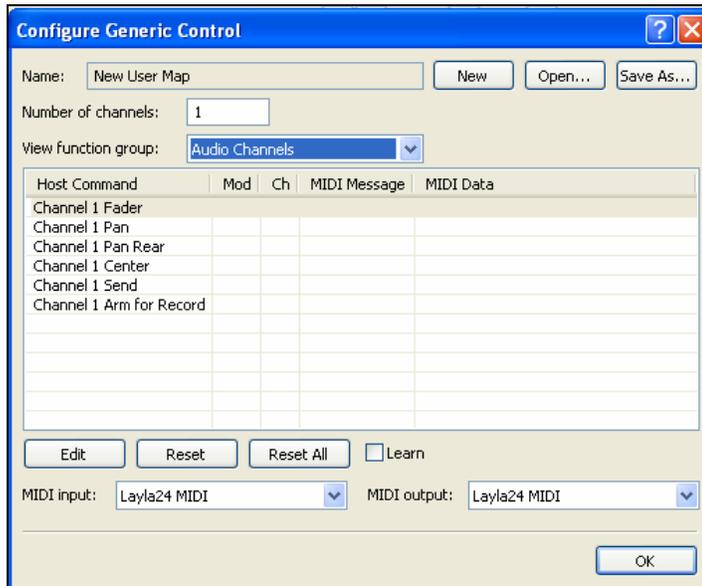
If you use any other device—or you want to customize the mapping for your Mackie Universal Control device—you’ll have to establish the mapping between Vegas 5 and the device manually. Double-click the device name (in most cases, it will be “Generic Control”) in the Active control devices area to open the Configure Control dialog.

In our example, we’ll use a Vegas 5 project that contains two audio tracks. We’ll map two faders on our external controller to the volume faders for our two audio tracks. Mapping other controls to other Vegas 5 functions works similarly, so you will get the idea of how it works from this simple example.

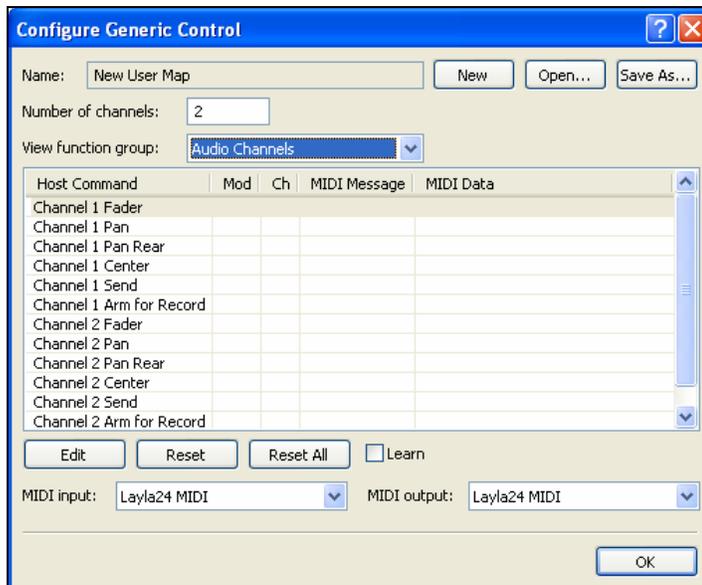
Since we’re working on audio tracks right now, choose **Audio Channels** from the View function group drop-down list. In this case, think of “channels” as tracks in your project. **Figure 56** shows that you now see six host commands, one of which—Channel 1 Fader—we want to map to our controller. In fact, we actually want to map to two audio tracks, but we don’t see any host commands for channel two (that is, track two of the Vegas 5 project.) Change the value in the **Number of Channels** field to “2” and press the **Tab** key on your keyboard. You now see six host commands for channel two as well, including the one we want to map, Channel 2 Fader. As shown in **Figure 57**.

Figure 56

You have six host commands for audio channels to which you can now map to your MIDI controller.

**Figure 57**

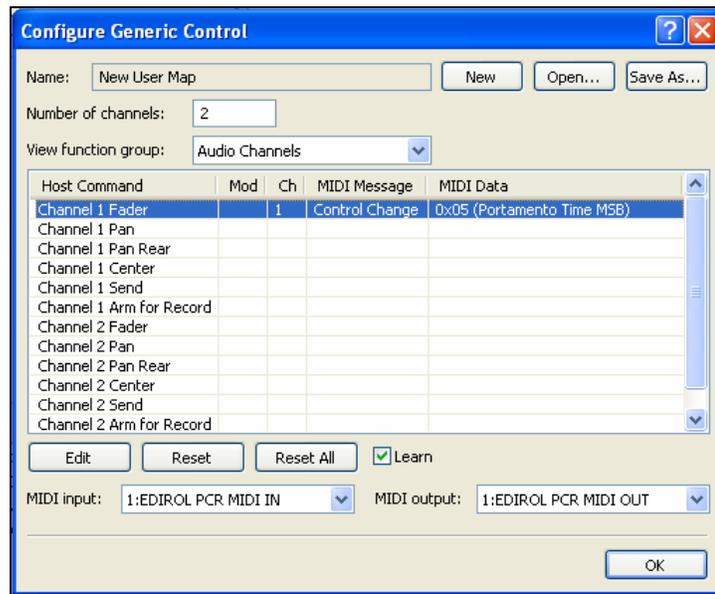
When you increase the number of channels to "2" you see a total of 12 available host commands—six for channel 1 and six for channel 2.



The Learn function makes mapping the controller to the appropriate Vegas 5 command very easy. Select the **Learn** checkbox (refer back to **Figure X+1**) and then select the host command that you want to work with from the list (for instance, select **Channel 1 Fader** if you want to map the volume fader on track one of your project.) With the Learn checkbox selected, now manipulate the control on your controller device that you want to map to the selected host command. Vegas 5 immediately fills in the appropriate information that maps the control to the host command as shown in **Figure 58**.

Figure 58

The Learn command enables you to easily map your controller keys and buttons to the desired Vegas 5 host commands



Now select **Channel 2 Fader** from the Host Command list and (with the Learn checkbox still selected) manipulate the control on your controller device that you want to map to the second track's volume fader.

In this same manner, continue mapping your controller to Vegas 5 functions. When done, click the **OK** button to dismiss the Configure Control dialog. If you have no more controllers to map (you can use up to five at once), click the **OK** button to dismiss the Preferences dialog.

Now, move the controls on your MIDI controller that you just mapped to the volume faders on tracks one and two of your project. The volume faders in your project react to the changes you make on your MIDI controller. You now have surface control!



Using the Mackie Universal Control MIDI controller

As we mentioned, Vegas 5 contains premapped settings for the Mackie Universal Control device. In this section, you'll learn the basics of the Mackie Universal Control device so that you can get started using it on your projects. If you haven't already read through the previous section (Expanded external surface control capabilities), you need to do so now, or you may not get your controller to function within Vegas 5. Assuming that you have set things up correctly, let's take a look at how the Mackie device works. (We're just going to hit the highlights here in order to familiarize you with the tool and shed some light on how it works. The Vegas 5 help files have descriptions of what all of the buttons and controls on the Mackie unit do. Choose **Help | Contents and Index**. In the contents list, choose **Using Hardware Controllers | Using a Control Surface | Using a Mackie Control**.)

Defining the channel controls

The Mackie has eight channels. You can think of a channel as a set of controls, all of which affect the track to which the channel maps. Each channel has several controls, most of which are buttons and we'll talk about them a bit later. So that we all share the same terminology, we'll call the knobs at the top (the ones you twist right and left) *pots* and the controls at the bottom (the ones you slide up and down) *faders*.

Understanding channel assignments

Depending upon the configuration of your Vegas 5 project, you might have noticed activity on your controller when you dismissed the Preferences dialog (after specifying the Mackie Control at the External Control & Automation tab) even though you weren't touching the unit. Since communication with the Mackie device goes both ways, Vegas 5 has already sent MIDI information to the controller and the Mackie (which has motorized faders) reacts to that information.

For now, start a brand new Vegas 5 project. All of the faders on the Mackie controller move to the very bottom except for the first one. Why? By default, the Mackie channels operate in audio mode. In other words, the faders and other controls currently affect your project's audio tracks. Since you just started a new project, you have no audio tracks and so the faders move to the bottom. All of them, that is, except for the first one. As long as there is an available channel (that is, you have less than eight audio tracks in your project), the last channel on the right maps to the Vegas 5 Master bus. If you have additional busses in your project, they would occupy any available channels to the right of the Master bus. Since you have no audio tracks in this new project, channel one on the Mackie maps to the Vegas 5 Master bus. In the readout area at the top of the Mackie, you see that channel one is labeled *Master*. (Note that the Mackie device also contains a fader labeled *MASTER*. This fader always maps to the Master bus fader so that if you have more than seven tracks in your project you can still control the master volume with this fader.)

Now, insert four audio tracks into your project (use the Vegas 5 Insert menu to create empty tracks.) Notice that faders 1 through 4 on the Mackie instantly jump to unity gain (U on the fader ruler) to reflect the volume setting of the new tracks in your project. Channel 5 on the Mackie now controls the Master bus. The Mackie readout labels the channels *Aud1*, *Aud2*, and so on. The name *Aud1* indicates that this is the first audio track in your project and that the track is currently unnamed. Type *Track 1* in the scribble strip for track one in your project. Notice that the name (actually, a shortened version of it) appears in the Mackie display area. Now delete the name in the scribble strip. Notice that the Mackie display changes back to the default (*Aud 1*).

Using channel controls

The faders on each channel adjust the volume for the track to which the channel maps. For instance, while you watch your Vegas 5 project, move the fader for the *Aud1* track up and down and notice that this adjusts the volume for track 1 in your project. While still moving the fader, notice that the Mackie's display area provides a readout of the current volume setting and that it matches the volume setting in your project. Now, use the Vegas 5 interface to adjust the volume of the second audio track, and notice that the Mackie's motorized fader responds to your changes.

Take your hands away from the Mackie device for a moment. As we discussed, the display area shows the label for the track that corresponds to any given channel. And earlier saw the digital readout of the fader's setting (which of course matches the setting for the track in your Vegas 5 project) when you adjust a fader. If you want to know the exact volume setting of a track without adjusting it, lightly press down on the fader for the channel that maps to the track. When you do, the track's volume setting appears in the Mackie display area.

The operations of the button on each channel are fairly self-explanatory. The following list summarizes them:

- **SELECT**: press to select the corresponding track header in your Vegas 5 project.
- **MUTE**: press to mute and unmute the corresponding track in your project.
- **SOLO**: press to solo and unsolo the corresponding track in your project.

- **REC/RDY**: press to toggle the Arm for Record button for the corresponding track in your project on and off.

Each of these buttons sends as well as receives information. To see this, click the **Mute** button in Vegas 5 for track 2 and notice that the Mute button on channel two of the Mackie lights up. Press the **Mute** button for channel 2 on the Mackie and notice that this deactivates the Mute button for track 2 in your project.

Between the SOLO and REC/RDY buttons, the SIGNAL light indicates the presence of a signal on the corresponding track during playback.

The pot control above the REC/RDY button adjusts the panning on the corresponding track. For instance, adjust the pot for Aud4 and notice that the pan slider in your Vegas 5 project moves in reaction. Of course, if you change the pan setting in your project, the setting changes on the Mackie unit too. The pan pots are not motorized on the Mackie so they do not actually move as the faders do. You can however see the LED readout for the pan pot changing as you make your adjustments in the application.

Using the Mackie transport area

You can use the Mackie device to control the playback and other transport functions of your project. You'll find the tools you use to do so in the lower-right hand corner of the unit. Press the **PLAY** button and your project begins to play (it's ok if you still don't have any audio on the tracks in your project.) Press the **STOP** button and the project stops and returns the cursor to its previous location. You'll notice that the Mackie has no Pause button. The Play button toggles between play and pause depending upon the state of your project. So, press the **PLAY** button and let the project play for a couple of seconds. Press the **PLAY** button again and the project pauses as if you'd clicked the Pause button in your project.

The Record button correlates to the Record button in Vegas 5 exactly, including punch-in-on-the-fly recording. The Rewind and Fast FWD buttons actually map to the Vegas 5 Scrub tool. You can use these buttons whether your project is playing or not. Hold down the **FAST FWD** button. The cursor scrubs forward through your project, and you can look at the Scrub tool to see that the cursor is moving at 20 times normal speed. You get the same results if you drag the Scrub tool all the way to the right. Hold down the **REVERSE** button to scrub through the project in reverse (-20 times normal speed.)

Using the Vegas template for the Mackie controller

The buttons on the right side of the Mackie controller are all labeled. Unfortunately, those labels have nothing to do with the function of those buttons when you're working with Vegas 5. Equally as unfortunately, as of the time of this writing, we are still waiting on Mackie to supply an official overlay with Vegas functions so that you can see what the buttons do in Vegas 5. In the meantime, visit our website at <http://download.sonypictures.com/current/extras/mackiecontroloverlay.pdf> to download a .pdf version of the overlay.

Working with Fader banks

If your project has less than eight tracks and no extra busses, then you've got enough channels on the Mackie to handle your whole project. But most often you'll have more than eight tracks in your project. When you do, you'll need more channels on your controller. This is where the controls under the FADER BANKS section of the Vegas button template come in handy.

To see how these work, create a project that has 20 audio tracks in it. You don't really need any audio on those tracks for this discussion. By the way, you can press the **Track** button under the

ADD NEW section of the button template to add a new track to your project. Inside Vegas 5, change the volume and pan settings for all of the tracks so that they are different.

The Mackie channel display area shows that you can currently control the tracks Aud1 through Aud8 with the Mackie. But what if you need to increase the volume on track Aud12, or mute track Aud18? Press the **Bank** button with the right-facing arrow icon. This shifts the view of channels over by a full eight channels. Notice now that the display area shows that the eight Mackie channels control tracks Aud9 through Aud16 of your project. Also, all of the volume faders change to reflect the level of the new track that is now assigned to each channel. Click the same button again to see tracks Aud14 through Aud20, and as usual, the Master bus on the very right. To work with tracks Aud1 through Aud8 again, press the **Bank** button with the left-facing arrow icon two times.

So far so good, but what if you want to work with tracks Aud6 and Aud13 at the same time? If you use the method we just described, you can't see them both at the same time. Press the **Channel** button with the right-facing arrow icon. Instead of moving your view eight channels at a time, this moves only one channel at a time so that now you see channels Aud2 through Aud9. Press the same button four more times until you see channels Aud6 through Aud13. Press the **Channel** button with the left-facing arrow icon to move your view in the other direction.

The Flip button swaps the functionality of the faders with that of the pots and vice versa. To see this, press the **Flip** button. You notice immediately that the faders move. Now, you've flipped the pots and faders so that the faders control your pan settings and the pots control volume settings. Move the pot for track Aud5 and notice that the volume setting changes in Vegas 5. In Vegas 5, change the pan setting of track Aud 3 and notice that the fader on the Mackie moves in response to the change. Press the **Flip** button again to set the controls back to their original functions.

Working with video tracks

The final button in the FADER BANKS section, the Video button, changes the Mackie controller from audio mode to video mode. Press the **Video** button now. All of the faders move to the bottom because you don't have any video tracks in your project. Press the **Track** button under the ADD NEW section five times. This adds five video tracks (labeled *Vid1*, *Vid2*, and so on) to your project.

The Mackie faders now control the Level settings for their corresponding video tracks inside Vegas 5. All of the channel buttons have the same effect (except, of course, the REC/RDY button which, since you don't arm video tracks for record, has no effect.) The pot has no function in video mode unless you press one or more modifier keys on the Mackie. You'll see an example of this in the next section.

The Bank, Channel, and Flip buttons work the same way in video mode as they do in audio mode. Press the **Video** button again to go back to audio mode.

Recording automation

You can use the Mackie controller to record automation on both audio and video tracks. One advantage to recording automation this way is that you don't have to switch your tracks in Vegas 5 to Show Automation mode in order to record your moves. However, it is very important that you understand that switching the Mackie into Automation mode does not automatically switch Vegas 5 into Automation write mode. In other words, if you want to use the Mackie unit to automate the volume on an audio track, you not only need to place the Mackie into automation mode (which you'll learn to do next), but you also need to make sure that the track you want to automate in Vegas 5 is in one of the two automation write modes (Touch or Latch.) Usually you don't need to do anything in the application because the default automation mode for each track

is Touch, but if you've changed that setting on a track, you must make sure to set it back before you can write automation from the Mackie.

Let's create volume automation for a track now. First, in Vegas 5, click the **Automation Settings** button for track 7 (which is the second audio track in your project) and verify that the track is set to one of the automation write modes. Then, on the Mackie Control unit, press the **Automation** button in the AUDIO/VIDEO section. You see the faders on the Mackie unit move to new settings since they now control track volume automation instead of track volume.

Press the **Play** button on the Mackie. Adjust the channel Aud2 fader (which now maps to track seven in your project if you added the five video tracks at the top of your track list.) In Vegas 5, you see the automation envelope drawing as you move the fader. Press the **Stop** button. In Vegas 5, click the **Automation Settings** button for track 7 and choose **Show Automation Controls**. Play the project. The Volume Automation fader for channel Aud2 on the Mackie moves in reaction to the automation you recorded.

Stop playback and press the **Video** button to place the Mackie unit into video mode. With the Automation button still selected, and the unit in video mode, the pot now has a function: It controls the Fade to Color settings on your video track. In Vegas 5, verify that track 2 is in one of the automation write modes. Play the project from the beginning, and on the Mackie unit adjust the pot for channel Vid2. You see the Fade to Color envelope appear and change as you make changes to the settings of the pot.

As you see, it's easy to create automation with the Mackie Control unit. Just remember the critical piece: Not only must the Mackie's Automation button be selected, but the target track in Vegas 5 must also be in one of the two automation write modes.

Press the **Automation** button to take the Mackie unit out of automation mode.

Working with the CONTROL buttons

Lets talk about the six important buttons at the top of the Mackie unit (just above the FADER BANK buttons.) These buttons dictate the functionality of the pot control on each channel. So far we've been working with the Pan/Fade to Color button selected (the Mackie's default mode), so you've already explored that functionality extensively. As a quick side note, this button (Pan/Fade to Color) has two names with the second name (Fade to Color) within a gray box. This indicates that the button has different functions depending upon whether you are in audio or video mode. The name within the gray box identifies the button's function in video mode. You'll see a few other buttons on the unit that similarly have different functions in video mode than they do in audio mode.

CONTROL buttons: Output/Compositing

Now, back to the plot. Press the **Output/Compositing** button. In this mode, the pot control enables you to reroute your audio tracks to any bus in your project. In the display area you now see the word *Master* listed under the name of each audio track, assuming that you've been following along with our instructions thus far. This indicates that each track in your Vegas 5 project currently routes to the Master bus, and a quick look at the track headers for your audio tracks in Vegas 5 confirms this.

Press the **Bus** button under the Mackie's ADD NEW section four times. In your Vegas 5 project, notice that you now have four auxiliary busses (Busses A, B, C, and D.) Now, rotate the pot for track Aud4 and watch the Mackie display area. Stop rotating the pot when the readout shows that you have selected Bus C. Notice that there is an asterisk before the label Bus C. Look at track nine in your Vegas project, and notice that it still routes to the Master. The asterisk on the Mackie indicates that although you've dialed into Bus C for this track, you've not yet actually changed the track's routing. To do so, put your finger on top of the pot and press down until you feel a

click. The asterisk goes away. Now look at your Vegas 5 project. The track has been successfully routed to Bus C.

In video mode, with the Output/Compositing button selected, the pot enables you to assign a compositing mode to your video tracks. Press the **Video** button now. Make sure that the Output/Compositing button is still selected. If it's not, press that button now. Use the same technique to choose a composite mode as described above for choosing a new bus for audio tracks. One small difference is that you do not need to press the pot to finalize your composite mode selection. Once you've dialed it in, the mode has changed.

CONTROL buttons: Input/Motion Blur

Go back to audio mode. Press the **Input/Motion Blur** button. In audio mode, this button enables you to choose the sound card input from which you want to receive audio signal during recording. The choices that you have here depend upon the settings you choose in the Audio Device tab of the Preferences dialog in Vegas 5. For instance, with your audio device set to the default Microsoft Sound Mapper, you have three choices for input: Microsoft Sound Mapper (left and right), Microsoft Sound Mapper -Left, and Microsoft Sound Mapper - Right. If you have your audio device set to a sound card with multiple inputs, you will have many more options available to you on the Mackie. Rotate the pot to select an input device and press down on the pot to finalize your choice.

Go to video mode. If the Input/Motion Blur button is not still selected, press that button now. In video mode, this button changes the pot from controlling the settings of Fade to Color to controlling the Bypass Motion Blur button. Press the pot down to toggle the Bypass Motion Blur button on and off for a track.

CONTROL buttons: Sends

Go back to audio mode. Press the **Sends** button. In audio mode, this changes pot functionality so that they control the level you send to your auxiliary busses and Assignable FX busses. Unlike the buttons we've discussed so far, the Sends button is not just a two-way toggle button with an on setting and an off setting. Each time you press the Sends button, you select the next bus in your project's mixer window. The first time you press it, the ASSIGNMENT readout in the Mackie display area reads SA. This indicates that you have selected Bus (or send) A. You can now use the pots to adjust the amount of audio from each track you want to send to Bus A. This is exactly like choosing Bus A from a track's multipurpose fader in Vegas 5 and adjusting the send fader for that track.

Press the Sends button again, and the ASSIGNMENT readout shows that you are now working with the audio levels you send to Bus B. Continue pressing the Sends button to toggle through all of your auxiliary busses. When you've reached the end of your busses, the next press of the Sends button toggles to either the first Assignable FX send (if you have Assignable FX in your project), or toggles back around to Bus A.

Once you've chosen which send you want to work with, rotate the pot control on each track until you're happy with the level of audio from that track that you're sending to the selected bus.

The Sends button has no function in video mode.

CONTROL buttons: Settings

The Settings button works only in conjunction with the Pan/Fade to Color button or the Sends button.

In audio mode, press the **Pan/Fade to Color** button. Press the **Settings** button. Now, press and hold the **Automation Mode (F1)** button. The Mackie display shows the current automation settings for each track. While still holding the Automation Mode button, rotate the pot for track

Aud3 and notice that you can choose any of the automation modes available for that track. When you've made your choice, release the Automation Mode button. This correlates to clicking the **Automation Settings** button in Vegas 5 and choosing an option from the list. This setting works in both video and audio modes.

Press and hold the **Pan Mode (F2)** button. The display shows the pan mode setting for each track. Rotate the pot to choose from any of the pan modes. When you've made your choice, release the Pan Mode button. This has the same effect as right-clicking the Pan slider thumb in Vegas 5 and choosing a pan mode from the list. This setting has no function in video mode.

Press and hold the **Track Phase (F3)** button. The display now shows the current phase setting for each track. Press the pot for any track until it clicks to toggle to the opposite phase setting for that track. This correlates to clicking the **Invert Track Phase** button in Vegas 5. This setting has no function in video mode.

Press the **REC/RDY** button for channel AUD2 to arm that track for recording. Now, press and hold the **Input Monitor (F4)** button. This display shows the current input monitoring settings for each track. Note that you must be using ASIO drivers to use input monitoring. If you are not, the only option for this setting is *Off* and you can't change it. When you're using ASIO drivers, hold the **Input Monitor** button and rotate the pot for a track to choose the desired input monitoring setting. This setting has no function in video mode.

With the Pan/Fade to Color button selected the Pre/Post button enables you to dictate whether the effects chain that you have applied to your Master and any auxiliary busses will be affected by the bus' output fader. Create a chain of effects on your Master bus (one or two effects will do, and it doesn't matter which ones you use.) If necessary, use the FADER BANK buttons to move through your channels so that you can see the Master bus in one of the Mackie's channels. Press and hold the **Pre/Post (F5)** button. The display area shows that the Master bus is currently in post-effects mode (*PstFX*). Press the pot for the Master channel to toggle between pre- and post-effects mode. Release the **Pre/Post (F5)** button.

With the Sends button selected, the Pre/Post button enables you to dictate whether the bus sends on individual tracks are pre- or post-volume fader. Press the **Sends** button until you've selected the desired auxiliary bus or assignable FX send as discussed above in our discussion of the Sends button. Now press and hold the **Pre/Post (F5)** button. Press the pot for any track to toggle the current send fader to the selected bus between pre- and post-fader. This setting has no function in video mode.

This setting enables you to reset a track back to the default track settings. Use the FADER BANKS buttons to move through your channels so that you can see channel Aud18 (which, remember, currently maps to track 23 in your Vegas 5 project.) Use the fader to drop the volume level of channel Aud18 all the way down to -Inf. Now we'll use the Default (F6) button to reset channel Aud18 to the default settings (0.0 dB). Press and hold the **Default (F6)** button. Press the pot for channel Aud18 to reset it. This setting works in both video and audio modes.

CONTROL buttons: Inserts – adjusting filter and effects parameters

Although we use exclusively audio tracks throughout the following discussion of Inserts mode, the techniques discussed work identically on video tracks in video mode on the Mackie Control unit.

Start a new Vegas 5 project. In audio mode on the Mackie Control unit, press the **Track** button under the ADD NEW section to add a new audio track. Press the same button again to add a second track. The Mackie display shows three active channels: Channels 1 and 2 control the audio tracks you just added, and channel three controls the Master bus.

The Inserts control enables you to work with the effects and filters on the tracks and busses in your project. Press the **Inserts** button. The ASSIGNMENT display reads *PL*. The display for each track shows the first plug-in or filter in the plug-in chain for the displayed track or bus. Since each new Vegas 5 audio track contains a chain of three plug-ins, the first of which is Track Noise Gate, you see *TrNsGt* in the display for tracks Aud1 and Aud2. If no plug-in exists for the track or bus (as with the Master bus if you're following along with our instructions), the display shows (*NONE*).

Rotate the pot for track Aud1. You see that this scrolls through all of the plug-ins in the chain on that track. Scroll to the right to choose the next plug-in in the chain, and to the left to choose the previous plug-in. Choose **Track EQ** for track Aud1. We'll use the Track EQ plug-in to demonstrate working with filters and effects from the Mackie Control unit.

Now, press down on the pot for track Aud1. The ASSIGNMENT display now shows *PE* and you have entered edit mode for the plug-in that was displayed on the channel when you pressed the pot—in this case, you are in edit mode for Track 1's Track EQ plug-in. You can see parameter settings for the plug-in in the display area.

In Vegas 5, click the **Track FX** button for track 1. When the Audio Plug-ins window opens, click the **Track EQ** button in the plug-in chains so that you can see the parameters of the plug-in. Although it isn't necessary to do this in order to edit the settings with the Mackie Control unit, it helps to be able to see the results of the adjustments you make on the Mackie while you're learning to use it.

Now pots 1 through 4 control the first four parameters of the plug-in. Above pot 1 you see *Bn1Frq* and under that the value *100*. Look at the Audio Plug-in window in Vegas 5 and see that this matches the Band 1 Frequency setting. Rotate pot 1 and notice in Vegas 5 that the Band 1 Frequency setting changes in response. Set the frequency to 70 Hz.

Rotate pot 2 to change the Band 1 Gain setting. Notice that the pots are velocity sensitive. In other words, the faster you rotate them, the larger the change to the parameter settings. If you want to make fine adjustments to the setting, rotate the pot slowly. Set the gain to 6.0 dB.

Pot 3 adjusts the Bandwidth settings. As you rotate pot 3, you don't notice any change in the graphical representation in Vegas 5. This makes sense because Band 1 is set to one of the shelf options (*Low Shelf*) instead of *Band*. In other words, for a shelf band, pot 3 has no function.

Pot 4 adjusts the Rolloff settings. Rotate it to see how it affects the rolloff setting in Vegas 5. Note that if this band were set to *Band*, pot 4 would have no effect. In other words, if you set the band control to *band*, pot 4 has no function. Set the rolloff to 18 dB/oct.

Pot 5 enables you to scroll to the next four parameters in the plug-in. Notice that the display above pot 5 reads *Aud1* and under that *1/8*. This indicates that you are working on track Aud1, and that the plug-in with which you're working has eight parameter pages—that is, eight sets of as many as four parameters. Rotate pot 5 one click to the right. The display now shows the second four parameters for this plug-in, and the display for channel 5 shows that you are looking at set two of eight (*2/8*).

Now, the first pot enables you to change Band 1 from a shelf-style to a band-style band. Rotate pot one to see the options, but end up back on *Low Shelf*. Pot 2 enables you to toggle Band 1 between enabled and disabled. Press the pot to choose disabled (the display reads *False*), and press it again to set enabled back to *True*.

With pot 3, all of the parameters we've discussed with Band 1 start over again with Band 2. Experiment with the Band 2 settings, then rotate pot 5 to access the next set of four parameters.

Continue scrolling through parameter sets with pot 5 until you reach set 7/8. Here you see some new parameters.

Pot 2 now shows *LftEnb* and under that *True*. Back in Vegas 5, click the **Channels** tab in the Audio Plug-in box (still showing the Track EQ parameters.) This switches to the Channels page of the plug-in, and here you can see additional parameters for the plug-in. On the Mackie Control, press pot 2 to set the *LftEnb* setting to *False*. In Vegas 5, notice that this deselects the Enable Left checkbox.

Parameter set 8/8 shows the rest of the enable checkboxes (these you use only when you're mixing in 5.1 surround.)

Once you've manually adjusted all of the parameters for the Track EQ, you might decide you'd rather use one of the presets. Rotate Pot 6 to scroll through all of the available presets for the selected plug-in. When you've found the plug-in you want, press pot 6 to finalize the selection.

CONTROL buttons: Inserts – adjusting the same effect on a different track

Once you're done adjusting the parameters for the Track EQ on track 1, you might want to adjust the Track EQ for track 2. Rotate pot 7 one click to the right and notice that the readout above pot 5 changes from *Aud1, 8/8* to *Aud2, 1/8*. You've now entered the edit mode for the parameter settings for the Track EQ plug-in on track Aud2. Rotate pot 7 one more click to the right. You've now entered the edit mode for the Master bus and the display alerts you that no plug-ins (<No Insert>) exist on the Master bus. Rotate pot 7 back two clicks so that the display above channel 5 reads *Aud1, 1/1*, and the readout at the right end of the display shows *Track Noise Gate*. You've just returned to track 1 and are poised to adjust the parameters of the Track Noise Gate plug-in.

CONTROL buttons: Inserts – adjusting a different effect on the same track

As mentioned above, if you've been following our instructions, you find yourself ready to adjust the parameters of the Noise Gate plug-in on track 1. But perhaps you want to adjust the compression settings instead. Rotate pot 8 until the readout shows that you are viewing the parameters for the Track Compressor plug-in. You are now ready to work with the compression settings for track 1.

CONTROL buttons: Inserts – editing the plug-in chain

Of course, there will be times when you want to edit the plug-in chain itself. For instance, perhaps you want to add a reverb to the chain or remove a plug-in from the chain. To work with plug-in chains, press the **Inserts** button again. Keep pressing it repeatedly until the ASSIGNMENT display reads PS. The display area shows the current plug-in chain for the selected track. The display above pot 7 identifies the selected track. Pot 8 enables you to choose the track with which you want to work. Rotate pot 8 until the display above pot 7 reads *Aud1, 1/2*.

You can see that track 1 contains a chain of three plug-ins which the Mackie displays as *TrckNoisGate*, *Track EQ*, and *TrackCmprss*. Rotate pot 7 one click to the right and see that no other plug-ins exist in this chain. Rotate pot 7 back to the left to see the plug-ins listed again.

Now you can enter edit mode for a specific plug-in if you want to. To adjust the parameters of the Track Compressor for track 1, press the pot over which the first letter of the name of the plug-in in the display area sits. You can now use the techniques you learned earlier to edit the parameters of the plug-in.

For now, press the **Insert** button again as many times as it takes to scroll back around to PS mode in the ASSIGNMENT display. Now you're back in plug-in chain editing mode.

You can replace a plug-in in the chain. Notice that in the display area, each plug-in name spans two channels. Let's say you want to replace the Track EQ plug-in. Notice the name of that plug-in spans channels 3 and 4 on the Mackie unit. Rotate pot 3. This scrolls through all of the available plug-ins on your system. Scroll right and left until you find the Reverb plug in. As you've seen before, an asterisk informs you that although you've chosen the Reverb plug-in, you have not yet finalized your selection.

If you decide that you don't want to replace the Track EQ plug-in after all, press pot 3 to cancel the operation. The display shows that track EQ is still in the chain. Now use pot 3 to find the Reverb plug-in again. This time when you find it, press pot 4. This finalizes your selection, and Reverb has replaced Track EQ in your chain. If you decide that was a mistake, press the **Undo** button under the PROJECT section at the right side of the Mackie unit.

Instead of replacing an existing plug-in with the new one, perhaps you want to add the new plug-in to the chain. The display area shows only three plug-ins at a time, but the display above pot 7 shows that the current track (Aud1) has two pages of plug-ins. You're currently looking at the first page (1/2). Rotate pot 7 one click to the right to view page 2/2. The only display on this page is <No Insert> which indicates that there are no more plug-ins in the chain. Let's add a simple delay to the chain.

Rotate pot 1 until you find *Simple Delay*, then press pot 2 to add the plug-in to your chain. Notice that <No Insert> now moves to the second position in page two of the chain, and you could use the technique you just learned to add another plug-in.

Now let's remove the track compressor from the chain. Rotate pot 7 one click to the left to view the first three plug-ins in the chain (Aud1, 1/2). Rotate pot 5 to the left until the display reads *<No Insert>. Press pot 6. The Track Compressor plug-in disappears from the chain.

Conclusion

In this document, you've taken a close look at all of the new features and enhancements in Vegas 5. Armed with the knowledge you gained from this document, you can apply these new features to your projects and continue creating great video and audio productions.

We hope this training gives you everything you need in order to truly master the new features. We wish you the best of luck in all of your video and audio projects. And as always, thank you for using Vegas 5!
