Vegas + DVD
Tips, Tricks, and Scripts

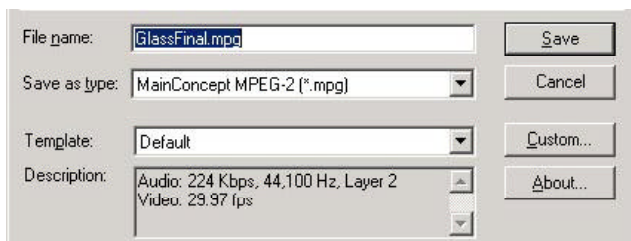## Learning and using Vegas 4 and DVD Architect

Preparing for DVD

By Edward Troxel

Creating DVDs used to be a complicated and expensive process that only Hollywood could create. Today, with writable DVD technology, anyone with the proper tools can create DVDs. In fact, all that is needed is a copy of Vegas + DVD and a DVD burner.

The first step to creating a DVD is to capture and edit your video. Usually, you will print this video to tape for archival purposes and the creation of VHS copies. At this point, you are ready to begin the DVD creation process.

To fit on a DVD, the video must be compressed. The compression used is called MPEG-2. While DV is already compressed at a rate of 5:1, MPEG-2 allows much greater compression. It also allows various rates of compression leting you find a balance between quantity and quality. While you can fit three hours of footage onto a DVD, it will not look as good as only putting on one hour of video because it must be compressed at a much higher rate.

To get your video into MPEG-2 format, you need to choose **Render As** from the **File** Menu. On this screen, you would pick the MainConcept MPEG-2 as the **Save As Type**. In the Template box you will find several predefined choices - many specifically designed for use with DVD Architect. Pick the template appropriate for your video such as **DVD Architect NTSC Video Stream**. Clicking on **Save** would then create an MPEG-2 file using the default settings.

While these settings will work for a typical video of one hour or less, there may be times when some of the settings need to be modified. Click on **Custom** to display the settings. On the video tab you will find options for changing how much the file is to be compressed. This is determined by the bitrate selected.

The first option is to use either "*Constant Bit Rate (CBR)*" - which will render every frame of the video with the same number of bits - or "*Variable Bit Rate (VBR)*" - which will use more bits for areas with lots of action and fewer bits for areas with less action. It is generally recommended that VBR be used for longer videos. For the sake of simplicity, it is easier to use VBR every time.
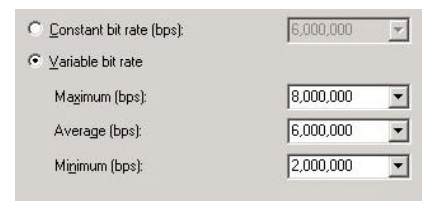
Next, the bitrate needs to be determined. When us-

ing VBR, there are three bitrates to be defined: Maximum, Average, and Minimum. With the DVD Architect templates, these default to 8,000,000, 6,000,000, and 192,000 respectively. These are good starting values and will allow videos up to about 1.5 hours. As a personal preference, I usually change the minimum value to 2,000,000 as shown in the picture.

Depending on the length of the video, the *Average* value may need to be adjusted. Another factor is the type of audio. AC-3 (Dolby) audio is very compressed while PCM (WAV) audio is not compressed. Finally, enough room must be left over to hold the menus. Unless the menus are extremely complicated, they usually take very little space.

Formulas have been developed to help determine an approximate average bitrate. For example, if you are using AC-3 audio at 192 Kbps, the formula is:

(36096 - (((# Minutes * 60) * 192) / 1024)) / (# Minutes * 60)

meaning that if your video is 1 hour 40 minutes (a total of 100 minutes) you would use:

(36096 - (((100 * 60) * 192) / 1024)) / (100 * 60)=5.829 meaning you can use an average bitrate of around 5,800,000. If you are using PCM audio, the formula is:
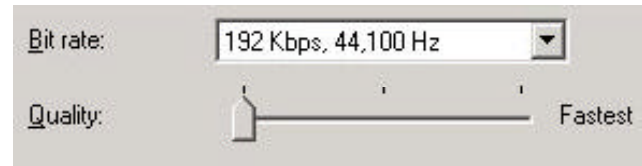
(36096 - (((# Minutes * 60) * 1600) / 1024)) / (# Minutes * 60)

meaning that same 100 minute video would need an average bitrate around 4,450,000. As you can see, using AC-3 audio will allow the bitrate to be significantly higher.

To get a compliant MPEG-2 file, just render as MPEG-2 format using any of the DVD Architect presets. Then choose custom and modify the average bitrate to be appropriate for the length of your video.

Another option you may wish to pick on the Render As screen is *Save project markers in media file*. First, place markers on the timeline wherever you want chapter points and choose this option when rendering. Then, when the file is loaded in DVD Architect the markers will automatically become chapter points. This is an easy way to set and name chapter points directly on the Vegas timeline.
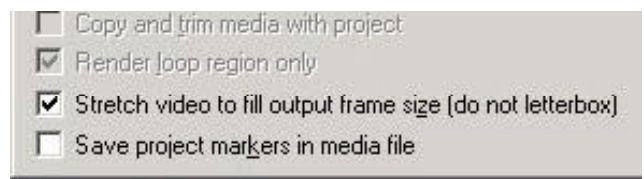
At this time, rendering for DVD is a two step process. Once the video has been rendered, it is now time to render the audio. If you are using PCM audio, just ren-

der the audio to a WAV file. For AC-3 audio, the standard DVD Stereo option is 192 Kbps at 48,000 Hz.

After these steps, you will have an MPG file and either a WAV file or an AC3 file. These files can then be loaded into DVD Architect - or some other authoring program - to finish the DVD creation process.

Approximate Bitrates Needed (based on length of video & type of audio)		
	AC-3	PCM
Len. in Minutes	Max Rate	Max Rate
30	8.000	8.000
45	8.000	8.000
60	8.000	8.000
70	8.000	7.032
75	7.834	6.459
80	7.333	5.958
85	6.890	5.515
90	6.497	5.122
95	6.145	4.770
100	5.829	4.454
105	5.542	4.167
110	5.282	3.907
115	5.044	3.669
120	4.826	3.451
125	4.625	3.250
130	4.440	3.065
135	4.269	2.894
140	4.110	2.735
145	3.961	2.586
150	3.823	2.448
155	3.694	2.319
160	3.573	2.198
165	3.459	2.084
170	3.351	1.976
175	3.250	1.875
180	3.155	1.780

Beginner's Corner - Beginning Editing
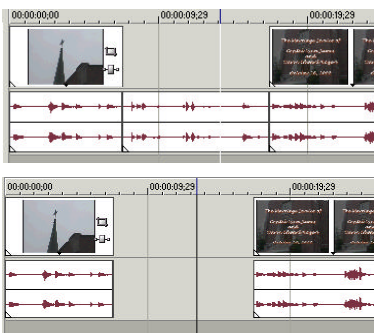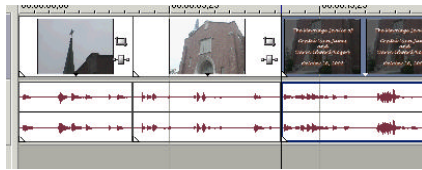
By Edward Troxel

Whether you are new to video editing or moving to Vegas from some other program, there are many tasks that are fundamental to editing. From the simplistic to the complicated, all NLE's will do the basic operations of cutting clips, adding dissolves, and adding other special effects. What must be learned is how Vegas handles those tasks.

For example, a frequent question is "How do I cut a clip into pieces?" In this case, the short answer is to click on the event(s) to split at the position where the split is to occur and press the "*S*" key.

When splitting, there are a few rules to note. If there are no events selected, all events under the cursor will be split. If you have an event selected but it is not under the cursor, no events will be split. Finally, if there is an event selected and it is under the cursor, only the selected events will be split.

Now suppose the cursor is positioned where you want a clip split but that clip is not selected. An easy way to select the clip without moving the cursor is to hold down the *CTRL* key and then click on the clip. Now you can safely press "*S*" to split that clip. Other selection options include pressing *CTRL-A* to select all clips or *CTRL-SHIFT-A* to deselect all clips.

Splitting allows unwanted sections of video to be deleted. To delete a segment of video, simply split on both sides of the unwanted segment. Now, select the video to remove and press the "*Delete*" key. Then select the matching audio and press the "*Delete*" key. By requiring both to be deleted individually, it is possible to easily remove only the video or audio from the clips. However, it does require you to delete twice when wanting to remove both the audio and the video.
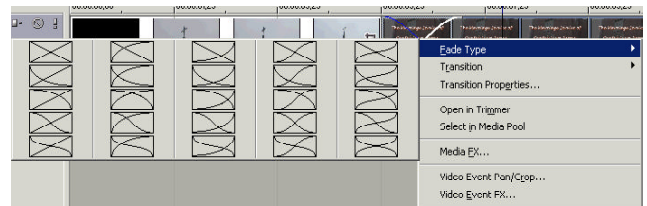
Now that the unwanted segment is removed, it is very simple to create a crossfade between the two remaining clips. Crossfades are created automatically by overlapping the two clips. The larger you make the overlap, the more time will be used to do the crossfade. As the clips touch, an "X" will appear indicating the crossfade area.
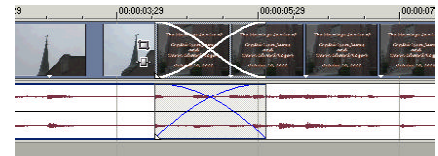
The "X" actually indicates the type of crossfade used. Notice how the video and audio "X's" are slightly different in the image above. The lines indicate how quickly or slowly the video will appear or fade. There are many different types of fades available. To see the different types, right-click the crossfade area and choose *Fade Type*. By selecting the proper type, you have full control over how the transition occurs.

Fade In's and Fade Out's are just as easy to create. Move the mouse to the upper left-hand corner for a fade in or upper right-hand corner for a fade out. The mouse image will turn into a quarter-pie shape. When the mouse is that shape, click and drag toward the center of the clip and the fade is created. Once again, the farther you drag, the longer the fade. As shown above, the length of the fade will be displayed in a yellow box. This value will change in real-time as you resize the fade.
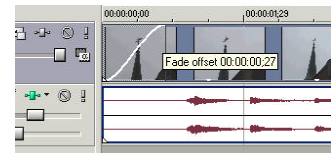
Even though cuts and crossfades should account for about 99.999% of all transitions, there may be occasions when a fancier transition is needed. Vegas is not in
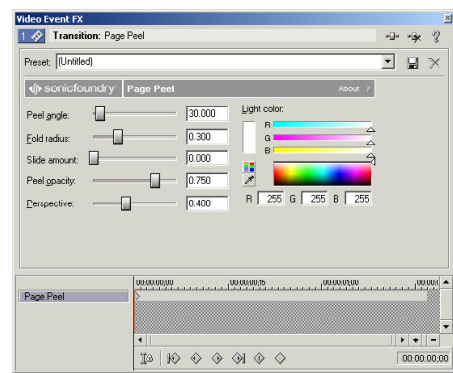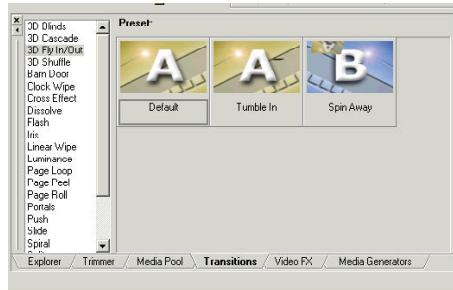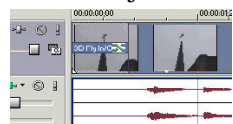
short supply when it comes to additional transitions. Click on the Transitions tab on the lower left side of the Vegas screen to see a list of what is available. Choose the transition you want between the clips and drag it to the crossfade area. The crossfade will now be the chosen transition.

Dropping the transition onto the crossfade causes the configuration dialog to be displayed. Here you can fine-tune how the transition will look. Adjust the settings as desired and close the configuration box. The transition name will now appear in the crossfade area. Not only will this help you remember which special transition was used, the "X" on the right side of the name also allows opening the configuration box should additional changes be needed.
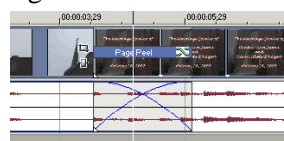
To see how the newly added transition will look, just play the timeline and the transition will be played back in real-time. To see it in more detail, use the arrow key to advance along the timeline.

As we just saw, the difference between crossfades and fades were very minor. They both look and behave in a similar manner. In fact, they are so simi-

lar that transitions can also be dropped onto fades. With this ability, fading in and out can be highly customized and span multiple tracks as needed.

A third area of confusion is related to adding text over the video. A common problem is having the text display in place of the video instead of as an overlay on top of the video. There are only two things to learn in order to get the text displayed correctly.

The first thing to learn about placing text is to choose one of the presets with a "checkerboard" background. The checkerboard indicates a transparent background allowing the video to show behind the title.

The second thing to learn is to place the text media on a track *above* the video track. A common mistake is placing the text on the same track as the video. Doing that will cause the text to actually replace the video.

I hope this helps with getting started with Vegas. Send me a note and let me know the types of things you would like to see included in this column.
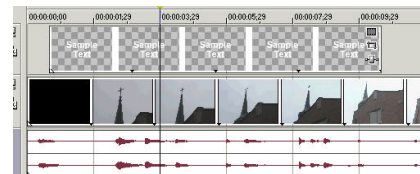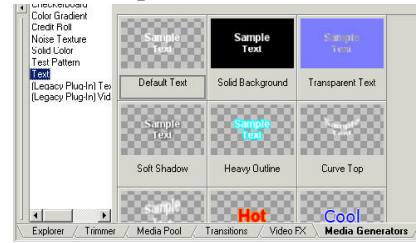
Contact Information

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Thank you,
Edward Troxel

Authoring a DVD in DVD Architect
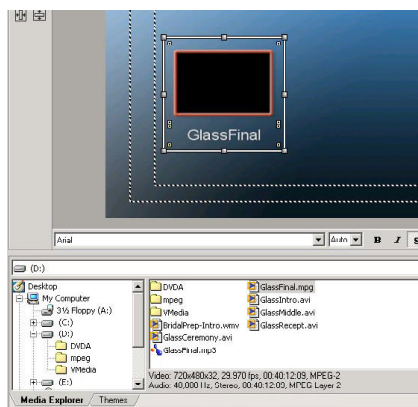
By Edward Troxel

After using Vegas to edit your video and render the MPEG-2 file, it is time to author the DVD. "Authoring" refers to the creation of menus, chapter points, and all of the other processes necessary to create DVD compliant files. Once the files are created, they can be written to a blank DVD for viewing on any compatible DVD player.

After starting DVD Architect, you can choose between four different types of projects. By default, DVD Architect opens starting a new Menu Based DVD. Other
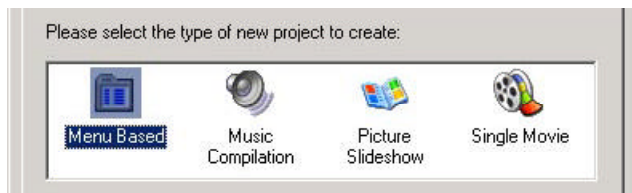
options are a Single Movie, Picture Slideshow, and Music Compilation DVD. If you simply want to insert the DVD and have it play the movie, for example, choose to create a Single Movie DVD. For this article, I will be creating a Menu Based DVD.

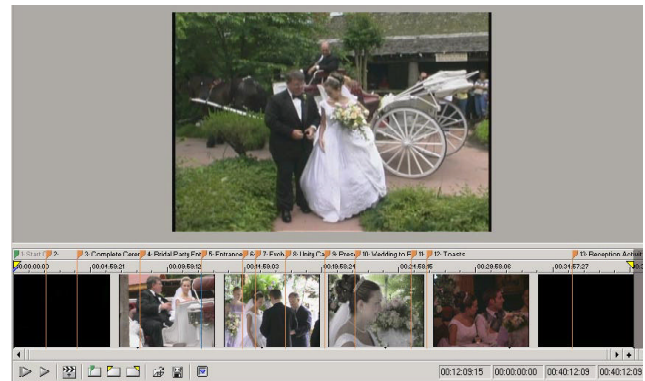To add a movie to the DVD, locate the rendered MPEG-2 or AVI file in the Explorer window and drag it to the menu display area as shown here. At this point, we have already created a DVD menuing system that has one button which will play the entire movie. In fact, click on the "*Preview*" button and you can see how the menu will look. Click on the menu option we created and the movie will start playing. Click on "*Close*" to return to the menu editing screen.

Chapter points and menus are also easily created. If you placed markers on the timeline and rendered with the "*Save project markers in media file*" option
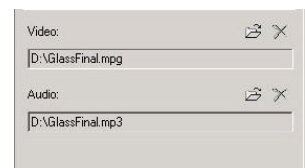
checked, you have already defined the chapter points. If you did not set the markers in Vegas, you can still manually define the chapter points. To do so, start by double-clicking on your current menu item.

This timeline is very similar to Vegas' timeline. You can zoom in or out, navigate using the arrows, play and stop, and, more importantly, press "M" to add markers to be used as chapter points. Insert and name chapter points as needed.

While on this screen, you will also see where the video and audio files are defined. If you wish to use a separate audio file, simply drag the audio file from the explorer window to the Audio box. The filename will then change to the selected file. When finished, click on the up arrow to return to the menu.

Now that the chapter points have been defined, creating one or more menus with links to those chapter points is very simple. When you right-click the menu button, a menu will appear. Select "*Insert Scene Selec-*
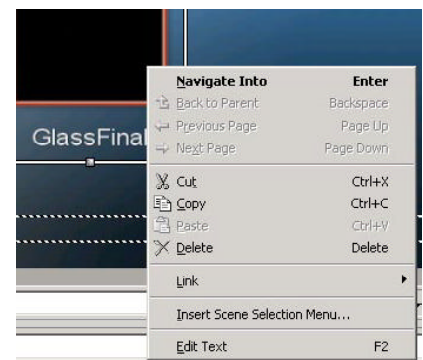
tion Menu" and one or more new menus will be created containing links to each of the chapter points. When one of these new menu buttons are selected, play will begin at that chapter point and continue through the end of the video.

Depending on the number of chapter points defined

and the number of items specified to be placed on each selection menu, one or more selection menus may be created. Notice that arrows to the next and previous menus will be automatically added to the Scene Selection menus. If you wish chapter points to be on a different menu, simply use Window's Cut, Copy and Paste commands to copy or move the a menu button to a different menu.

Now that the menu buttons have been defined, it is time to fine-tune how they each look. After selecting a menu button, configure that button using the Object tab. In the top section you can define the picture to appear in the button. This can be a frame from the video, a frame from any other video, or
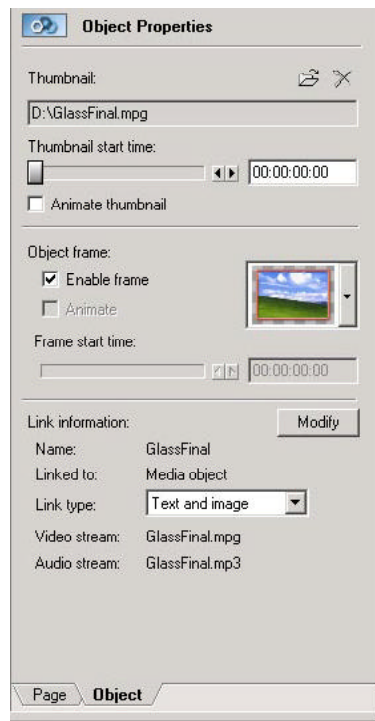
a separate picture. If using video, you can also specify the video is to loop.

In the middle section, you can specify whether or not you want a frame around your button. If you do want a frame, you can also specify which frame to be used. Just click on the arrow beside the frame picture and a list of available frames will be presented.

In the bottom area, you can define whether the button is to be a picture, text, or both. By default you get both. If desired, you can turn off the picture or text portion of the buttons.

Each menu also has a series of page properties. In the top box, you can specify what is to appear in the background behind the buttons. By default, this is "*From theme*." However, you can specify any picture or video allowing a personalized or moving background.

A separate audio file can also be specified. This audio will be played while the menu is displayed.

In the middle section, how the selected item gets highlighted can be modified. Several different options are available. The opacity of the selected option can also be adjusted.

The bottom section will allow the background video and music to be looped. However, this also specifies the length of time that video in motion buttons on that menu will be looped. In other words, all items on one menu will be looped for the same amount of time. Therefore, you must be careful when adding looped items to verify they are the same length. Otherwise, you may end up with black frames or silence waiting for the other piece to finish looping.

DVD Architect can be used to create advanced DVDs. While it may still lack a few features, it still has a very large feature set. Experiment with the options and you will be creating DVDs with motion menus, motion backgrounds, and other sophisticated features.