Compressor 2
User Manual

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Contents

An Introduction to Compressor

Compressor is an essential part of the video compression process. It makes compression fast, efficient, and convenient, giving you more options in your choices of compression presets, settings, and output formats.

With the ability to view and experience media content in many different ways (such as on websites, CD-ROM discs, and DVDs), content authors need a quick and easy means of converting their material so that it can be conveniently distributed to a variety of playback devices.

Whether you want to create high-quality movie trailers that can be opened and viewed over the web within seconds, or you just want to transfer a video clip to a CD or DVD, you need to compress media files so that they fit into limited space and are readily available for viewing. Compressor is a high-speed video and audio encoding tool that provides an efficient way to convert content for any of these methods.

In addition to the variety of viewing methods, there are also a variety of output formats to consider. You may need to compress the same media file into different output formats just to accommodate different media players and uses. With Compressor, you can select different output formats for use with the various distribution models.

About the Compressor 2 User Manual

This preface, "An Introduction to Compressor," contains background information that introduces most of the basic concepts and terms related to using Compressor.

Other chapters in this user manual cover the following:

- Chapter 1, "Getting Started Quickly," will help you with basic steps in using Compressor for the first time.
- Chapter 2, "The Basic Transcoding Workflow," offers more detailed Compressor setup procedures.
- Chapter 3, "The Compressor Interface," is a quick visual tour of Compressor windows and features.
- Chapter 4, "Importing Source Media Files," covers the file types that Compressor can accept and how to import them.
- Chapter 5, "Creating, Previewing, and Modifying Settings," covers presets, an essential part of the Compressor workflow.
- Chapter 6, "Creating Jobs and Submitting Batches," is a detailed explanation of basic Compressor workflow.
- Chapters 7 through 13 explain each of the output file types in turn. See "Output Formats for Transcoding" on page 12 for more information on these chapters.
- Chapter 14, "Adding Filters to a Setting," explains how to further adjust the visuals in your transcoding projects with filters.
- Chapter 15, "Adding Frame Controls, Geometry, and Actions to a Setting," will help you add settings to your Compressor transcode jobs for better-looking and better-sounding output.
- Chapter 16, "Using the Preview Window," explains how to use the Compressor Preview window so you can have a look at source media files, as well as the effect of any Compressor settings you might apply to the files.
- Chapter 17, "Creating and Changing Destinations," covers how to set up and save frequently used destinations for transcoded output files.
- Chapter 18, "Using Droplets," covers the time-saving drag-and-drop applications you can create with Compressor.

Typical Compressor Scenarios

The following are typical Compressor scenarios:

- *Converting source media to one or more different output formats:* You can use Compressor to convert one or more media files to one or more different media file output formats. See "Quick-and-Easy Compressor Workflow" on page 18 for more information.
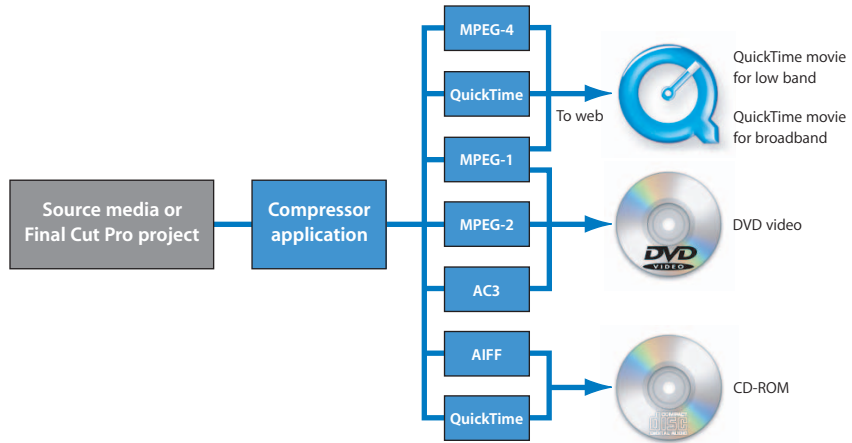
- *Exporting sequences or clips to one or more formats directly from other applications:* You can use Compressor to convert sequences or clips to one or more file formats from within other applications, such as Final Cut Pro. This workflow is the same as described in detail in the section, "Submitting a Final Cut Pro Project for Transcoding" on page 87.

This integration with Final Cut Pro and other applications makes transcoding (the process of converting files from their original format into output files ready for distribution in another format) faster and more convenient, and also saves hard disk space by eliminating the need to export the media files before processing them. It also leverages the video processing technology of the other applications to do much of the work (therefore maximizing the quality of images that are encoded), and avoids degradation that can occur from multiple compression and decompression steps.

- *Creating MPEG-2 files for use with DVD Studio Pro:* Before you can convert your existing media files into DVD Studio Pro projects, you must convert them into MPEG-2 files. Before importing one or more media files into DVD Studio Pro, Compressor transcodes the files into the MPEG-2 format. Compressor 2 can encode audio in the Dolby Digital Professional format (also known as AC-3). Dolby Digital Professional is a very common compressed audio format for DVD-Video discs. Compressor also supports two specialized situations:
  - For those situations in which you are editing high definition (HD) sources in Final Cut Pro and want to create a standard definition (SD) DVD from them, Compressor includes a high-quality down-conversion capability. HD sources using 1080i or 720p resolutions use a high-quality transcoding process to create SD MPEG-2 video output files.
  - For those situations in which you must fit the maximum video onto a DVD and do not require broadcast quality, Compressor includes the ability to export DVD-Video–compatible MPEG-1 format files.

Compressor Features

Compressor can work as a standalone application or be integrated into the workflow of other applications, such as Final Cut Pro. To this end, Compressor accepts the same full range of source media file types that Final Cut Pro accepts. Compressor is targeted at video postproduction professionals and compressionists who require high performance and maximum control over the final digital content for DVD authoring, streaming media servers, and wireless devices. Compressor gives you resizing, cropping, image processing, encoding, and delivery options, and offers the following features:

- *Batch processing:* This streamlined process allows you to create multiple output files from single source media files.
- *VBR options:* Using the MPEG-2 encoder, you can set either a single or dual-pass variable bit rate (VBR) for your output files, a setting that affects the video file image quality.
- *H.264 encoding:* H.264 produces higher quality video at lower data rates for everything from mobile phones to High Definition (HD). H.264 works especially well with the Apple QuickTime 7 media player.
- *Droplets:* These standalone applications can be used for drag-and-drop transcoding operations straight from your desktop. Once created, Droplets simplify and automate the transcoding process and can be used even without opening Compressor.
- *Settings:* Settings contain all necessary file format, filter, and geometry settings needed for transcoding. You can customize and modify existing settings or create new ones, an option that lets you build and save a library of different settings that can be reused.

- *Filters:* The selection of available Compressor filters gives you dynamic artistic control while you convert your source media to other formats, and allows you to create a final product to your precise specifications. A selection of the available filters includes gamma correction, noise removal, letterbox, watermark, color adjustment, and deinterlacing.
- *Previewing:* You can preview and adjust all your filter settings in real time using the Preview window. This lets you tweak the settings to your satisfaction, before transcoding the source media file.
- *Destination settings:* You can create and save destinations for your output files, which can then be selected from a pop-up menu. You can even include FTP or remote locations. A destination can also specify the file naming convention to use.
- *Geometry:* You can adjust your frame size using the geometry numerical and graphical controls. These features allow you to crop unwanted image areas of your source media file and reduce file size. Compressor also allows you to resize your image to other aspect ratios such as 4:3, 16:9, and 2.35:1 for delivery onto other platforms, such as DVD.
- *Publishing:* You can use Compressor to upload output files to a QuickTime Streaming Server or other locations for DVD authoring.
- *AppleScript usage:* You can add specialized AppleScript information to any output file, which gives you the flexibility to automate and customize any post-encoding operations.
- *Interoperability:* Compressor is an integral component of other Apple professional video applications such as Final Cut Pro and DVD Studio Pro. You can export sequences directly from Final Cut Pro into Compressor for transcoding, and drag MPEG-2 files transcoded from Compressor into DVD Studio Pro to simplify the DVD authoring process.
- *Transcoding activity in the background:* Compressor lets you begin transcoding a batch and then continues processing in the background, allowing you to perform other tasks at the same time.
- *Email notification:* You can set up Compressor to send an email notification to any location to notify you when the batch transcode is complete.
- *Distributed processing:* Certain bundled versions of Compressor offer distributed processing, distributing the work to multiple computers that have been chosen to provide more processing power. The Compressor 2 distributed processing feature is limited to computers that have either Final Cut Studio or DVD Studio Pro 4 installed. For more details, see the *Distributed Processing Setup* guide.
- *Command-Line Features:* Compressor now has a number of command-line options for submitting jobs, enabling and disabling service node and cluster controlling services, and monitoring batches.

Output Formats for Transcoding

Selecting the relevant playback platform (DVD, web, CD, and kiosk) is the first choice you need to make before you compress a source media file into a different output format. Once you have decided on the platform, you can choose the appropriate output format for that platform.

Whatever the digital video format of your source media file, you can transcode it using one of the following encoders supplied with Compressor:

- *AIFF:* Intended for audio use (DVD or CD authoring). For more details on the AIFF format, see "Creating AIFF Output Files" on page 180.
- *Dolby Digital Professional:* Also known as AC3. Intended for DVD authoring. For more details on the AC3 format, see "Creating Dolby Digital Professional Output Files" on page 93.
- *H.264:* The next-generation video compression technology in the MPEG-4 standard. Also known as MPEG-4 Part 10. Suitable for HD-DVD and many other uses, H.264 can match the best possible MPEG-2 quality at up to half the data rate. H.264 is currently mandatory in both new high definition DVD specifications (HD DVD and Blu-Ray). For more details on the H.264 format, see "Creating H.264 DVD Output Files" on page 109. For information on creating H.264 files for uses other than DVD authoring (such as web video), see "Creating QuickTime Movie Output Files" on page 163.
- *MPEG-1:* Intended for Internet or specialized DVD use. For more details on the MPEG-1 format, see Chapter 9, "Creating MPEG-1 Output Files," on page 115.
- *MPEG-2:* Intended for DVD use. For more details on the MPEG-2 format, see Chapter 10, "Creating MPEG-2 Output Files," on page 127.
- *MPEG-4:* A very scalable specification, with a variety of uses, from web video or wireless devices to HD. For more details on the MPEG-4 format, see Chapter 11, "Creating MPEG-4 Output Files," on page 153.
- *QuickTime Export Components:* Leveraging the component plug-in architecture of QuickTime, Compressor can now output a variety of additional formats such as Windows Media, RealPlayer, 3G, and AVI. For more details on QuickTime Export Components, see "Creating QuickTime Export Component Output Files" on page 177.
- *QuickTime Movie:* QuickTime is a cross-platform multimedia technology. It allows Mac OS and Windows applications to play back video, audio, and still-image files. For more details on the QuickTime format, see Chapter 12, "Creating QuickTime Movie Output Files," on page 163.
- *TIFF:* Intended for use with other programs that import media as a series of still images. For more details on the TIFF format, see "Creating TIFF Output Files" on page 183.

Using the Compressor 2 User Manual

The *Compressor 2 User Manual* provides step-by-step instructions for using Compressor to compress source media files, as well as background and conceptual information about compression. It is designed to provide the information you need to get up to speed quickly, so that you can take full advantage of Compressor.

The *Compressor 2 User Manual* allows you to access information directly on screen while you're working in Compressor. To view this information, choose Help > Compressor User Manual. The *Compressor User Manual* is fully hyperlinked and enhanced with many features that make locating information quick and easy.

- The home page provides quick access to various features, including Late-Breaking News, the index, and other relevant documents and websites.
- A comprehensive bookmark list allows you to quickly choose what you want to see and takes you there as soon as you click the link.

In addition to these navigational tools, the *Compressor User Manual* gives you other means to locate information quickly:

- All cross-references in the text are linked. You can click any cross-reference and jump immediately to that location. Then, you can use the Preview Back button to return to where you were before you clicked the cross-reference.
- The table of contents and index are also linked. If you click an entry in either of these sections, you jump directly to that section of help.
- You can also use the Find dialog to search the text for specific words or a phrase.

To access the onscreen help, do one of the following:
- Choose Help > Compressor User Manual.
- Press Command-, (comma).

In addition to accessing the *Compressor 2 User Manual*, the Help menu also contains an item for creating a support profile. In certain support situations, AppleCare may require information about both your computer and how this particular application is configured. Choosing Help > Create Support Profile creates a file that contains the necessary information and can be emailed to AppleCare. You would not normally use this feature unless directed to by an AppleCare representative.

Apple Websites

There are a variety of Apple websites that you can visit to find additional information.

Compressor Website

Go here for general information and updates as well as the latest news on Compressor.

To access the Compressor website, go to:

- http://www.apple.com/finalcutpro/compressor.html

There are a variety of discussion boards, forums, and educational resources related to Compressor on the web.

Apple Service and Support Website

Go here for software updates and answers to the most frequently asked questions for all Apple products, including Compressor. You'll also have access to product specifications, reference documentation, and Apple and third-party product technical articles.

To access the Apple Service and Support webpage, go to:

- http://www.apple.com/support

To access the Compressor support page, go to:

- http://www.apple.com/support/compressor

To access the Compressor discussion page, go to:

- http://discussions.info.apple.com/compressor

Other Apple Websites

Start at the Apple main home page to find the latest information about Apple products:

- http://www.apple.com

QuickTime is industry-standard technology for handling video, sound, animation, graphics, text, music, and 360-degree virtual reality (VR) scenes. QuickTime provides a high level of performance, compatibility, and quality for delivering digital video. Go to the QuickTime website for information on the types of media supported, a tour of the QuickTime interface, and specifications, and more:

- http://www.apple.com/quicktime

FireWire is one of the fastest peripheral standards ever developed, which makes it great for use with multimedia peripherals, such as video camcorders and the latest high-speed hard disk drives. Visit this website for facts and benefits about FireWire technology, FireWire software information, and available third-party FireWire products:

- http://www.apple.com/firewire

For information about seminars, events, and third-party tools used in web publishing, design and print, music and audio, desktop movies, digital imaging, and the media arts, go to:

- http://www.apple.com/pro

For resources, stories, and information about projects developed by users in education using Apple software, including Compressor, go to:

- http://www.apple.com/education

Go to the Apple Store to buy software, hardware, and accessories direct from Apple. You can also find special promotions and deals that include third-party hardware and software products:

- http://store.apple.com

Getting Started Quickly

1

Compressor contains a number of preexisting presets that allow you to start transcoding immediately.

You can begin transcoding media files as soon as you install Compressor, if you have one or more source media files and the preexisting Compressor settings and destinations suit your transcoding needs.

This chapter contains the following sections:

- Quick-and-Easy Compressor Workflow (p. 18)
- Optional Tasks You Can Perform Before Submitting a Batch (p. 24)

You transcode media files by first importing the source media files into Compressor and then assigning settings to them. These files are then referred to as *jobs*, and are submitted in *batches* (of one or more jobs) to create transcoded output media files.

Note: You can only transcode a job once it has at least one setting assigned to it.

If you need to create your own settings, or modify those that come with Compressor, see Chapter 2, "The Basic Transcoding Workflow," on page 25 and Chapter 5, "Creating, Previewing, and Modifying Settings," on page 61.

Quick-and-Easy Compressor Workflow

The following workflow shows you the easiest way to use Compressor:

- Add source media files to Compressor (p. 18)
- Assign settings and destinations to source media files (p. 19)
- Submit the batch (p. 23)

Step 1: Add source media files to Compressor

1   Double-click the Compressor icon in the Applications folder.

The Compressor Batch window opens.

2   Drag source files from the desktop to the Batch window.
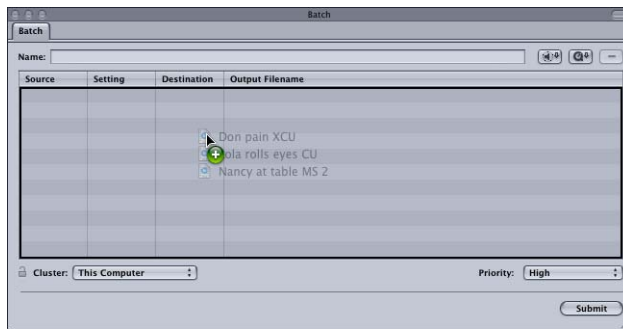
3   Compressor will automatically use the name of the first source file in the batch as the name for the batch you are submitting in the Batch Name field. If you would like a different name, you can edit the name now.
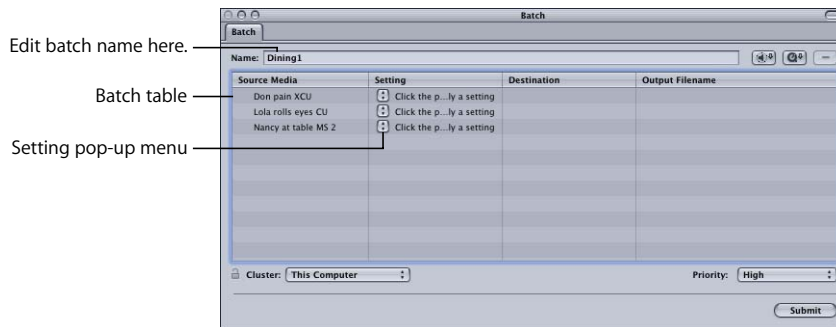
See "About the Batch Window" on page 55 for more information about the controls in the Batch window.

Step 2: Assign settings and destinations to source media files

You need to assign at least one setting to each source media file before you can submit the batch for processing, but you can also add multiple settings to the same source media file to transcode multiple versions of the media file.

1 Choose a setting for your source media files in any of the following ways:

  • *To assign different settings to different source media files:* Use the Setting pop-up menu in the Batch table to assign a setting to each source media file in the Batch table.

  • *To assign a single setting to multiple selected source media files:* Assign the same setting to specific source media files by selecting the relevant source media files and then choosing a setting from the Settings menu in the menu bar.

Open the Settings menu from the menu bar and assign relevant settings.

Select source media files in the Batch window.
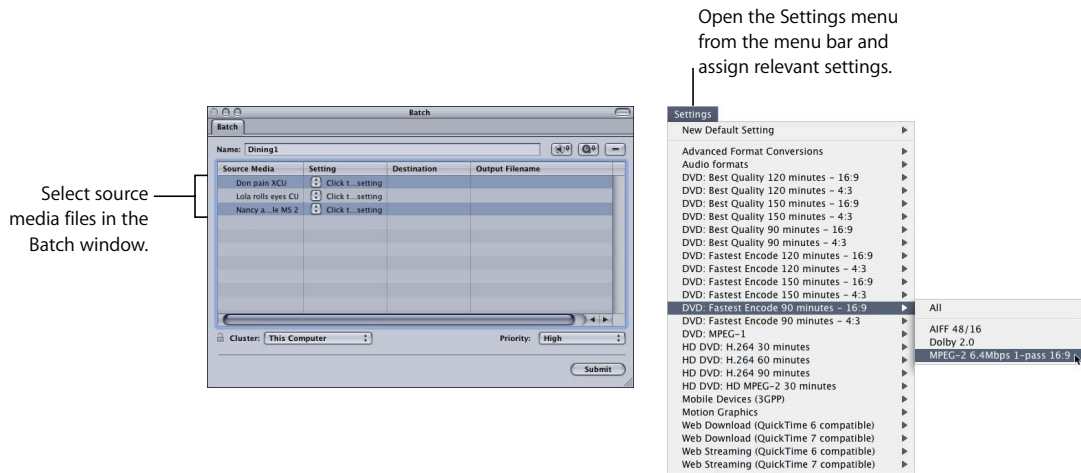
The chosen setting is assigned only to the selected source media files.

The chosen setting is assigned only to selected source media files.
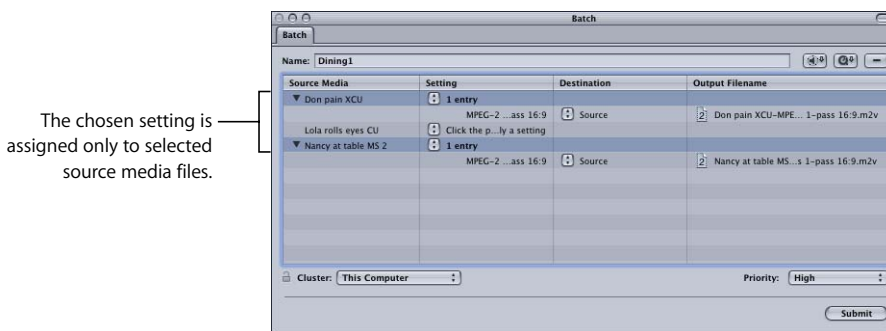
- *To assign a single setting to all source media files in the Batch table:* Drag-select all source media files in the Batch table and, while keeping the mouse button down, position the pointer over the Setting pop-up menu icon to open it. Choose the setting you want to assign to all the source media files.
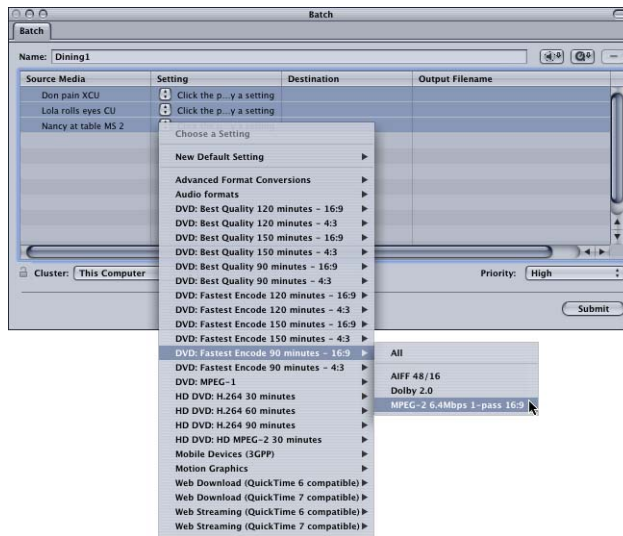
The same setting is assigned to all source media files in the batch.

All source media files are assigned the same setting in one step.
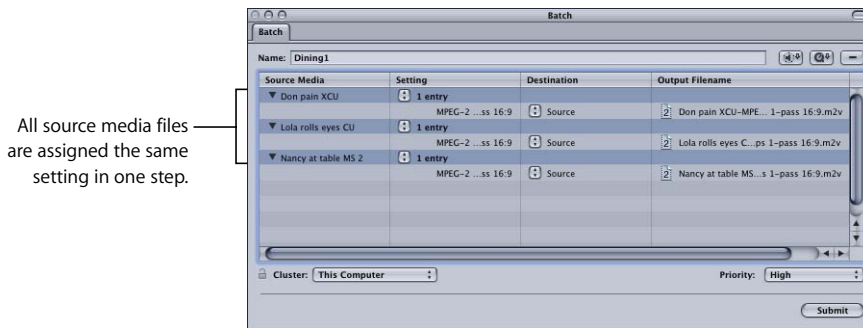
- *To assign multiple settings to a single source media file in the Batch table:* Select your source media file and choose the relevant setting group from the Setting pop-up menu in the Batch table or from the Settings menu in the menu bar.

See Chapter 5, "Creating, Previewing, and Modifying Settings," on page 61, for more information on settings.

The next step is to set the destination. By default, the destination is set to Source, which writes the output files to the same folder as the source files originated from. You can change the destination for organization purposes or to take advantage of larger and faster hard disks.

You can set the destination for each individual setting or for a selected group of settings.

2 Choose a destination for your source media files in one of the following ways:

- *Do nothing.* Accept the default destination Source (the same folder as the source media files originated from) specified in the Destination column.

- *Use the Destination pop-up menu to change one setting at a time.* Choose any pre-existing destinations available to you from the Destination pop-up menu in the Destination column.
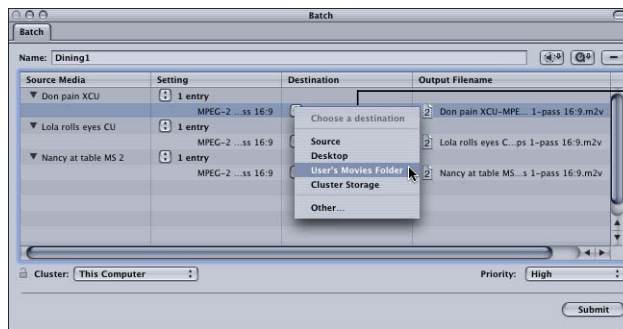
Use the Destination pop-up menu to save your output media files to another destination.

- *Use the Destination menu to change all selected settings at once.* Select the settings for which you want to set destinations, then choose the destination from the Destination menu in the menu bar.

Select the settings to have their destinations changed.
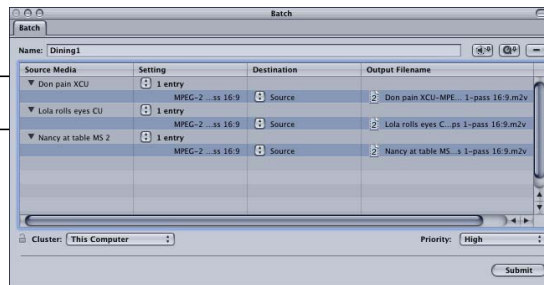
Note: Choosing Other allows you to choose any location currently accessible from your desktop, including a mounted open volume. However, this volume must remain open until the batch has been transcoded.
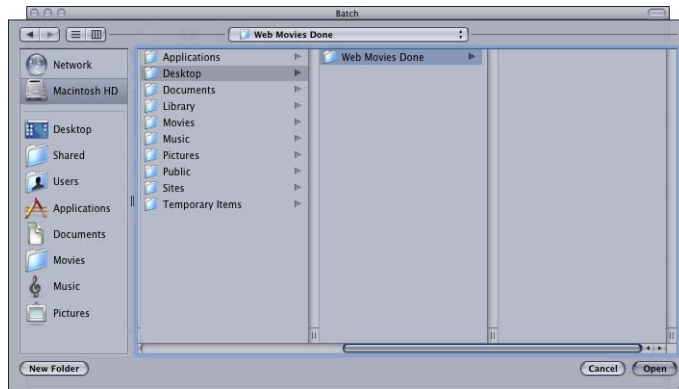
The destination changes to the destination you selected from the Destination menu or pop-up menu.
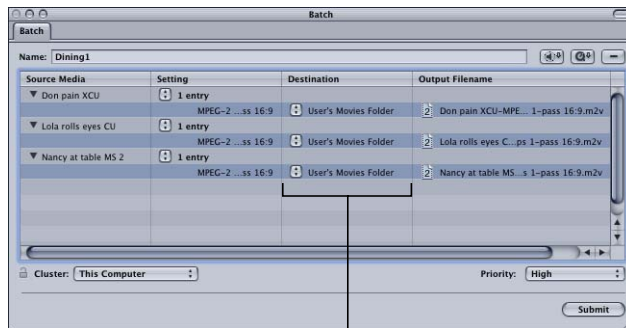
Because all source media files were selected, the same destination is assigned to the entire batch.

See Chapter 17, "Creating and Changing Destinations," on page 223, for more information on destinations.

Step 3: Submit the batch

Once each media file has at least one setting and destination associated with it, it becomes a job, and your batch is ready to be submitted. Click the Submit button to submit your batch.

A progress bar appears, indicating that the batch is being submitted, and this batch now disappears from the Batch table.

After submitting a batch, Batch Monitor automatically opens so you can monitor the transcoding progress of your batch.

Note: If you haven't recently submitted a batch, you can always open Batch Monitor by double-clicking the Batch Monitor in the Utilities folder inside the Applications folder.
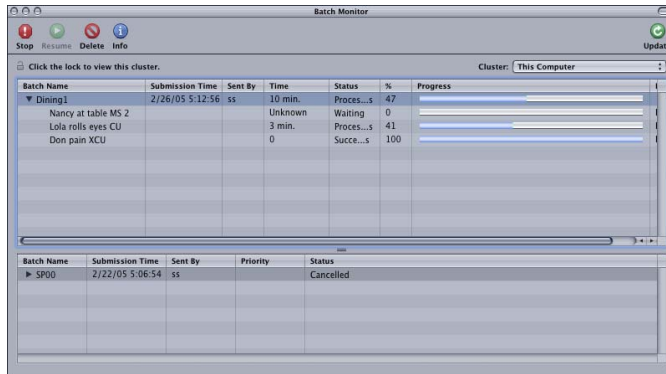
See Chapter 6, "Creating Jobs and Submitting Batches," on page 77, for more information on jobs and batches.

Optional Tasks You Can Perform Before Submitting a Batch

The three steps described in the previous section show you the fastest way to transcode media files. Although you can modify your pre-existing settings using this method, you can't preview your files or fine-tune any settings.

The following chapters describe additional steps that can be performed on the setting of any job before it is submitted:

- Chapter 5, "Creating, Previewing, and Modifying Settings," on page 61
- Chapter 6, "Creating Jobs and Submitting Batches," on page 77
- Chapter 15, "Adding Frame Controls, Geometry, and Actions to a Setting," on page 195
- Chapter 16, "Using the Preview Window," on page 209
- Chapter 17, "Creating and Changing Destinations," on page 223

The following chapters give a more detailed look at output format settings and various transcoding options:

- Chapter 7, "Creating Dolby Digital Professional Output Files," on page 93
- Chapter 8, "Creating H.264 DVD Output Files," on page 109
- Chapter 9, "Creating MPEG-1 Output Files," on page 115
- Chapter 10, "Creating MPEG-2 Output Files," on page 127
- Chapter 11, "Creating MPEG-4 Output Files," on page 153
- Chapter 12, "Creating QuickTime Movie Output Files," on page 163
- Chapter 13, "Creating QuickTime Export Component, AIFF, and TIFF Files," on page 177

The Basic Transcoding Workflow

2

Compressor makes it easy to transcode media into multiple formats.

In addition, Compressor is integrated into other applications, such as Final Cut Pro, and generates high-quality assets for use in DVD Studio Pro, providing seamless transcoding between media formats directly within one application.

This chapter covers the following topics:

The following diagram illustrates how the Compressor transcoding process works. The largest transcoding component is a *batch*. The batch represents all the components needed to transcode your current media. It must contain one or more *jobs*. A job consists of at least one *source media file* with one or more *settings* and *destinations* associated with it. After completing the transcoding process, the resulting file is known as the *output media file*. One output media file is created for each setting assigned to a source media file.

In the illustration below, the batch contains two source media files, each of which contains two settings (making it a job). So, the total number of output files created by transcoding this batch will be four. Job 1 will create two output media files, as will Job 2.

Batch

Job 1 (source media file)

Output Media File 1	**Output Media File 2**
Setting	**Setting**
• Encoder ┬ QuickTime • Filters ├ MPEG-1 • Geometry ├ MPEG-2 • Actions ├ MPEG-4 ├ AIFF └ AC3	• Encoder ┬ QuickTime • Filters ├ MPEG-1 • Geometry ├ MPEG-2 • Actions ├ MPEG-4 ├ AIFF └ AC3
Destination	**Destination**
• Where to save the file • What to name the file	• Where to save the file • What to name the file

Job 2 (source media file)

Output Media File 1	**Output Media File 2**
Setting	**Setting**
• Encoder ┬ QuickTime • Filters ├ MPEG-1 • Geometry ├ MPEG-2 • Actions ├ MPEG-4 ├ AIFF └ AC3	• Encoder ┬ QuickTime • Filters ├ MPEG-1 • Geometry ├ MPEG-2 • Actions ├ MPEG-4 ├ AIFF └ AC3
Destination	**Destination**
• Where to save the file • What to name the file	• Where to save the file • What to name the file

A typical Compressor transcoding process consists of the following components:

- *Source media file:* The transcoding process always starts with a source media file, which is the file intended for transcoding in its original form. Source media files are always one of the following:
  - *Movies:* Containing video, audio, and other data (such as markers)
  - *Stills:* Used as part of a sequence of still images for certain video productions
- *Setting:* Once you have imported your source media file, you must assign one or more settings to it before it becomes a job. A setting is a combination of transcode attributes, such as output format, filter, and geometry settings, that are applied to the source media file during the transcoding process.
  - *Output (file) format:* The encoder you choose to convert your source media file. Choose one of the following output formats based on the intended playback method and environment of your transcoded media files: AIFF, Dolby Digital Professional, H.264 for HD DVD, MPEG-1, MPEG-2, MPEG-4, QuickTime Export Components, QuickTime Movie, or TIFF.
  - *Filters:* Allow you to adjust different characteristics of your video such as color, brightness, and sharpness, to maximize your video quality as the file is compressed.
  - *Geometry settings:* Allow you to crop the image and adjust its frame size.
  - *Actions settings:* Allow you to send email notifications and execute post-transcoding tasks using AppleScripts.
- *Destination:* A destination also needs to be assigned to the source media file. This is the location where your transcoded media file is stored. You can either use the default destination called Source (the same folder the source media file is in), or you can designate any location to which you have full access.
- *Job:* Once you assign one or more settings and a destination to the source media file, it becomes a *job,* and is ready to be transcoded.
- *Batch:* A batch consists of one or more jobs located in the Batch table. All jobs contained within the batch are submitted collectively when you click the Submit button. These jobs are then cleared from the Batch table.
- *Output media file:* The transcoded media files created after the batch is submitted and processed are called *output media files.* An output media file is the result of a successfully transcoded source media file (containing one setting and destination). You can create as many output media files as there are different settings applied to the various source media files in the batch.

Compressor Concepts and Terms

- *Codec:* Short for *COmpression/DECompression.* A mathematical model for reducing the data of a source media file.
- *File Format:* The output format you use to transcode your source media file.
- *Group:* Contains designated settings placed into a folder in the Settings tab of the Presets window.
- *Transcoding:* The process of converting files from their original format into output files ready for distribution in another format. Closely related terms include *compression*, which specifically refers to data reduction, and *encoding*, a term which is essentially synonymous with transcoding, but does not emphasize the conversion aspect.
- *Presets (Settings and Destinations):* These three related terms are central to the Compressor workflow. Settings and destinations are two kinds of presets that you apply to the source media files. A setting is a combination of transcode attributes, such as output format, filter, and geometry settings. A destination preset contains all the pathname and directory information for saving an output file to a particular location.

Preparing Compressor for Transcoding

Compressor contains a number of pre-configured settings that allow you to start transcoding immediately. If you want to transcode your source media files immediately and don't need to create your own settings, you can follow the steps described in "Quick-and-Easy Compressor Workflow" on page 18 instead.

However, if you want to create your own Settings and destinations, and customize other attributes such as filters, cropping, frame resizing, and actions settings, you need to follow the steps outlined below. If the custom settings you create here can be used for all your transcoding needs, you won't need to go through these steps again. However, if you need to create new settings and destinations for each transcoding project, you'll need to repeat these steps each time.

Step 1: Create a setting
Unless you are using a pre-existing setting supplied with Compressor, you will need to create your own settings. This is done using the Settings tab of the Presets window, and begins with choosing an output format from the File Format menu that opens when you click the Add (+) button. See "Choosing an Output Format" below for more information. In addition, you also have the option of adding filters, geometry settings, and post-transcoding actions, and then previewing your setting to ensure satisfaction.

See "To assign a pre-existing destination preset:" on page 68 for more information.

You can also streamline your workflow by putting your settings into groups. See "Creating Groups of Settings" on page 75 for more information.

Choosing an Output Format

Choosing an output format is the first decision you need to make once you've decided to transcode a source media file. You choose an output format based on the intended playback method for the audience. Compressor gives you access to the following industry-standard formats, all of which have their own particular attributes:

- *QuickTime:* Intended for use with QuickTime in a variety of playback environments. Because QuickTime is cross-platform multimedia technology, it allows Mac OS and Windows applications to capture and play back video, audio, and still-image files. For more details on the QuickTime format, see Chapter 12, "Creating QuickTime Movie Output Files," on page 163.
- *MPEG-1:* Intended for Internet, CD ROM,. and specialized DVD use. For more details on the MPEG-1 format, see Chapter 9, "Creating MPEG-1 Output Files," on page 115.
- *MPEG-2:* Intended for standard and high definition DVD use. For more details on the MPEG-2 format, see Chapter 10, "Creating MPEG-2 Output Files," on page 127.
- *MPEG-4, Part-2:* Intended for a variety of uses including the web or wireless devices. For more details on the MPEG-4 format, see Chapter 11, "Creating MPEG-4 Output Files," on page 153.
- *H.264:* Intended for a variety of uses including HD-DVD. For more details on the H.264 format, particularly for authoring HD-based DVDs, see Chapter 8, "Creating H.264 DVD Output Files," on page 109.
- *Dolby Digital Professional.* Also known as AC3. Intended for DVD authoring. For more details on the AC3 format, see "Creating Dolby Digital Professional Output Files" on page 93.
- *AIFF:* Intended for audio use (including DVD or CD authoring). For more details on the AIFF format, see "Creating AIFF Output Files" on page 180.
- *TIFF:* Compatible with a wide range of compositing and image processing applications. For more details on the TIFF format, see "Creating TIFF Output Files" on page 183.

Note: Compressor and QuickTime can also be extended to support additional codec options and third-party formats. The QuickTime Export Components feature allows you to control the third-party encoding engine without having to open another application. For more information, see "Creating QuickTime Export Component Output Files" on page 177.

After you have created a setting, you can further customize it with additional adjustments such as filters (to adjust image quality), pixel size (geometry values), and post-transcoding actions. These additional adjustments are all managed in the Inspector window. See Chapter 14, "Adding Filters to a Setting," on page 185 and Chapter 15, "Adding Frame Controls, Geometry, and Actions to a Setting," on page 195 for more information.

Step 2: Preview the setting using the Preview window
It's a good time-saving measure to preview your setting before submitting the batch. This can be done using the Preview window, and ensures that the quality of the output media file is acceptable. The Preview window consists of a split screen displaying the content of your source media file in its original form in one half, and the content of your output media file in the other half.

From the Preview window, you can any of the following:

- Play back the media file.
- Dynamically preview effects (in real time).
- Modify the effects of the filters and geometry settings of your setting.
- Compare source or output versions.
- Crop the output file frame size.
- Change the aspect ratio.
- Add various markers relevant to the MPEG-1, MPEG-2, and H.264 formats.

See "Previewing a Setting" on page 72 or Chapter 16, "Using the Preview Window," on page 209, for more information.

Step 3: Create a destination
By default, your transcoded file is saved in the same folder as your source media file (Source). However, if you want to store your transcoded files in a different location, you can create a new destination in the Destinations tab of the Presets window. Using this tab, you can choose any folder, volume, or remote server for which you have permissions and access to be a destination, and add useful file identifiers for your transcoded output file. Once you have created sufficient destinations, you won't need to open the Destinations tab again.

Note: An iDisk volume cannot be used as a destination. If you want to save the output media file to a mounted iDisk volume, first save the file to another destination, and then drag the file to the mounted iDisk volume after it has been transcoded.

See Chapter 17, "Creating and Changing Destinations," on page 223, for more information.

Creating a Compressor Batch

Once you have the necessary settings and destinations available, you can begin to create your batch for transcoding. A batch contains one or more jobs. A job consists of at least one source media file with one or more settings and destinations. You can only submit a batch for transcoding after you have assigned at least one setting and destination to each source media file in the Batch table of the Batch window. All jobs in the Batch table are submitted together.

Step 1: Import source media files into Compressor

You import source media files into the Batch table of the Batch window either by using the File Selection dialog or by dragging the files from their location on the hard disk to the Compressor icon (if Compressor isn't open), or to the Batch table (if Compressor is open). You can import source media files from any folder that you have access to.

See Chapter 4, "Importing Source Media Files," on page 55, for more information.

Step 2: Assign a setting

Once you have imported your source media file into the Batch window, you need to assign one or more settings to it. This makes it a *job*. A source media file can only be transcoded after it has at least one setting assigned to it, and you can only add a setting to a source media file after you have either selected a pre-existing setting or created one. Your setting must have an output file format associated with it.

- *If you choose a pre-existing setting,* the output file format has already been assigned.
- *If you create your own setting,* you must choose an output file format from the file format menu that opens when you click the Create a New Setting button (+) in the Settings tab of the Presets window.

You can add one setting to multiple jobs in one step by selecting the jobs in the Batch table and choosing a setting from the Settings menu in the menu bar, or by drag-selecting the source media files in the Batch table and positioning the pointer over the Setting pop-up menu icon in the Setting column.

If you have a favorite setting (pre-existing or customized), you can streamline your workflow by creating a standalone application called a *Droplet* containing multiple settings, and use the Droplet to submit batches without opening Compressor. See "Creating a Droplet" on page 238 for more information.

Note: You can also create groups of settings, which is a quick and convenient way to assign multiple settings to a source media file. See "Creating Groups of Settings" on page 75 for more information.

Step 3: Preview the setting using the Preview window
You can either preview a source media file or the source media file with its assigned setting. From the Preview window, you can dynamically preview (in real time) and modify the effects of the filters and geometry adjustments of your setting, play back the media file, view source or output views, crop the output file frame size, change the aspect ratio, and add various markers relevant to the MPEG-1, MPEG-2, and H.264 for HD DVD file formats.

See "Previewing a Setting" on page 72 or "Previewing a Clip" on page 215 for more information.

Step 4: Assign a destination
You can change the location of your stored transcoded files by assigning them to another location, as long as the location has already been created in the Destinations tab of the Presets window. Using the Destination pop-up menu in the Batch window, you can choose any existing destination for any job.

See "Assigning Destinations to Source Media Files" on page 81 for more information.

Step 5: Submit the batch for transcoding
Once you have created all the jobs you want in the batch and are satisfied with the settings and quality of your output files (having previewed them), you are ready to submit the batch. You do this by clicking the Submit button in the Batch window.

Note: If you are transcoding a large batch, you should turn off the screen-saver application on your computer. This will improve the speed of your transcode because resources are not being diverted to the screen saver.

See "Submitting a Batch" on page 83 for more information.

Viewing Transcoding Status

You use the Batch Monitor to see the current status of a submitted batch and all the jobs contained within it. The Batch Monitor is a standalone application, so that it can work with both Compressor and Droplets, whether or not Compressor is open, and regardless of whether you have submitted anything. See "Creating a Droplet" on page 238 for more information about Droplets.

Step 1: View the batch transcoding status
After you submit a batch, the Batch Monitor automatically opens so you can view the transcoding status of your batch. This is a good way to monitor when your batch has finished transcoding and if any problems occurred during the transcode process.

See the *Batch Monitor User Manual* for more details.

Step 2: Confirm transcode completion
It's a good idea to open the transcoded media file's destination folder to ensure that the media file was transcoded successfully and saved to that location.

Optional Compressor Shortcuts

Depending on your needs, there are a number of ways to speed up the Compressor transcoding workflow. Compressor was designed with workflow in mind. Given that there are different approaches for the workflow, there are a number of shortcuts available to you.

Using Pre-Existing Settings

Compressor contains a number of pre-existing settings that allow you to start transcoding immediately. If these pre-existing settings suit your needs, you can transcode your source media files immediately.

See "Quick-and-Easy Compressor Workflow" on page 18 for more information.

Working With Droplets

Droplets are a fast and convenient way to transcode material without even opening Compressor. You create a Droplet by saving a setting or a group of settings and destinations as an active icon. When you drag one or more source media files to it, the Droplet begins the transcoding process automatically.

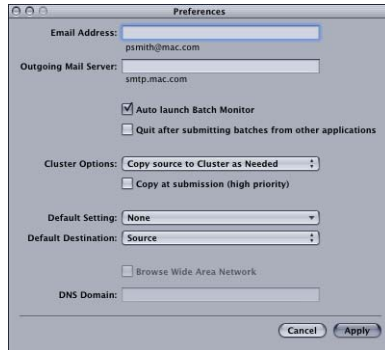See "Creating a Droplet" on page 238 for more information.

Setting Compressor Preferences

You can use Compressor Preferences to configure several aspects of Compressor.

To open Compressor Preferences, do one of the following:

- Choose Compressor > Preferences.

- Press Command-, (comma).

The Preferences window appears.

To configure the email notification preference:

1 Enter the default email address to use when email notification is activated.

   You can change this address in the Actions pane of the Inspector window.

2 Enter the mail server used by this computer for outgoing email.

   For more information about email notification, see "Working With Post-Transcoding Options" on page 204.

**To set whether or not the Batch Monitor automatically opens,
do one of the following:**

- Select the Auto Launch Batch Monitor checkbox to have the Batch Monitor automatically open when you submit a batch.

- Deselect the Auto Launch Batch Monitor checkbox to prevent the Batch Monitor from automatically opening. You can still manually launch the Batch Monitor from the Batch window.

To control whether Compressor remains running after a batch has been submitted through it by another application (such as Final Cut Pro):

- Select "Quit upon submitting batches from other applications" to have Compressor quit once the batch has been submitted.

- Deselect "Quit upon submitting batches from other applications" to have Compressor continue running once the batch has been submitted.

To control cluster options (for distributed processing scratch storage settings):

1 Click the Cluster Options pop-up menu.

2 Choose one of the following:

- "Copy Source to Cluster as Needed" to have Compressor copy source files to a cluster's scratch storage location as needed.
- "Never Copy Source to Cluster" to prevent Compressor from copying source files.
- "Always Copy Source to Cluster" to require Compressor to always copy source files to a cluster's scratch storage location.

Note: This preference setting applies only to certain bundled copies of Compressor 2 that have distributed processing enabled. The Compressor 2 distributed processing feature is limited to computers that have either Final Cut Studio or DVD Studio Pro 4 installed.

To control whether Compressor transfers Source files to the processing cluster immediately, do one of the following:

- Select "Copy at Submission (High Priority)" to have Compressor transfer source files immediately.

- Deselect "Copy at Submission (High Priority)" to prevent Compressor from transferring source files immediately.

Note: This preference setting applies only to certain bundled copies of Compressor 2 that have distributed processing enabled. The Compressor 2 distributed processing feature is limited to computers that have either Final Cut Studio or DVD Studio Pro 4 installed.

To control the default setting:

- Use the Default Setting pop-up menu to choose from the list of existing settings.

The setting you choose appears as the default setting when you import a new source file in the Batch Window.

To change the default destination:

- Use the Default Destination pop-up menu to choose from the list of existing destinations.

  The destination you choose appears as the default destination when you import a new source file in the Batch Window.

To control whether Compressor can browse clusters from a wide area network, do one of the following:

- Select Browse Wide Area Network to have Compressor use computers beyond the local subnet, and enter the DNS domain in the DNS Domain field. This feature requires Mac OS X v10.4 or later.

- Deselect Browse Wide Area Network to have Compressor limit itself to computers in the local subnet.

  Note: Any changes you make to the Compressor Preferences settings take effect only when you click Apply. If you make changes but decide not to use them, click Cancel.

The Compressor Interface 3

The Compressor interface consists of a number of core windows in which you do most of your transcoding preparation work.

This chapter covers the following topics:

Compressor Windows and the Transcoding Workflow

Each Compressor window represents a part of the transcoding workflow.

Preview window — (labeled on left)

Batch window — (labeled on left)

Inspector window — (labeled on right)

Presets window — (labeled on right)
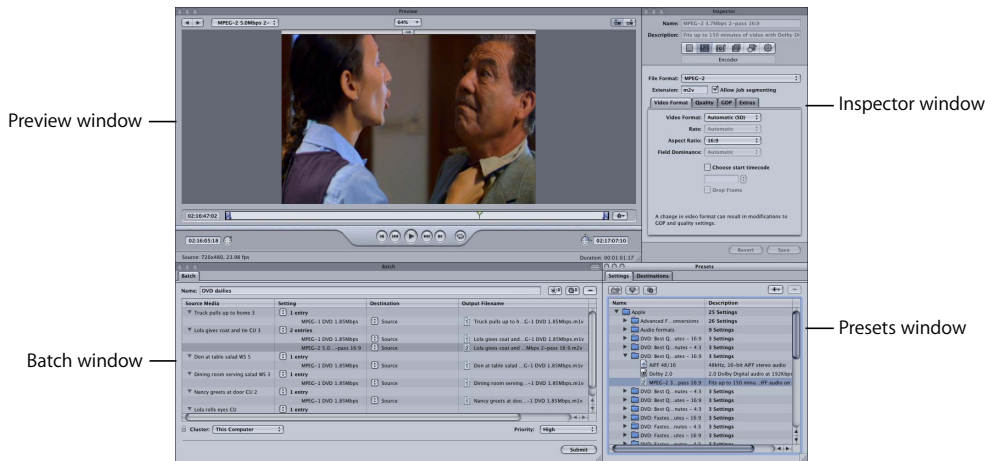
- *Batch window:* Allows you to import source media files, add settings and destinations, and name the batch.
- *Presets window:* Contains two tabs—Settings and Destinations. The Settings tab allows you to centrally manage Apple and custom settings. The Destinations tab allows you to create, modify, or remove destination settings, set a default destination, and add file identifiers to your output media filename.
- *Inspector window:* Allows you easy access to common transcoding controls, and a full summary table containing all the details of each setting. You can also use the Inspector window to gather information on source clips, and to make dynamic changes interactively with the Preview window.
- *Preview window:* Allows you to play your source media file in its original format, or preview your source media file with whichever settings have been assigned to it. You can see the effects of your settings—such as filters and frame resizing—and make adjustments to these attributes while previewing the media file in real time.
- *History (Not Pictured):* The History drawer allows you to view a full log of all batches submitted from your computer and resubmit any batches listed in the log.
- *Droplet window (Not Pictured):* Allows you to save one or more settings or groups of settings into a Droplet, a standalone preset, packaged into a drag-and-drop application and saved as an icon.
- *Batch Monitor (Not Pictured):* Allows you to view the status of all batches being processed. (See the *Batch Monitor User Manual* for more information.)

The Compressor toolbar (not pictured) makes it easy to navigate to the main Compressor windows, and to the Batch Monitor.

Batch Window

When you first open Compressor, the Batch window appears. The Batch window allows you to import source media files for compressing, add settings and destinations, name the batch, and choose where you want to save it. The Batch table is where you place all source media files in preparation for transcoding.

You can use the Compressor menu bar or the toolbar at the top of the Batch window to open all other windows. (If the toolbar isn't visible when you open Compressor, click the button in the upper-right corner of the Batch window to open it.)
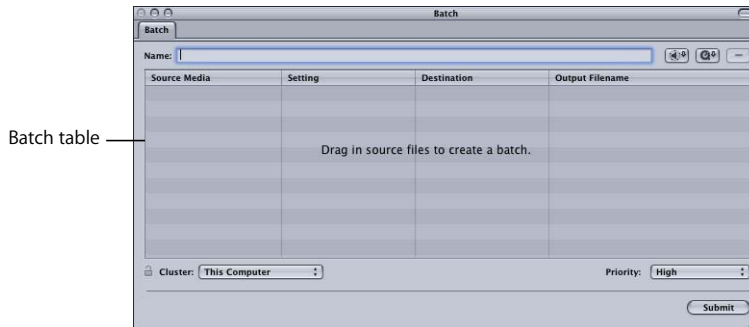
Batch table ——

In addition to the Compressor toolbar, the Batch window contains a Batch Name field, the Batch table, and buttons to add, remove, and submit jobs as well as Cluster and Priority pop-up menus. For information about controls and settings in the Batch window, see "About the Batch Window" on page 55.

Toolbar Buttons

The Batch window contains a toolbar with the following buttons that let you navigate to other windows: Presets, Inspector, History, Preview, and Batch Monitor.

See "Compressor Windows and the Transcoding Workflow" on page 38 for more information on each of these windows.

Note: If the toolbar isn't visible when you open Compressor, click the button in the upper-right corner of the Batch window to open it.

Presets Window

The Presets window has two tabs: Settings and Destinations. Settings allows you to centrally manage Apple and custom settings. Destinations allows you to create, modify, or remove destination settings, set a default destination, and add file identifiers to your output media filename.
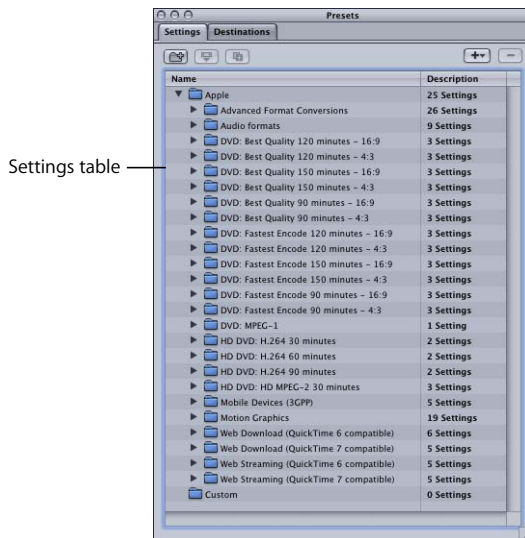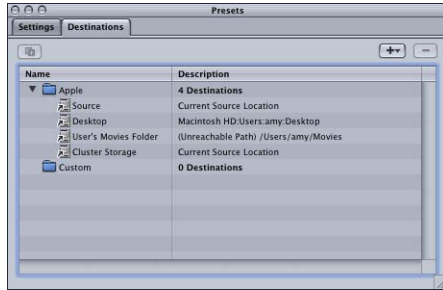
Settings Tab

You use the Settings tab in the Presets window together with the Inspector window to create and modify settings, decide exactly which settings you want to use to transcode your source media file, and which output format you want the transcoded file converted to.

To open the Settings tab,

1 Do one of the following:

  • Choose Window > Presets.

  • Press Command-2.

2 Click the Settings tab.

The Settings tab contains the Settings table (which displays existing settings), and buttons to create, remove, and duplicate settings and groups (folders), as well as a button to create Droplets.

Settings table ——

Destinations Tab

The Destinations tab allows you to create, modify, or remove destination settings, set a default destination, and add file identifiers to your output media filename.

To open the Destinations tab,

1 Do one of the following:

   • Choose Window > Presets.

   • Press Command-2.

2 Click the Destinations tab.

Inspector Window

The Inspector window has easy access to common transcoding controls (for creating and modifying settings and destinations) and a full summary table containing all the details of each setting.

Summary Pane

The Summary pane contains the Summary table, which describes all the settings (video and audio settings, geometry, and filter settings) associated with the setting selected in the Settings tab of the Presets window. Information in the Summary table is updated automatically whenever any setting is modified.
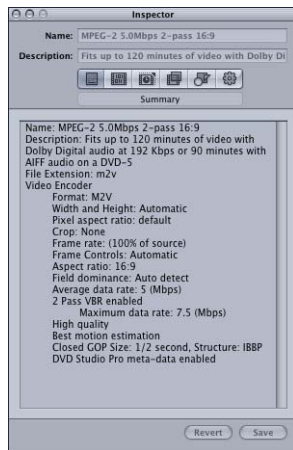
The Summary table includes the following details:

- *Name:* The name of the setting selected in the Settings tab.
- *Description:* A description of the setting selected in the Settings tab.
- *File Extension:* The extension assigned to the transcoded media file. This identifies which format your source media file is being converted to.
- *Audio Encoder:* Details of the audio output file format and other transcoding settings, such as sample rate, channels, bits per sample, and codec type.
- *Video Encoder:* Details of the video output file format and other transcoding settings such as frame width and height, crop amount (in pixels), frame rate, aspect ratio, codec type, pixel depth, spatial quality, minimum spatial quality, keyframe interval, temporal quality, minimum temporal quality, and data rate (in bits per second).
- *Filter:* Details of all, some, or none (depending on how many filters you selected in the Filters pane) of the available Compressor filters.

Encoder Pane

You use the Encoder pane to select and configure the output file format and other settings. The file format options and attributes are different for each format.

- *File Format:* Use this pop-up menu to choose an output file format. See "Choosing an Output Format" on page 29 for more information on the available output formats.
- *File Extension field:* The following file extensions automatically appear in this field based on the format you choose from the File Format pop-up menu, and if video and audio tracks are enabled. Don't alter this field without good reason, because your file may not be recognized if you do.
  - *aiff:* Represents AIFF.
  - *ac3*: Represents Dolby Digital Professional.
  - *mpg*: Represents MPEG-1 multiplexed (video and audio) stream.
  - *m1v*: Represents MPEG-1 video elementary stream.
  - *m1a*: Represents MPEG-1 audio elementary stream.
  - *m2v:* Represents MPEG-2 video elementary stream.
  - *mp4:* Represents MPEG-4.
  - *mov:* Represents QuickTime.
  - *tiff:* Represents TIFF.
- *Allow Job segmenting*: This checkbox allows you to turn off job segmenting. It is only relevant if you are using Compressor with distributed processing *and* with two pass or multi pass encoding. (The Compressor 2 distributed processing feature is limited to computers that have either Final Cut Studio or DVD Studio Pro 4 installed.) For more information, see "Job Segmenting and Two Pass VBR" on page 136.

Job Segmenting and Two pass (or Multi pass) Encoding

If you choose the two-pass or the multi-pass mode, and you are using Compressor 2 or higher with distributed processing enabled, you may have to make a choice between speedier processing and ensuring the highest possible quality. The Apple Qmaster distributed processing system speeds up processing by distributing work to multiple processing nodes (computers). One way it does this is by dividing up the total amount of frames in a job into smaller segments. Each of the processing computers then works on a different segment. Since the nodes are working in parallel, the job is finished sooner than it would have been on a single computer. But with two-pass VBR and Multi-pass encoding, each segment is treated individually so the bit-rate allocation generated in the first pass for any one segment does not include information from the segments processed on other computers.

First, evaluate the encoding difficulty (complexity) of your source media. Then, decide whether or not to allow job segmenting (with the "Allow Job segmenting" checkbox at the top of the Encoder pane). If the distribution of simple and complex areas of the media is similar in any given segment as it is across the whole source media file, then you can get the same quality whether segmenting is turned on or not. In that case, it makes sense to allow segmenting to speed up the processing time.

However, you may have a source media file with an uneven distribution of complex scenes. For example, suppose you have a 2-hour sports program in which the first hour is the pregame show with relatively static talking heads, and the second hour is high-action sports footage. If this source media were evenly split into 2 segments, the bit rate allocation plan for the first segment would not be able to "donate" some of its bits to the second segment because the segments would be processed on separate computers. The quality of the more complex action footage in the second segment would suffer. In this case, if your goal were ensuring the highest possible quality over the entire 2-hour program, it would make sense to *not* allow job segmenting by de-selecting the checkbox at the top of the Encoder pane. This forces the job (and therefore, the bit-rate allocation) to be processed on a single computer.

For more information on variable bit rate encoding (VBR), see "Quality Tab" on page 134. For more information on the Apple Qmaster distributed processing system, see the *Distributed Processing Setup* guide.

Frame Controls Pane

This pane of the Inspector offers automatic and customized settings for advanced image analysis in frame resizing and frame retiming.
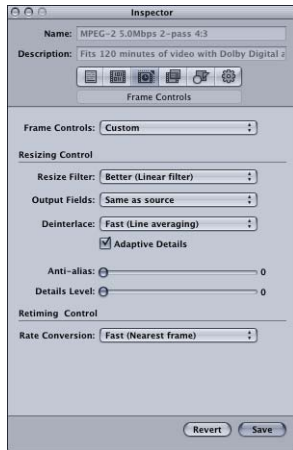
Frame resizing would be necessary when transcoding between a high definition format such as 1080i and a standard definition format, such as DV-NTSC. An example of frame re-timing would be when transcoding between video formats with different frame rates such as NTSC (29.97 frames per second) and PAL (25 frames per second). For more information about the Frame Controls pane, see "About the Frame Controls Pane" on page 196.

Filters Pane

You use the Filters pane to add filters to your setting. You can perform such tasks as gamma correction and noise removal from here.

Filters list ———
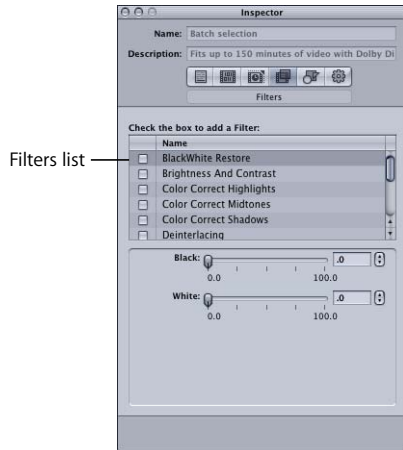
Select the checkbox next to any of the filters you want to include in a particular setting. Use each filter's sliders or arrow controls to adjust your filter settings as necessary.

Filters are applied to the source media file in the order you organize them in the Filters list. You can reorder filters by dragging them up or down in this list.

For more information about the Filters pane, see "About the Filters Pane" on page 188.

Geometry Pane

You use the options in the Geometry pane to crop and size the media file being compressed, and set its aspect ratio.
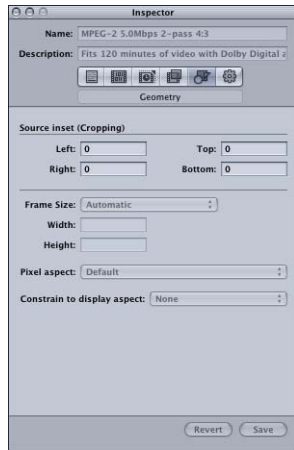
- *Source inset (Cropping):* Use any of the four fields to enter the number of pixels by which you want to reduce the source media file size.
- *Frame size:* Use this pop-up menu or these fields to create an appropriate output frame size and aspect ratio for your output media file.
- *Pixel aspect:* Use this pop-up menu to set width and height values to conform to a designated pixel aspect ratio.
- *Constrain to display aspect:* Use this pop-up menu to calculate the output height or width values.

For more information about the Geometry pane, see "About the Geometry Pane" on page 201.

Actions Pane

You use the Actions pane to activate transcode-completion notification emails and execute post-transcoding AppleScript actions.

- *"Email Notification to" checkbox and field:* Use to enter the address to which you want an email notification sent after the media file has been transcoded, or in the event of an error.
- *"Execute AppleScript on output" checkbox:* Select this checkbox to activate any AppleScript you have assigned to the setting after the media file has been transcoded.
- *Choose button:* Click to select the AppleScript you want to assign to the setting.

For more information about the Actions pane, see "About the Actions Pane" on page 205.

History Drawer

The History drawer gives you quick access to all previously submitted batches. You can use it to resubmit batches by dragging them to the Batch window, or view submission details about when particular job batches were submitted from your computer.

To open and close the History drawer, do one of the following:

- Choose Window > Show History.
- Click the History button in the Batch window toolbar.

History drawer   History table
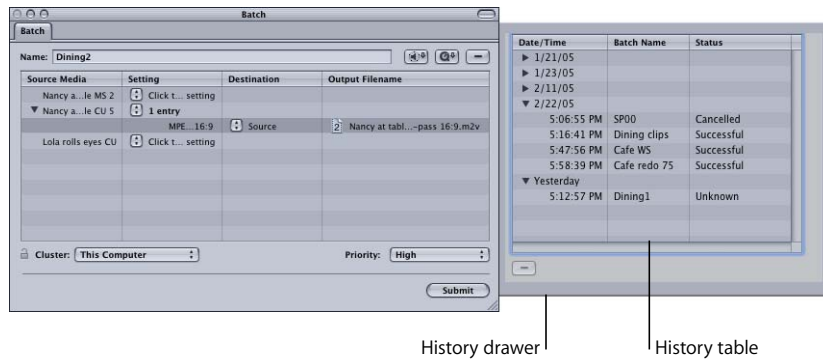
The History drawer contains a History table that displays information about the batch name and the date and time it was originally transcoded. The entries are ordered by date, with the oldest first. When you drag a batch into the Batch window for resubmission, it replaces the existing batch in the Batch table.

For more information about the controls and settings in the History drawer, see "About the History Drawer" on page 84.

Preview Window

The Preview window consists of a split screen that displays your selected source media file in its original form on the left side, and what your output media file will look like on the right side. This allows you to make a comparison between the original and transcoded versions and adjust your settings as necessary. Using the options in this window, you can crop the frame, add keyframes, and change the aspect ratio.

To open the Preview window, do one of the following:

- Choose Window > Preview.
- Click the Preview button in the Batch window toolbar.
- Press Command-3.
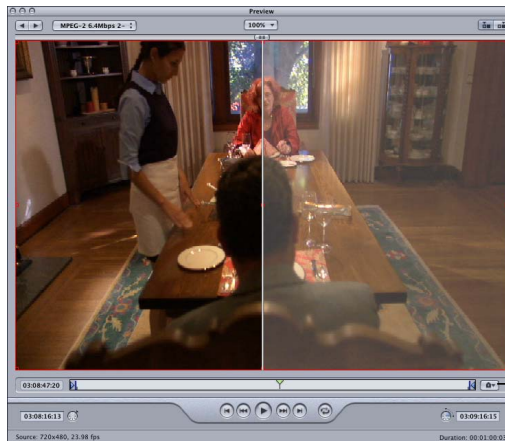
Marker pop-up menu button

The Preview window also contains several features—such as a marker management pop-up menu—for MPEG-2 encoding expediency. The marker management pop-up menu allows you to manually insert I-frames into your source media file wherever you decide additional ones are needed to improve the compression quality of your media file. If you are exporting a Final Cut Pro project to Compressor, these settings or markers are transferred with your project. These markers are also exported to DVD Studio Pro. See "Working With MPEG-2 I-Frames" on page 150 and "About MPEG-2 Markers and DVD Studio Pro" on page 144 for more information.

For more information about the controls and settings in the Preview window, see "About the Preview Window" on page 210.

Batch Monitor

You use the Batch Monitor to monitor the progress of all transcoding batch activity, including estimates for the transcoding time remaining for all jobs. The Batch Monitor is a separate application that can be opened without opening Compressor. For more details on the Batch Monitor see the *Batch Monitor User Manual*.

Status table — (pointing to upper table)

History table — (pointing to lower table)
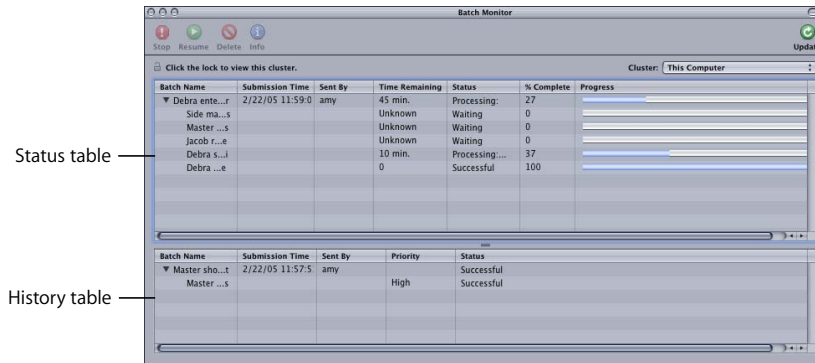
To open the Batch Monitor, do one of the following:

- Submit a batch from the Batch window. By default, Compressor Preferences are set so that Batch Monitor launches automatically when you submit a batch. See "Setting Compressor Preferences" on page 34 for more information.

- Click the Batch Monitor button in the Batch window toolbar.

- Double click the Batch Monitor icon in the Utilities folder.

The Batch Monitor displays the status of all your submitted batches. The Batch Monitor contains the Status table, which displays each batch's name and other details that you can add or remove from the Status table via the Batch Monitor Preferences window. Batches not yet running appear as pending. Once your batch has been processed, it disappears from the Status table and moves to the History table at the bottom of the Batch Monitor window. You can view reports for both successful and failed jobs in the History table.

For more information about the controls and settings in the Batch Monitor, see the *Batch Monitor User Manual*.

Droplet Windows

You can save one or more settings or groups of settings into a *Droplet*, a standalone preset, packaged into a drag-and-drop application and saved as an icon. Then you can transcode source media files (without even opening Compressor) by simply dragging them to a droplet icon. See Chapter 18, "Using Droplets," on page 235, for information on creating and using Droplets.

Drag selected source media files to a droplet to transcode them.

You can open any Droplet and view its window for full details about the Droplet.

To open a Droplet window:

■ Double-click a Droplet icon.
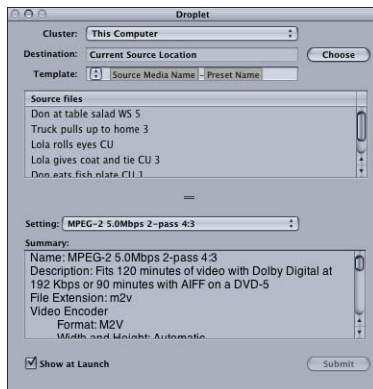
For more information about the controls and settings in the Droplet window, see "About the Droplet Window" on page 236.

General Compressor Keyboard Shortcuts

Key command	Function
⌘ + 1	Brings the Batch window to the front.
⌘ + 2	Brings the Presets window to the front.
⌘ + 3	Brings the Preview window to the front.
shift + ⌘ + S	Saves the current batch.
⌘ + O	Opens a saved batch.
⌘ + ,	Opens the Preferences window.
return	Submits a batch from an open Droplet.
delete	Removes a selected item from the Batch, Preview, or Destination window.
↑	Navigates up list items in the Batch, Destinations, Settings, and Filters tables.
↓	Navigates down list items in the Batch, Destinations, Settings, and Filters tables.
tab	Navigates through text fields in all panes.
⌘ + I	Imports a source asset to the batch.
shift + ⌘ + ?	Opens Compressor Help.

Preview Window Keyboard Shortcuts

Key command	Function
`J`	Starts fast reverse motion.
`L`	Starts fast forward motion.
`←`	Moves the clip backward frame by frame.
`→`	Moves the clip forward frame by frame.
`space`	Starts or stops clip playback.
`M`	(Only with MPEG-2) Adds or removes marker.
`I`	Sets an In point for the clip.
`O`	Sets an Out point for the clip.

Importing Source Media Files

4

The first step in the Compressor transcoding process is to import at least one source media file into the Batch window.

The source media files you import appear in the Batch table of the Batch window. You can import source media files from any folder that you have access to.

See "Adding Source Media Files to a Batch" on page 58 for further information.

This chapter covers the following topics:

- About the Batch Window (p. 55)
- Adding Source Media Files to a Batch (p. 58)

About the Batch Window

The Batch window provides a central location for organizing your transcoding tasks and quickly assigning settings. When you first open Compressor, the Batch window appears. You use the toolbar at the top of the Batch window to open all other task windows.
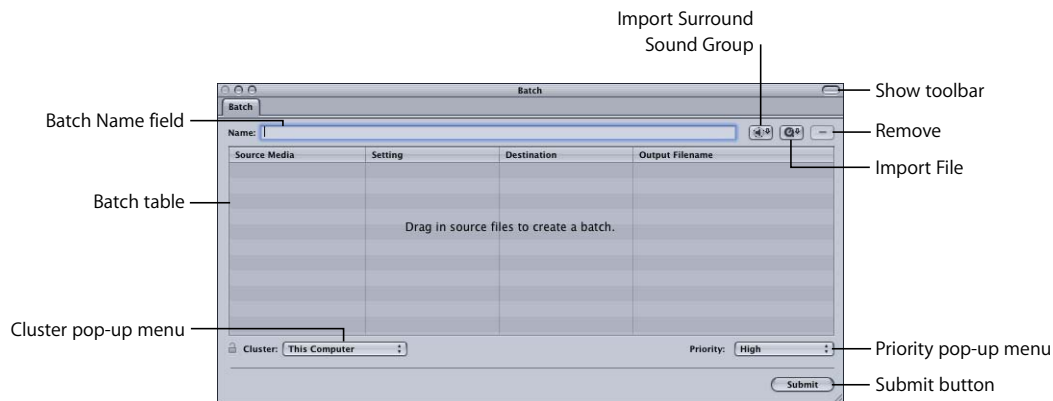
Batch window buttons and menus

- *Import Surround Sound Group*: Opens an interactive graphic interface for importing source audio files intended for surround sound output. For more information about this interface, see "Assigning Files to Surround Sound Channels (Manual Method)" on page 103.

Import File button

Remove button

Import Surround
Group button
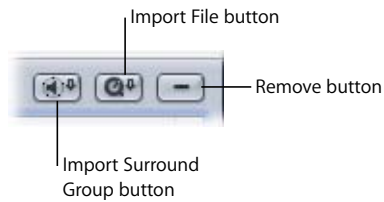
- *Import File:* Click to add a source media file to the Batch table. Clicking this button opens a file selection dialog, allowing you to navigate to your source media files. Select as many media files from this dialog as you want to add to the Batch table for transcoding.

- (–) *Remove:* Click to remove selected source media files or settings from the Batch table. If you remove a selected setting, the source media file remains in the Batch table, but if you remove the source media file, you remove the job as well as its associated presets.

- *Submit:* Click this button to submit a batch for transcoding.

- *Cluster*: This pop-up menu allows you to choose a cluster of computers on your network to which you can submit batches for distributed processing. The menu will have only one available option (*This Computer*) unless all of the following conditions are met:

 - Your copy of Compressor 2 has distributed processing enabled. (See the *Distributed Processing Setup* guide for details.)

  - Other clusters are available on the network.

- *Priority:* This pop-up menu allows you set the priority level (High, Medium, or Low) of a batch, relative to other batches. It defaults to Medium. High-priority batches get processed before low-priority batches.

Batch table

You use the Batch table to assign settings to imported source media files.

Note: You can preview any source media file in the Batch table by double-clicking it. The Preview window opens at the start of the selected media file.

The Batch table contains the following headings:

- *Source:* Lists the source media filename. When you first add a source media file to the Batch table, its original filename and extension appear in this column. The Setting column displays 0 entries, indicating that no settings are currently associated with the media file, so it cannot yet be transcoded.
- *Setting:* Lists the name and number of settings associated with each source media file. When you first add a source media file to the Batch table, this column contains a pop-up menu for assigning settings. When you assign a setting, a default destination, Source (the same folder as that of the source media file), is also assigned to the media file.
- *Destination:* Lists the name of the destination folder where your output media files are saved. The default destination folder is the same as the source media files folder, known as Source. You can change either by choosing something different from the Destination pop-up menu, or by dragging a new destination path from the Destinations tab (in the Presets window) to the source media file in the Batch table.
- *Output Filename:* Lists the output filename, output format extension, and any additional file identifiers assigned. Filename identifiers are derived from the selections made by selecting a Destination preset in the Destinations tab of the Presets window and then adjusting it with the Filename Template pop-up menu located in the Inspector. You can also edit this field directly by double-clicking it. See "About the Destinations Tab" on page 224 for more information about creating destination presets and using the Filename Template.

Note: When you are transcoding one source media file into a variety of output formats and using different settings, the Output Filename column can help you keep track of the output files by displaying the filenames and different output extensions for the same media file. For example, if you were transcoding a media file (named *filename*) into both QuickTime and MPEG-2 formats using settings that you created and called *Web QuickTime* and *DVD MPEG-2* respectively, the Output Filename column would display the two filenames as follows:

- filename-Web QuickTime.mov (the QuickTime clip)
- filename-DVD MPEG-2.m2v (the MPEG-2 clip)

Batch name field
Enter a name in this field to help you distinguish one batch from another once you have submitted several of them. Name your batch so that you can easily view its progress in the Batch Monitor, and recall it from the History drawer if you want to resubmit it. The default batch name is the name of the first source file in the batch. You can easily edit the name by double-clicking it.

Adding Source Media Files to a Batch

You need to import the source media files into the Batch table in the Batch window before you can add any transcoding settings to them. Once they are imported into the Batch table, the source media files become part of the batch to be submitted.

To add source media files to a batch:

1 Open Compressor.

The Batch window opens with an empty Batch table and Batch Name field.
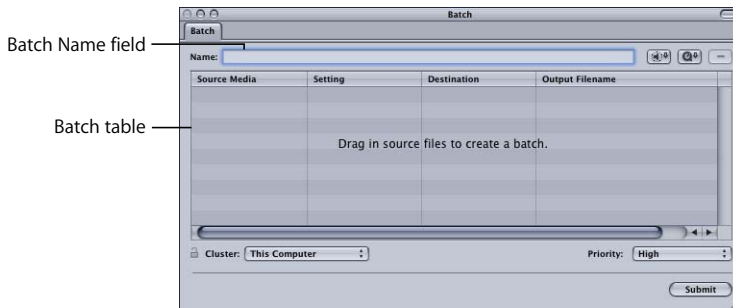
2 Enter a new name in the Batch Name field.

3 Do one of the following:

- Open your source media file folder and drag one or more source media files into the Batch table.
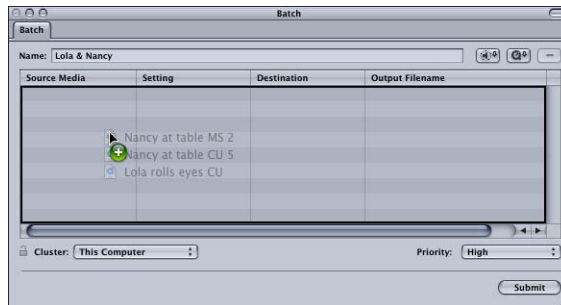
- Click the Import File button, navigate to the relevant media file folder, select one or more source media files, and then click Open.
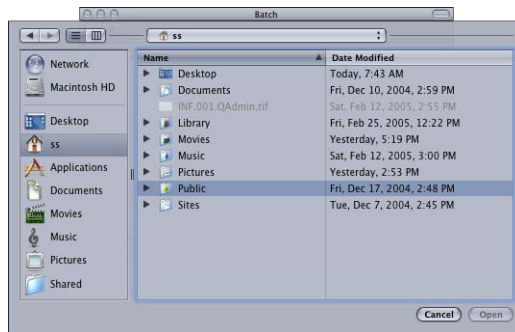
- Choose File > Import File.

Note: You can combine the above steps by selecting all the source media files you want to transcode before opening Compressor and then dragging them to the Compressor application icon. This opens Compressor and adds the media files to the Batch table at the same time.

The Batch table now contains your selected media files, and displays 0 entries in the Setting column. This means that you have not yet assigned a setting, which means you have not yet created a job. See Chapter 5, "Creating, Previewing, and Modifying Settings," on page 61, for information on how to perform this task.
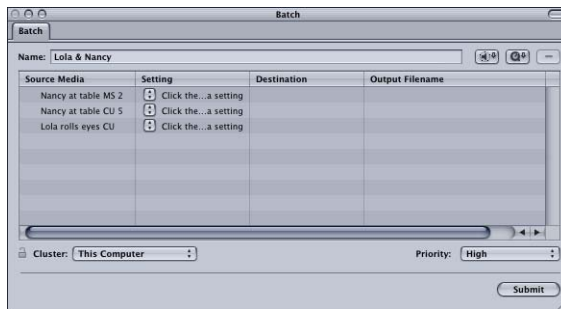
Important: It is strongly recommended that you do not use highly compressed files, such as MPEG files, as your source files, because this can cause undesirable artifacts in the encoded video.

Creating, Previewing, and Modifying Settings

5

A setting is a combination of transcode attributes, such as output format, filter, and geometry settings, that you apply to the source media file as a part of the transcoding process.

You need to assign at least one setting to a source media file before you can transcode it. Once you have a source media file in the Batch table of the Batch window, you can either select a pre-existing setting or create a customized one using the Settings tab in the Presets window.

Once you have all the settings that you think you need, you won't have to open the Settings tab in the Presets window again, because you can select all settings directly from the Batch window, or the Settings menu, once The settings have been created.

This chapter covers the following:

Note: A setting is just one kind of Compressor preset. You can also create, modify, save, or remove *Destination presets*. For more information on Destination presets, see "Creating and Changing Destinations" on page 223.

About the Settings Tab

The Settings tab in the Presets window allows you to manage your settings. In conjunction with the Inspector window, the Settings tab also provides details of all the settings with easy access to common transcoding controls.

You use the Settings tab in the Presets window (together with the Inspector window) to create, modify, or delete settings, as well as create group folders for multiple settings. You can also create Droplets from this window.

The Settings tab contains the Settings table (which displays existing settings) and the necessary buttons to add, remove, or duplicate a setting, and create groups and Droplets.

Duplicate Selected
Setting button

Create New
Setting Group

Save Selection
as Droplet

Click the disclosure
triangles to show
or hide a setting
group's contents.

Custom settings group

Delete Selected
Settings button

Create a New
Setting button
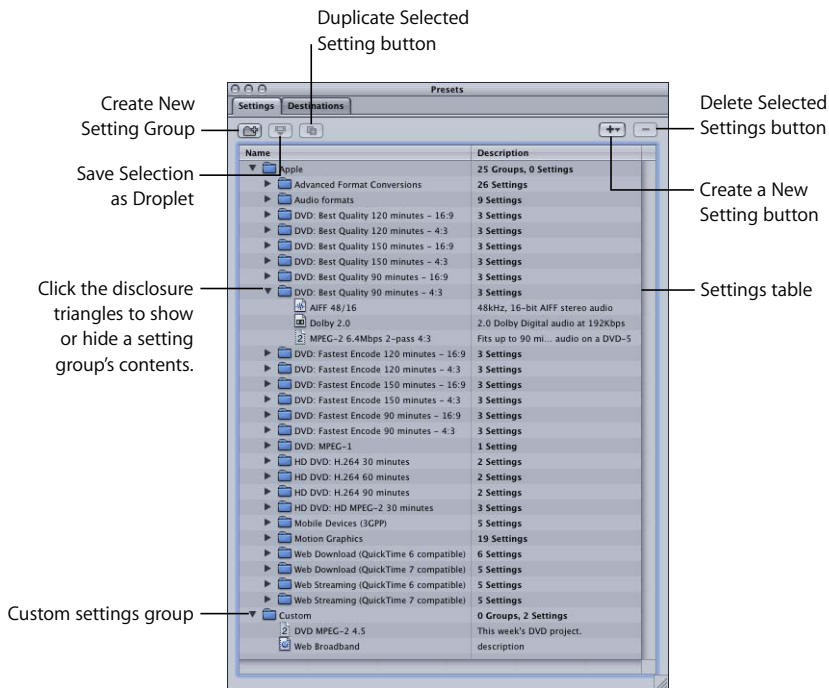
Settings table

Settings tab buttons

- *Create a New Setting* (+)*:* Click to add a new setting to the Settings tab. You must also choose an output file format from the accompanying menu when you click this button before you can continue.
- *Delete Selected Settings* (–)*:* Click to remove a setting from the Settings tab. You are not asked for a confirmation, so be sure you want to remove the setting before clicking this button.
- *Create a New Setting Group:* Click to create a folder where you can group existing settings. Use this button as a way to organize your settings into some sort of logical order, keeping the Settings table easy to navigate. Once settings have been created, you can assign a whole group of settings to a source media file (by dragging it onto the source file in the Batch window) or you can create a Droplet containing multiple settings. See "Creating Groups of Settings" on page 75 for more information.
- *Duplicate Selected Setting:* Click to duplicate a selected setting in the Settings table. The Duplicate button copies the exact settings of the setting currently selected in the Settings table. Using the Duplicate button allows you to create a new setting from a pre-existing one; you can then adjust that setting according to your needs, rather than creating a new setting from scratch.
- *Save Selection as Droplet:* Click to create a Droplet from an existing setting or group of settings. Droplets allow you to transcode a media file by simply dragging one or more source media files over the Droplet icon. Once you have selected your setting or group and clicked the Save Droplet button, the Save dialog asks you to name your Droplet, choose a location for it, and choose a destination folder for the relevant output media files. Once you complete this dialog, your Droplet is ready and you can drag as many files as you want to its icon. See Chapter 18, "Using Droplets," on page 235 for more information about Droplets.

Settings table

When you first open the Settings tab in the Presets window, the Settings tab contains a set of pre-existing (Apple) settings supplied with Compressor. The Settings tab displays name and description details of all existing settings and groups stored on your computer.


Setting group with five settings

New "Untitled" setting
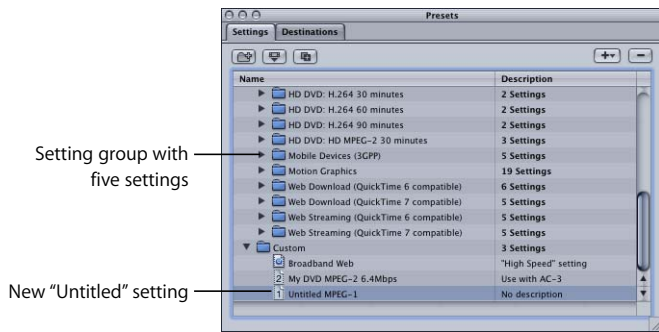
New settings appear in the Custom group folder with the default name "Untitled ___" with "___" being the file format you chose from the (+) pop-up menu. It's a good idea to change the setting name to something meaningful, such as details of the settings or distribution method associated with the setting. Double-click the setting in the Settings tab to open the Inspector window. Use the Name field in the Inspector window to enter a name. Use the Description field to enter more information about each setting. This information only appears within the Settings tab in the Presets window and can help you keep track of your files when you have many settings.

You can also organize your settings by putting them in group folders. Once you have created and named a group folder, you can drag any existing setting into it. When you drag a setting to a group, you remove it from the main Settings table. You can also drag individual settings from a group to a source media file. See "Creating Groups of Settings" on page 75 for more information.

Batch selection

Whenever you select a setting in the Batch table of the Batch window, it also immediately appears in the Inspector window with "Batch selection" in the Name field. This is a temporary copy of the setting and not the setting itself, so you can make temporary modifications to the setting for just that one batch submission.
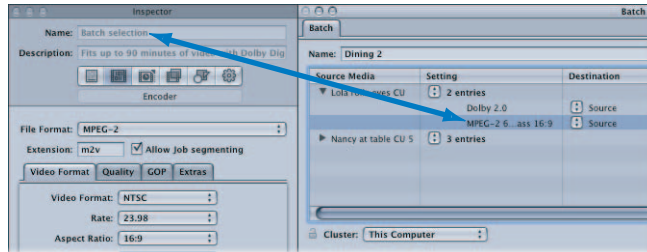
When you modify the Batch selection, the Save As button at the bottom of the Inspector window becomes active. Click Save As to save the modified setting with a new name. The saved copy appears in the Settings table as *Setting Name-Copy,* and immediately becomes the selected setting in the Settings table.

About the Inspector

Use the Inspector window to choose a particular output file format, filters, frame size, geometry settings, aspect ratio, and output file delivery method.

The Inspector contains a number of panes in which you can do the following:

- View a detailed summary of a selected setting (Summary pane).
- Select an output file format and other related video and audio settings (Encoder pane).
- Customize changes to the frame size, frame rate, or field dominance (Frame Controls pane).
- Add filters to your setting to enhance the quality of the output files (Filters pane).
- Crop and set the frame size for your output media file (Geometry pane).
- Execute AppleScripts and send email notifications (Actions pane).

Inspector panes

The Inspector window contains the following panes that let you create and modify all the settings related to your output media file, such as filters, geometry, and output format:

- *Summary pane:* Provides a detailed summary of a selected setting. See "Summary Pane" on page 42 for more information about this pane.
- *Encoder pane:* Allows you to select an output file format and other related video and audio settings. See the following specific sections for more information about the different encoder panes:
  - "About the AIFF Encoder Pane" on page 180
  - "About the Dolby Digital Professional Encoder Pane" on page 94
  - "About the H.264 Encoder Pane" on page 110
  - "About the MPEG-1 Encoder Pane" on page 117
  - "About the MPEG-2 Encoder Pane" on page 129
  - "About the MPEG-4 Encoder Pane" on page 154
  - "About the QuickTime Export Components Encoder Pane" on page 178
  - "About the QuickTime Movie Encoder Pane" on page 164
  - "About the TIFF Encoder Pane" on page 183
- *Filters pane:* Allows you to add filters to your setting. (See "About the Filters Pane" on page 188 for more information.)
- *Geometry pane:* Allows you to crop and set the frame size for your output media file. (See "About the Geometry Pane" on page 201 for more information.)
- *Actions pane:* Allows you to execute AppleScripts and send email notifications. (See "About the Actions Pane" on page 205 for more information.)

Choosing a Pre-Existing Setting

Compressor comes with a number of pre-existing (Apple) settings and destinations that you can use as soon as you have installed Compressor. If these presets meet your transcoding needs, you don't have to create new presets or modify existing ones.

To assign a pre-existing setting:

1 Open the Batch window.

2 Import a source file.

3 Choose a pre-existing (Apple) setting from the pop-up menu in the Setting column of the Batch table.
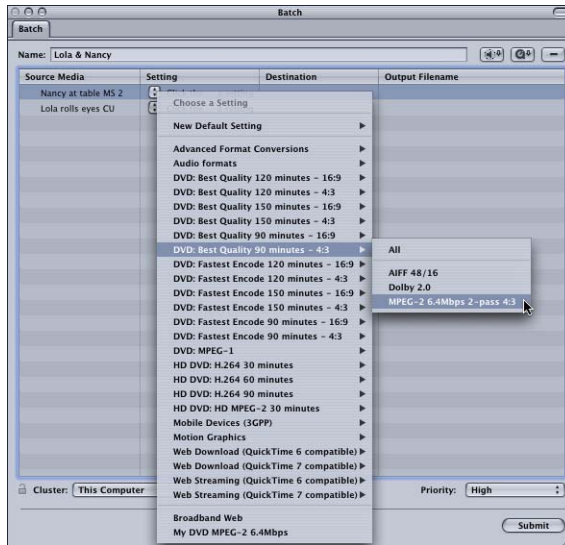
Note: You can repeat step 3 to assign multiple settings to a source media file.

To assign a pre-existing destination preset:

1 Open the Batch window.

2 Import a source file.

3 Choose a pre-existing destination from the pop-up menu in the Destination column of the Batch table.

For more information on destination presets, see "Creating and Changing Destinations" on page 223.

Creating a Setting

If the pre-existing settings are not sufficient for your transcoding needs or if you simply want additional settings, you can create your own.

To create a setting:

1 Click the Add (+) button in the Settings tab of the Presets window and choose an output format from the pop-up menu.
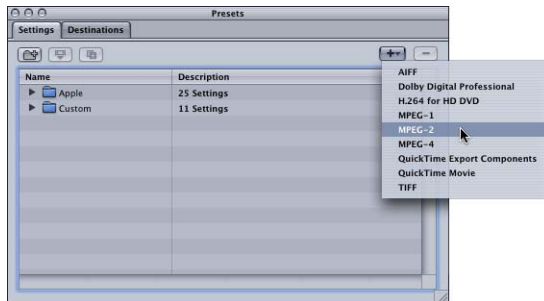
A new setting called Untitled appears in the custom Settings folder of the Settings table, appended with the selected output file format (for example, *Untitled MPEG-2*).
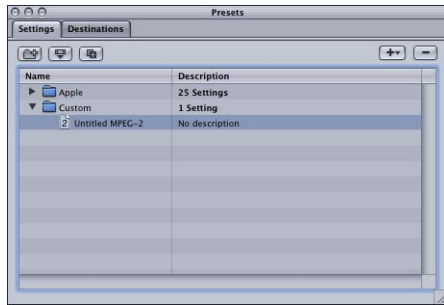
Note: You can always change the output file format for that setting in the Encoder pane of the Inspector, but be sure to change the setting name to reflect its output file format.

2 Enter a suitable name and description for the setting in the Name and Description fields in the Inspector window.

See "Assigning Settings to Source Media Files" on page 78 for information about assigning settings.

Note: You can create groups of settings that can then be applied to a media file in one step. See "Creating Groups of Settings" on page 75 for more information.

Modifying a Setting

You can edit or change any component of an existing setting by modifying its attributes in the Inspector. Compressor offers two setting modification methods:
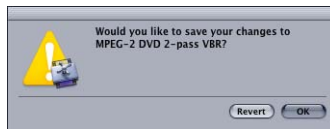
- Select and modify an unassigned setting directly in the Inspector.
- Modify a setting already assigned to a source media file in the Batch table (identified as *Batch selection* in the Inspector window).

Once you have modified a setting, you can either save it as the existing setting, or save it as a copy.

To modify an unassigned setting directly in the Inspector:

1   Select the setting you want to modify in the Settings tab of the Presets window.

2   Click the relevant tabs in the Inspector window to open the various panes and access the existing settings that you want to modify:

- *Encoder pane:* Change the output format and video and audio codecs and their associated attributes here.
- *Frame Controls pane:* Change any attributes in the Frame Controls pane.
- *Filter pane:* Change any filter attributes here. Click the checkbox next to a filter to add it to the setting, or deselect it to remove it from the setting.
- *Geometry pane:* Change any attribute in the Geometry pane.
- *Actions pane:* Change any attribute in the Actions pane.

3   If you have modified the setting in any way, you can do either of the following to save the changes:

- Click the Save button at the bottom of the Inspector window to save the changes.
- Attempt to select any other setting.

In either case, a dialog asks if you want to save the changed attributes.

Click OK to save the changes, or click Revert to cancel the changes and return to the Inspector.

See "Assigning Settings to Source Media Files" on page 78 for information about assigning settings.

To modify a setting already assigned to a source media file in the Batch table:

1 Open the Batch window.

2 Do one of the following:

  • Select the setting in the Batch table that you want to modify and choose Window > Inspector to open the Inspector window.

  • Double-click the setting in the Batch table that you want to modify.

  The setting appears in the Inspector window with "Batch selection" in the Name field. Don't worry about damaging the original setting. This is a temporary copy of the setting you selected, and not the setting itself. So you can make temporary modifications to the setting for just this one batch submission.
  See "Batch selection" on page 65 for more information.
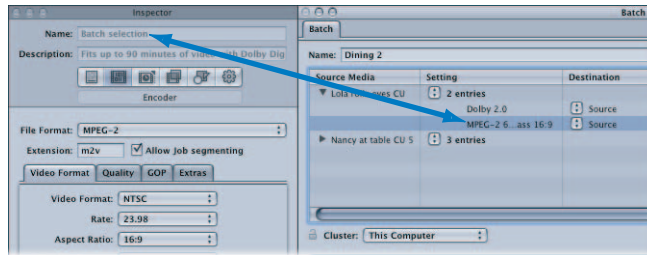
3 Open the following Inspector panes to modify the following items:

  • *Encoder pane:* Change the output format and video and audio codecs and their associated attributes here.

  • *Frame Controls pane:* Change any attribute in the Frame Controls pane.

  • *Filters pane:* Change any filter attributes here. Click the checkbox next to a filter to add it to the setting, or deselect it to remove it from the setting.

  • *Geometry pane:* Change any attribute in the Geometry pane.

  • *Actions pane:* Change any attribute in the Actions pane.

4 After you've finished modifying "Batch selection," do one of the following:

  • Return to the Batch window and click Submit.

  • Click the Save As button at the bottom of the Inspector window and enter a name to create a new setting containing the modifications you made in Step 3. The new setting appears in the Custom group folder in the Settings tab of the Presets window.

Previewing a Setting

The Compressor Preview window lets you see the effects of your setting—such as filters and frame resizing—and make adjustments to these attributes while previewing the media file in real time.

To view your setting in the Preview window:

1 Select the setting in the Batch table for the particular job that you want to preview.

2 Do one of the following:

   • Double-click the setting in the Batch table.

   • Click the Preview button.

The opening frame of the selected source media file appears in the Preview window and the title of the selected setting appears in the Batch Item pop-up menu with the Out point timecode field displaying the length of the clip. The left half of the screen displays the source media file in its original form (Source view) and the right half displays what the output image will look like with selected filters and other setting attributes applied to it (Output view).

3 Make any necessary adjustments to your setting while previewing the media file in the Preview window.

The Preview window —

Make adjustments while previewing the media file in the Preview window.
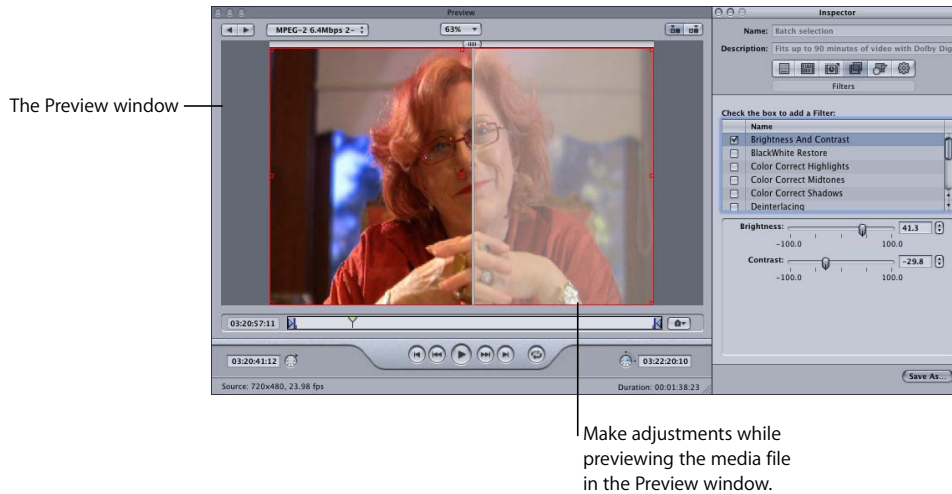
Note: To preview the effect of the filters on your media file, you need to make sure that the checkbox for that particular filter is selected in the Filters table. Otherwise, the Preview window won't recognize that filter, and it will not be part of the transcoding settings for that job. See Chapter 16, "Using the Preview Window," on page 209, for more information about previewing your settings and "About the Filters Pane" on page 188 for more information on filters.

Duplicating and Deleting Settings

If there is a setting that contains some attributes that you want to use in another setting, you can duplicate the existing setting and make the necessary modifications to the duplicated one.

To duplicate a setting:

1 Select the setting that you want to duplicate in the Settings tab.

2 Click the Duplicate button.
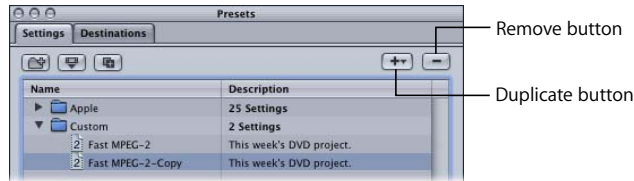
A new setting appears in the Custom folder with the word *Copy* appended to the original name.

Note: You can only duplicate settings one at a time.

To delete a setting:

1 Select the setting that you want to delete.

2 Click the Remove (–) button or press the Delete key on your keyboard.

Note: You can delete only one setting at a time.

Warning: There is no warning when you delete a setting, and you cannot undo the deletion to restore the setting.

Creating Groups of Settings

Creating a group of settings allows you to quickly assign multiple settings to a source media file.

To create a group of settings:

1 Click the Group button in the Settings tab of the Presets window.

   A folder called Untitled appears in the Settings tab with 0 Settings in the Description column. You cannot modify this field. It displays the number of settings the group contains.
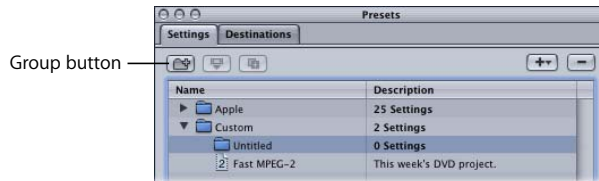
2 Enter a suitable group name in the Inspector Name field.

3 In the Settings tab, drag the relevant settings into the group folder.

   Note: Settings must be added to a group one at a time—you cannot drag multiple selected settings to a group.

   The Description field displays the number of settings your group contains. Once you have at least one setting inside the group folder, you can click the disclosure triangle next to the group folder to show or hide the setting group details. You can also see full details of the settings in any group by selecting the group and then looking at the Summary pane in the Inspector window.

   Note: You can also drag settings from one group to another group.

To add the same setting to more than one group:

1 Select the setting.

2 Click the Duplicate button to create a copy, and rename the duplicated setting.

3 Drag the duplicated setting to another group folder.

Distributing and Sharing Settings

Both pre-existing and newly created settings are stored in the home folder at Library/Application Support/Compressor as XML files, with the file extension *.setting*. You can distribute and share any of these settings by placing them into the same location within the home folder of whatever computer you distributed the settings to. You can also transfer these files the same way that you would distribute any other file, by emailing them as an attachment or placing them on a server.

Creating Jobs and Submitting Batches

6

A job consists of a source media file with at least one setting and destination assigned to it. You create jobs by adding presets to your source media files in the Batch table of the Batch window.

Compressor gives you a number of different options for assigning settings and destinations and submitting and resubmitting batches.

Note: See "About the Settings Tab" on page 62 and "About the Destinations Tab" on page 224 for more information about creating presets in these windows.

See the following sections for assigning settings and destinations and submitting batches:

Assigning settings
- Assigning Settings to Source Media Files (p. 78)

Assigning destinations
- Assigning Destinations to Source Media Files (p. 81)

Submitting batches
- Submitting a Batch (p. 83)
- Resubmitting a Batch (p. 85)
- Submitting a Final Cut Pro Project for Transcoding (p. 87)
- Transcoding Different Clips From One Source Media File (p. 90)

Saving and opening batches
- Saving and Opening a Batch File (p. 86)

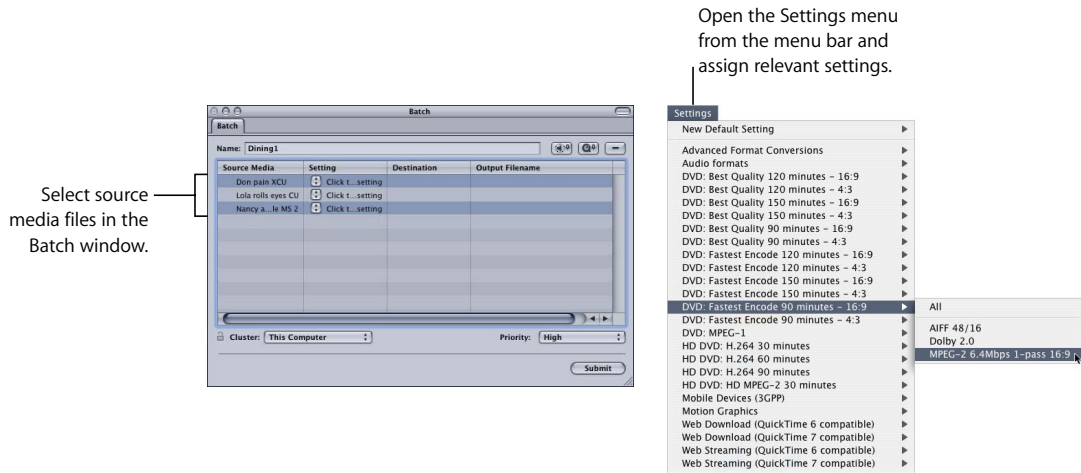## Assigning Settings to Source Media Files

You need to create a job (add a setting to the source media file) before your source media file can be successfully submitted for transcoding.

To create a job:

1 Open the Batch window.

2 Enter a name for the batch in the Batch Name field. (Or Compressor will name the batch after the first source file in the batch list you create in Step 3.)

3 Add source media files to the Batch table.

See "Adding Source Media Files to a Batch" on page 58 for more information.

4 Once you have at least one source media file and at least one available setting, do one of the following to assign the setting:

 • Click the Setting pop-up icon for a media file, then choose a setting from the menu that appears. If you select a setting group, you can choose a specific setting or choose All if you want to assign all the settings to the source media file.

Batch Name field with batch name entered

Setting pop-up icon with Setting pop-up menu
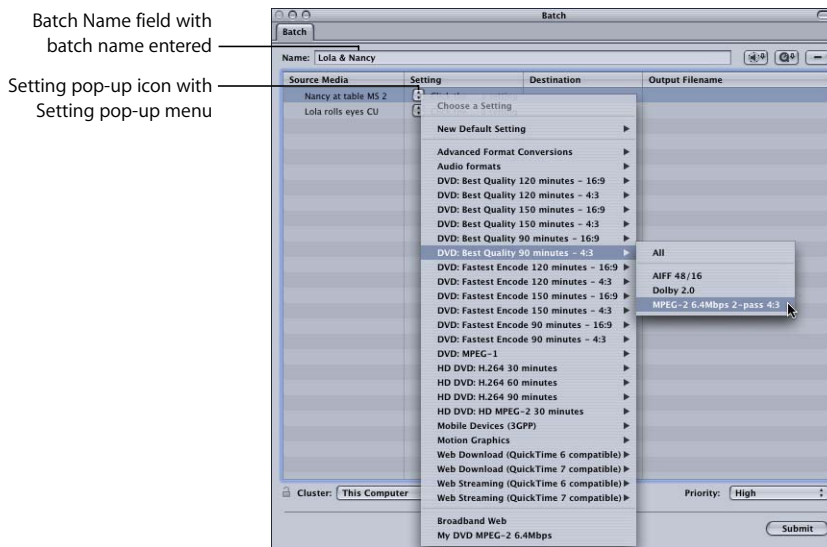
- Select one or more source media files and choose a setting from the Settings menu in the Compressor menu bar. Using this method, you can assign one setting to multiple source media files at the same time.

Open the Settings menu from the menu bar and assign relevant settings.

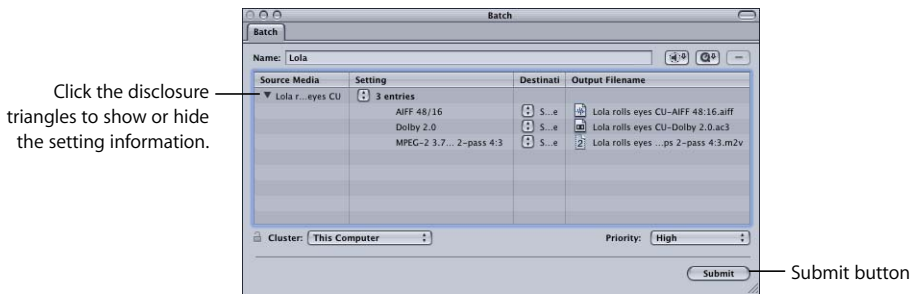Select source media files in the Batch window.

- Drag-select all source media files in the Batch table and, while keeping the mouse button down, position the pointer over the Setting pop-up icon to open the menu. You can then choose a single setting to assign to all the source media files.

Selected source media files
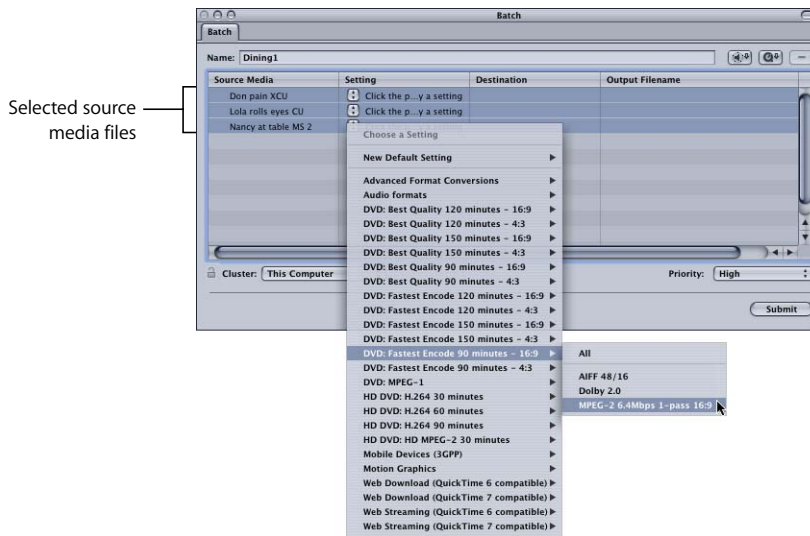
- Open the Settings tab of the Presets window and drag one or more settings or setting groups to the intended source media file in the Batch table. This method is most useful when you want to quickly apply multiple settings to a source media file, producing a variety of output file formats. When dragging a setting group, all settings in the group are automatically applied to the source.
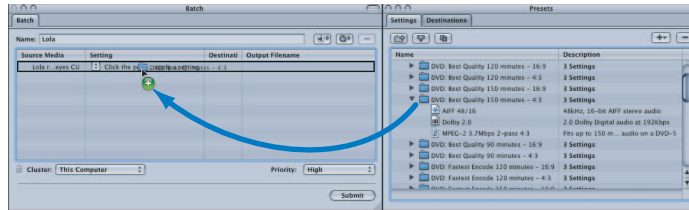
In the Setting column, the setting number changes from 0 entries to the number of settings you have just added. Once you add at least one setting, a disclosure triangle appears to the left of the source media filename. Click this to view or hide setting details for the job.

Click the disclosure triangles to show or hide the setting information.

Submit button

Note: Once all of your source media files in the Batch table have at least one setting associated with them, the Submit button becomes active.

You have now created a job that is ready for transcoding. If you want to preview it first to ensure that you are satisfied with the results, see Chapter 16, "Using the Preview Window," on page 209.

Assigning Destinations to Source Media Files

Once you have assigned settings to your source media files, you can assign different destinations. You can set a default destination with Compressor preferences. (Choose Compressor > Preferences.) This can be one of those supplied with Compressor or a custom destination you have created. See "Creating a Destination" on page 226 for details on working with destinations.

There are a number of different ways to assign a destination to a source file.

To assign a destination, do one of the following:

- In the Batch window, open the Destination pop-up menu in the Batch table and choose a destination. You can change destinations as often as you like.

Destination pop-up menu
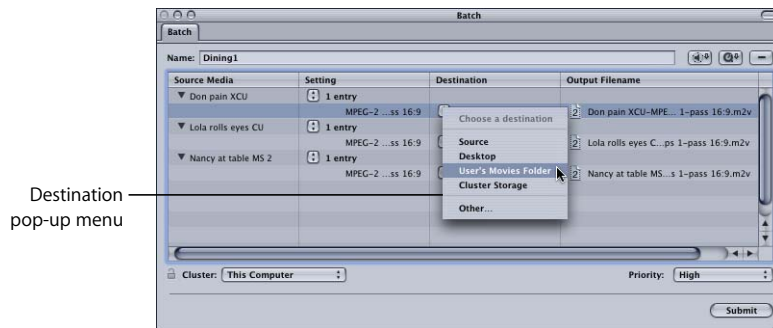
Note: You can also assign a temporary destination by choosing Other. This opens the File Selection dialog and allows you to create a new destination for just that batch submission. This destination preset is not saved and only applies to the submitted batch.

- Select one or more source file settings to set the destination for, then choose the destination from the Destination menu in the menu bar. You can change destinations as often as you like.

Select the settings to have their destinations changed.
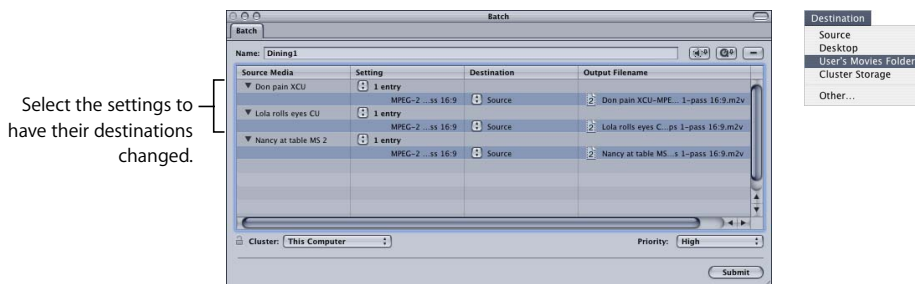
- Drag the destination from the Destinations tab of the Presets window to a source file's setting in the Batch table (a setting must be assigned to the source media file first). You can always change the destination again, by dragging another destination to the same setting.
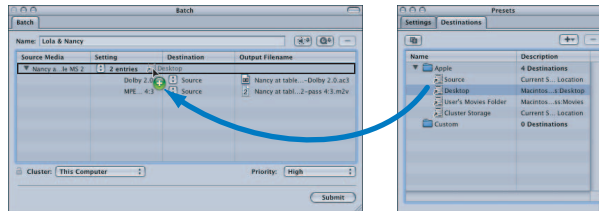
Once you have assigned the destinations, they appear in the Batch window's Destination column.
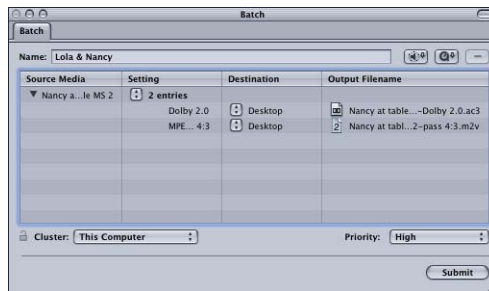
Submitting a Batch

One or more jobs in the Jobs table is considered a batch. When you have assigned at least one setting to all source media files in the Batch table, you are ready to submit the batch for processing.

To submit a batch:

1 Open the Batch window.

2 If you haven't already done so, enter a suitable name for the batch in the Batch Name field.

3 Add appropriate source media files, settings, and destinations.

4 Click Submit.

A progress bar appears, indicating that the batch is being submitted.
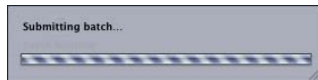
Note: When submitting larger batches (for example, nine source media files with three settings assigned to each), there is about a 10-second delay after submitting the batch when nothing happens. Be patient. Compressor is preparing the large batch before it can be properly submitted for processing. If you are transcoding a large batch, you should turn off the screen saver application on your computer. This will improve the speed of your transcode because resources are not being diverted to the screen saver.

See "About the Batch Window" on page 55 for more information about using the Batch window.

About the History Drawer

The History drawer provides quick access to all previously submitted batches, allowing you to conveniently resubmit batches by dragging them to the Batch window, and view submission details about when particular job batches were submitted from your computer. Whatever batch you drag to the Batch window for resubmission replaces the existing batch in the Batch table of the Batch window.

The History drawer consists of a History table that displays information about the batch name and the date and time it was originally transcoded. The entries are ordered by date, with the oldest first.

History table   History drawer
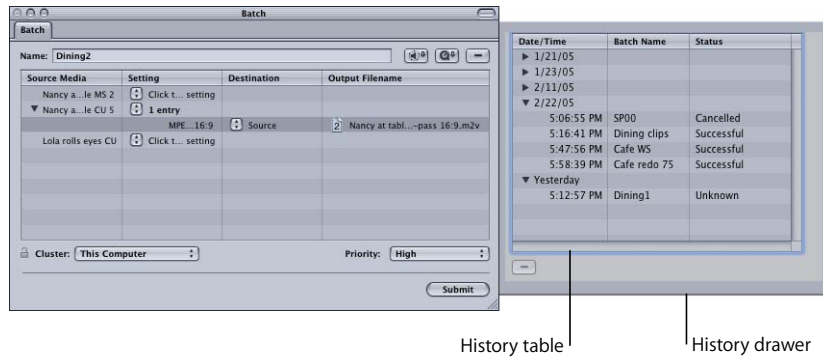
The History drawer contains the following items:

• *History table:* Contains a list of all batches submitted from your computer. These batches are sorted into daily groupings, the contents of which can be viewed by clicking the disclosure triangle. The History table contains the following headings:

   • *Date/Time:* Displays all the dates when batches were submitted from your computer. Click the disclosure triangle to see the exact time all batches were submitted on that particular date.

   • *Batch Name:* Displays the batch name.

   • *Status:* Displays status (*Successful* or *Failed*)

   • *Remove* (–)*:* Click this button to remove a selected batch from the History table.

Resubmitting a Batch

All batch submission information is stored in the History drawer, accessible from the Batch window. This information includes all of the source media files and all of the presets that were assigned to them for that batch submission. You can use this information to resubmit a batch, simply by dragging a particular entry from the History drawer back to the Batch table.

Important: Make sure that the Batch table is empty before dragging a batch from the History table, because any batch you drag from the History table automatically overrides whatever jobs are currently in the Batch table.

To resubmit a batch:

1 Do one of the following:
   • Click the History button in the Compressor toolbar.
   • Choose Window > Show History.

   The History drawer opens to the side of the Batch window, displaying all batches that have been submitted previously, identified by the day and time of submission.

2 Select the batch that you want to resubmit and drag it to the Batch table in the Batch window.

   Note: You must drag the date from the Date/Time column.

Select the batch to resubmit from the History drawer and drag it to the Batch table.

History drawer
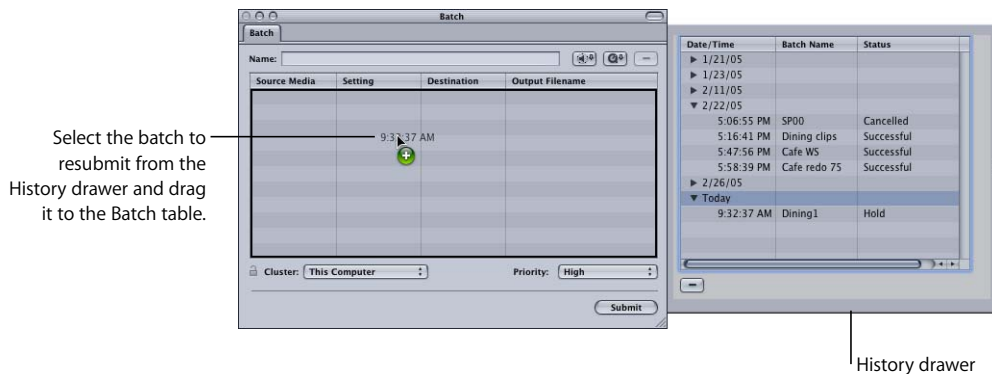
The batch appears in the Batch table with all its original details (source media files, assigned settings, destinations, output format, and batch name) and is immediately ready for transcoding again.

Note: Don't drag multiple batches, because you can only resubmit one batch at a time.
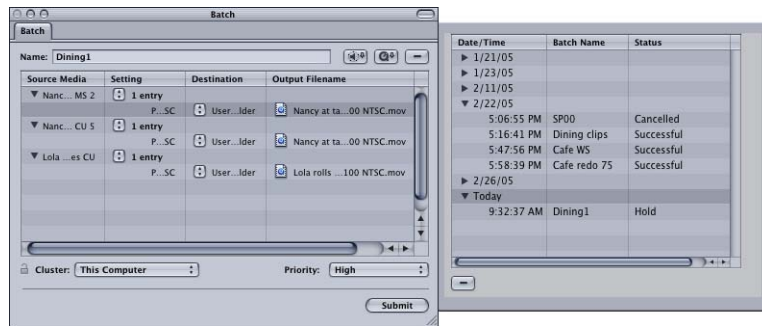
3 Either modify the setting and destination settings to suit your current needs or click Submit to submit the batch as is.

The batch is submitted for transcoding and cleared from the Batch table.

Saving and Opening a Batch File

There may be times when you configure a batch but are not able to submit it right away. In those cases, you may find it useful to save the batch settings for later reference.

To save a batch file:
1 Do one of the following:
   • Choose File > Save Batch As.
   • Press Shift-Command-S.

A dialog opens to name the file and choose its destination. By default, the filename is the same as the first source media file.

2 Enter a name for the file if you do not want to use the default name.
3 Choose the destination for the file.
4 Click Save.

Batch filenames have a ".compressor" extension added to them.

To open a batch file within Compressor:

1 Do one of the following:
   - Choose File > Open Batch.
   - Press Command-O.

   A dialog opens to select the batch file to open.

2 Locate and choose the batch file to open.

3 Click Open.

   You can also open a batch file by double-clicking it in the Finder, or by dragging the batch file to the Compressor application icon.

   Note: An error message appears if Compressor cannot locate any of the source files listed in the batch file, and only those sources it finds will appear.

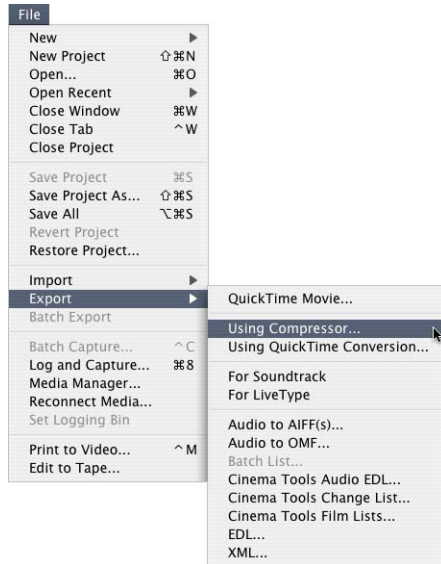## Submitting a Final Cut Pro Project for Transcoding

You can use Compressor to improve the transcoding process for your Final Cut Pro projects. For example, you can transcode your Final Cut Pro project without rendering it. This avoids a potentially time-consuming step depending on how many transitions, filters, and video effects have been applied to your project, and also results in no generational loss of the content from your source media files. This process also eliminates one step from the earlier transcoding workflow which involved exporting from Final Cut Pro to QuickTime and then to a compression application. Now, you can directly export from Final Cut Pro to Compressor.

Depending on its file size, a Final Cut Pro project that is transcoded only on your computer could significantly affect your computer's performance.

Note: Transcoding a Final Cut Pro project doesn't actually create a rendered project, although the transcoded output media file does have all the rendered effects applied. If you want to continue working on the project within Final Cut Pro, you need to render it in Final Cut Pro.

To transcode a Final Cut Pro project:

1 Open the project you want to transcode in Final Cut Pro.

2 Use one of the following methods to select the project for transcoding in Final Cut Pro:

   • In the Browser, select the sequence you want to transcode.

   • Make the Timeline the active window by clicking in it.

3 Save your Final Cut Pro project and give it an appropriate name.

4 Choose File > Export > Using Compressor.

A progress dialog appears, indicating that the files are being submitted for transcoding. Compressor opens with the selected media file (the Final Cut Pro project) in the Batch table of the Batch window. The project name appears in the Source Media column with 0 entries in the Setting column.
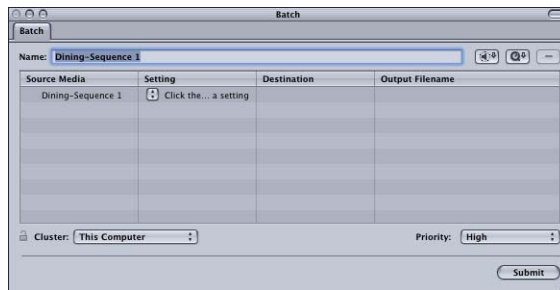
5 Assign settings and destinations to the source media file as necessary.

See the following sections for more information:

- "Assigning Settings to Source Media Files" on page 78
- "Assigning Destinations to Source Media Files" on page 81

6 Click the Submit button in the Batch window.

Compressor begins transcoding the Final Cut Pro project and then closes.

You can open the Batch Monitor to view the transcoding status of your Final Cut Pro project. See the *Batch Monitor User Manual* for more information.

Note: Final Cut Pro needs to remain open throughout this process, because much of the transcoding preparation of the frames occurs within Final Cut Pro rather than within Compressor. Also, you cannot continue working in Final Cut Pro until the transcode is completed.

Resubmitting a Final Cut Pro Project

You can use the History drawer to resubmit a Final Cut Pro project, the same way as you resubmit any other batch. Compressor recognizes that this particular batch originated from Final Cut Pro, so when you drag the batch from the History drawer to the Batch table of the Batch window, it automatically opens Final Cut Pro.

See "Resubmitting a Batch" on page 85 for details about the steps in this process.

Transcoding Different Clips From One Source Media File

If you have a large source media file and you only want to transcode a few different sections of it, you can do this in one batch submission.

To transcode different clips from one source media file:

1 Open the Batch window.

2 Import the source media file into the Batch table as many times as the number of clips you want to make.

3 Add settings to each media file.

A unique identifier is applied to the output filename, so that you can easily identify each clip after it is transcoded.
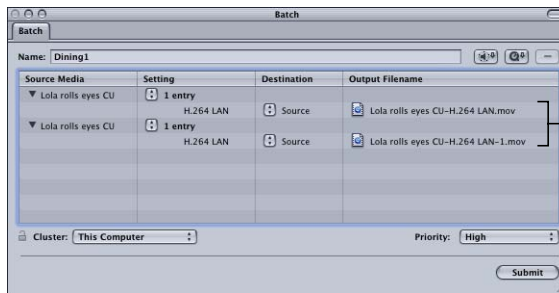
Unique file identifiers are automatically applied to each job.

4 Do one of the following to open the Preview window:

- Click the Preview button in the Batch window.
- Double-click one of the applied settings.

The Preview window opens.

5   Use the Batch Item selection buttons or pop-up menu to navigate to each media file you want to transcode.

Drag the In and Out points to the first relevant section of the media file, and repeat for the next media file by dragging its In and Out points to the next relevant section of the media file. You can also use the I (In) and O (Out) keys to move the markers to the current location of the playhead.

6   Return to the Batch window and click Submit.

See "About the Preview Window" on page 210 for more information.

Creating Dolby Digital Professional Output Files

7

Compressor provides the tools you need to encode, and batch-encode, Dolby Digital Professional (AC-3) audio files.

Dolby Digital Professional format (also known as *AC-3*) is a very common compressed audio format for DVD-Video discs. Compressor 2 accepts multichannel sound files in a variety of formats and gives you complete control over the AC-3 encoding process. Dolby Digital programs can deliver 5.1-channel surround sound with five discrete full-range channels (left, center, right, left surround, and right surround) plus a sixth channel for low-frequency effects (LFE), sometimes known as "the subwoofer." Another surround option is Dolby Surround, with four channels (left, center, right, surround). But not all AC-3 audio is 5.1 surround sound. Dolby Digital Professional is commonly used to encode stereo files to greatly reduce their file size.

This chapter covers the following:

- About the Dolby Digital Professional Encoder Pane (p. 94)
- Converting Audio Files to Dolby Digital Professional Format (p. 100)
- Creating Surround Files (p. 101)
- Options for Spatial Mixing (p. 106)

Note: Dolby Digital Professional encoding with Compressor is available only on computers that also have DVD Studio Pro 4 or Final Cut Studio installed. If you are using Compressor with distributed processing, DVD Studio Pro must be installed on each node that will be doing Dolby Digital Professional encoding.

If you are planning to make DVDs using DVD Studio Pro, see the *DVD Studio Pro User Manual* for more information about the DVD authoring workflow.

Note: It's important to understand that Compressor cannot take stereo audio files and create 5.1 surround sound from them. If you want to create a 5.1 surround sound AC-3 audio file, you must first create the six channels of audio it requires. This must be done using other applications outside Compressor.

About the Dolby Digital Professional Encoder Pane

This section contains detailed information about the various tabs within the Dolby Digital Professional (AC-3) Encoder pane of the Inspector window.
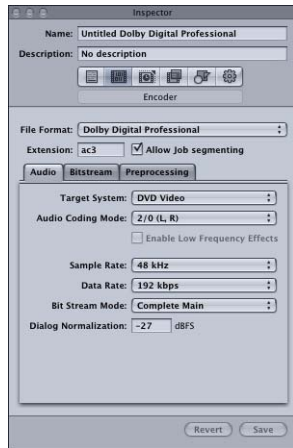

You make your Dolby Digital Professional settings using the tabs described below, by either modifying an existing setting or creating a new setting in the Settings tab of the Presets window. The Dolby Digital Professional pane opens with the default Audio tab on top and contains the following items:

- *File Extension:* This field displays the Dolby Digital Professional file extension (*ac3)* automatically after the Dolby Digital Professional output format is selected from the File Format pop-up menu or the (+) pop-up menu in the Settings tab of the Presets window.

- *Allow Job segmenting:* This checkbox allows you to turn off job segmenting. It is relevant only if you are using Compressor with distributed processing *and* with two pass or multi pass encoding. (The Compressor 2 distributed processing feature is limited to computers that have either Final Cut Studio or DVD Studio Pro 4 installed.) For more information, see "Encoder Pane" on page 43.

- *Audio, Bitstream, and Preprocessing:* These buttons open the Audio, Bitstream, and Preprocessing tabs described next.

Audio Tab Settings

All of the most important Dolby Digital Professional settings are accessible in the Audio Tab.
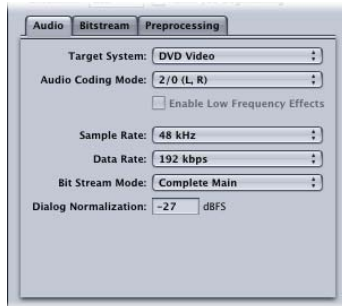
- *Target System:* Compressor limits available settings to those appropriate for the target system. If you're encoding for use with DVD Studio Pro, choose DVD Video.
- *Audio Coding Mode:* Specifies the audio channels of the encoded stream.
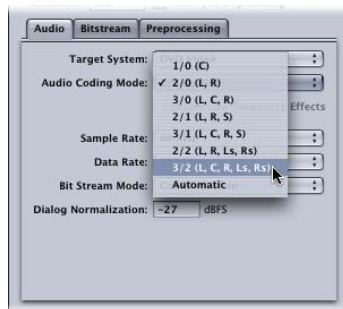
For example, "3/2 (L, C, R, Ls, Rs)" means three front channels (left, center, right), and two rear channels (surround). "2/0 (L, R)" is essentially a standard stereo file. The audio coding mode affects settings such as the available bandwidth and surround channel preprocessing. If you choose Automatic, Compressor makes its best guess at the intended Audio Coding Mode, based on available source audio files.
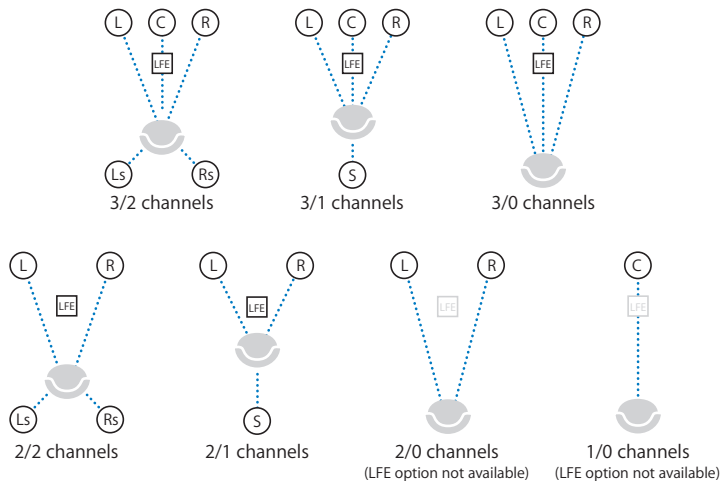
Note: In the Audio Coding Mode pop-up menu, "S" stands for a single rear "Surround" channel, and in this illustration, "LFE" stands for Low Frequency Effects (also known as "subwoofer"). In subsequent sections of this manual, the Low Frequency Effects channel is referred to as "the LFE channel" and its channel identifier code is ".S" (for "subwoofer"). The single rear "Surround" channel is referred to as "Center surround" (and its channel identifier code is "Cs"). For more information, see "Assigning Files to Surround Sound Channels (Manual Method)" on page 103 and "Assigning Files to Surround Sound Channels (Automatic Methods)" on page 104.

- *Sample Rate:* Specifies the sample rate. All files intended for DVD authoring must have a 48 kHz sample rate as per the DVD specification.
- *Data Rate:* The choices depend on the coding mode and target system. The higher the rate, the better the quality. AC-3 streams have a constant data rate. At 448 kbps, which is the default for 5.1 encoding, one minute of AC-3 audio takes about 3.3 MB of storage space. For stereo encoding, rates of 192 kbps and 224 kbps are typical and will produce good results.
- *Bit Stream Mode:* Defines the purpose of the encoded audio material. The information is included in the finished stream and can be read by some decoding systems.

- *Dialog Normalization:* Specifies the average volume of the dialog in your sound files relative to full modulation. The playback device uses this information to maintain similar volume among different AC-3 streams. A setting of −31 dBFS ensures the sound levels will not be altered at all.
- *Enable Low Frequency Effects:* Select this checkbox to include the LFE channel in the encoded stream. (Not available for mono or stereo.)

Bitstream Tab Settings

These settings are stored in the finished stream for use by the playback device. Leave them at their default values unless you have a specific technical reason for changing them.
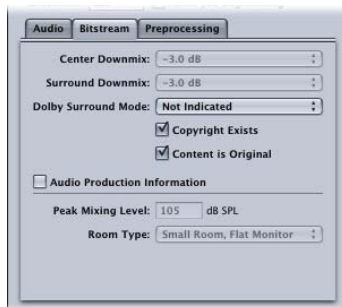
- *Center Downmix, Surround Downmix:* If your encoded audio has these channels, but the player does not, the channels are mixed into the stereo output at the specified level.
- *Dolby Surround Mode:* When encoding in 2/0 (stereo) mode, specifies whether the signal uses Dolby Surround (Pro Logic).
- *Copyright Exists:* Select this checkbox to specify that a copyright exists for this audio.
- *Content is Original:* Select this checkbox to specify that this audio is from the original source and not a copy.
- *Audio Production Information:* Select this checkbox and fill in the fields below to specify how the encoded audio content was mixed. Playback devices may use this information to adjust output settings.
  - *Peak Mixing Level:* Specifies peak sound pressure level (SPL) (between 80 dB and 111 dB) in the production environment when this mix was mastered.
  - *Room Type:* Specifies information about the mixing studio.

Preprocessing Tab Settings

Preprocessing options are applied to the audio data before encoding. With the exception of the Compression Preset setting, leave these settings at their default values unless you have a specific technical reason for changing them.
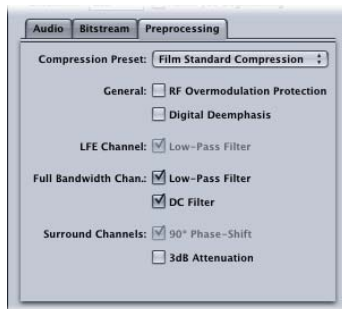
- *Compression Preset:* Specifies one of the dynamic range processing modes built in to the AC-3 format. The default of Film Standard Compression should *only* be used when you are encoding an original mix intended for cinema. In almost all cases, you should choose None.

General

- *RF Overmodulation Protection:* Determines whether to use an RF preemphasis filter in the clip protection algorithm to prevent RF overmodulation in set-top-box decoders.
- *Apply Digital Deemphasis:* Specifies whether input audio data is preemphasized and needs to be deemphasized before encoding.

LFE Channel

- *Apply Low-Pass Filter:* Select this checkbox to apply a 120 Hz low-pass filter to the Low Frequency Effects (LFE) channel. Turn off this filter if the digital signal fed to the LFE's input does not contain information above 120 Hz.

Full Bandwidth Channels

- *Apply Low-Pass Filter:* Select this checkbox to turn on a low-pass filter with a cutoff near the available audio bandwidth that is applied to the main input channels. If the digital signal fed to the main input channels does not contain information above the available audio bandwidth, you can turn off this filter. Compressor will automatically determine the available bandwidth.
- *Apply DC Filter:* Select this checkbox to turn on a DC high-pass filter for all input channels as a simple way to remove DC offsets. Most mixed audio material is already free of DC offsets.

Surround Channels

- *Apply 90° Phase-Shift:* Select this checkbox to generate multichannel AC-3 streams that can be downmixed in an external 2-channel decoder to create true Dolby Surround–compatible output.
- *Apply 3 dB Attenuation:* Select this checkbox to apply a 3 dB cut to the surround channels of a multichannel film soundtrack being transferred to a consumer home theater format. Cinema surround channels are mixed 3 dB "hot" (higher) relative to the front channels to account for cinema amplifier gains.

Converting Audio Files to Dolby Digital Professional Format

Follow these steps to encode a Dolby Digital Professional (AC-3) stream.

To encode an AC-3 stream:

1   Add source audio files to the Batch window. (See Chapter 4, "Importing Source Media Files," on page 55 for details.)

2   Enter a name for the batch you are submitting in the Name field.

3   Do one of the following to apply the appropriate Apple setting from the Dolby Digital Professional category to the source audio file:

   • Choose a setting from the pop-up menu in the Settings column of the Batch table.

   • Drag a setting from the Settings tab of the Presets window to the source audio file in the Batch window.

4   Optionally, make any adjustments to the setting in the Encoding pane of the Inspector window. See "About the Dolby Digital Professional Encoder Pane" on page 94 for more information.

   Note: Compressor will map channels intelligently. Here are some examples:

   • If you import a stereo source file and apply a mono 1/0 (C) audio coding mode to it, the file will be down-mixed.

   • If you apply a surround audio coding mode to the stereo file, the left and right channels will be mapped to the left front (-L) and right front (-R) channels, leaving the other channels of the coding mode silent.

   • If you assign a stereo file to the left front or left (rear) surround channel, Compressor will pick the left channel and ignore the right channel.

   For more information about surround sound files, see "Creating Surround Files," next.

5   Click Submit.

Creating Surround Files

To give your listeners a "surrounding" audio experience, your sound must be created with that goal in mind. For example, if you want the sound of an explosion coming from behind the listener, you need to put the sound in the rear channels during recording and mixing.

Dolby Digital Professional Surround Sound

Dolby Digital programs can deliver 5.1-channel surround sound with five discrete full-range channels (left, center, right, left surround, and right surround) plus a sixth channel for low frequency effects (LFE). Another Dolby surround option is Dolby Surround, with four channels (left, center, right, surround).

An Overview of the Surround Sound Workflow

The following steps outline the general workflow used to go from recording the sound to encoding it as an AC-3 surround sound file.

Note: Compressor is not a sound editing or mixing tool. You will need sound editing and mixing tools for the first three steps outlined below.

Step 1: Record the sound

As with any audio track, the first step is finding and recording the sound that you want. Keep your end result in mind. If you want to position particular sounds in the surround sound environment, you should record them separately.

Step 2: Mix the sound

The second step is mixing the audio. You need a separate audio file for each channel. If you want to create Dolby Digital Professional 5.1 sound, you need a file for each of the six source channels—left front, right front, center front, left rear, right rear, and Low Frequency Effects (LFE). To create files for channels, assign your sounds to channels using a recording/mixing system that supports six-track playback.

When mixing, you can enhance the video action by dynamically moving the sounds within the surround field. The following are some common approaches to multichannel sound:

- Use the surround channels for effects only. Create a stereo mix, then add "sweetening" sound effects in the surround channels.
- Create special sounds for the rear and low-frequency channels (the rumble of an earthquake, the pounding of drums, an airplane buzzing overhead, and so on) and add them to a standard stereo mix. (To create sound for the LFE channel, you can extract low frequencies from the rest of your sound using band-pass filters.)
- Position instruments, effects, and voices anywhere in the sound field.
- Use the center channel for voiceover, leaving it out of the left and right channels. (This is called *stereo plus center.*)

See "Options for Spatial Mixing" on page 106 for more information.

Step 3: Digitize the sound

Once your sound is mixed, save the resulting channels as sound files in one of these formats:

- AIFF
- SoundDesigner II
- QuickTime
- WAVE

Depending on the format, a file can contain a single channel (mono), dual channels (stereo), or multiple channels. Compressor supports Dolby Digital Professional in all these configurations.

Sound files intended for Dolby Digital Professional encoding must conform to the following rules:

- All source files should be the same length. (If they are not, Compressor sets the length of the AC-3 stream to match the length of the longest file.)
- All files must have a 48 kHz sample rate (as required for DVD).
- AC-3 streams must have a multiple of 1536 samples. If the selected input files do not, Compressor adds digital silence to the end of the files.

Note: Compressor 2 can support any kind of source files that contain surround sound and high resolution audio up to 64 bits per sample (floating point) and sample rates up to192 kHz.

Step 4: Make channel assignments

Assign your source audio files to specific channels of the AC-3 stream. For more information about channel assignments, see "Assigning Files to Surround Sound Channels (Manual Method)," next, and "Assigning Files to Surround Sound Channels (Automatic Methods)" on page 104.

Step 5: Encode the sound files

Click Submit and Compressor does the rest, giving you an AC-3 audio stream.

Assigning Files to Surround Sound Channels (Manual Method)

To manually assign source audio files to channels of a surround sound stream:

1 Do one of the following to import the source audio files:

   • Click the "Import Surround Sound Group" button in the Batch window.

   • Choose File > Import Surround Group.

   The channel assignment interface opens.

2 Do one of the following to assign a source audio file to a particular channel.

   • Drag the source audio file from the Finder to the icon for a specific channel (for example, "L").

   • Click the icon for a specific channel (for example, "L") and use the Open dialog to locate the source audio file intended for that channel.

   The file is now assigned to the "L" (Left Front) Channel.
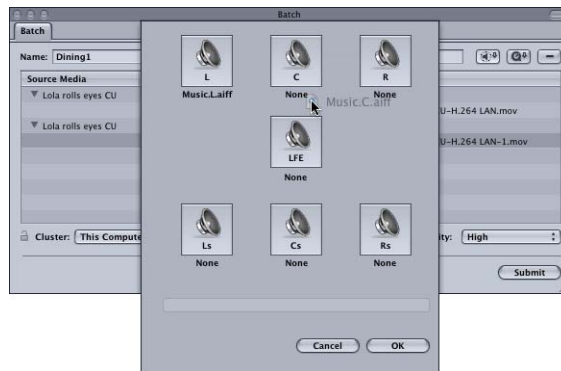
3 Repeat Step 2 for each of the source audio files that you intend to include in the surround stream.

   Note: If you are creating Dolby Digital Professional (AC-3) surround sound streams, you will not use all the channels listed in the table at once. See "Audio Tab Settings" on page 95 for a diagram of the Dolby audio coding modes.

4 When you have finished adding source audio files to the channel assignment interface, click OK.

   The group of surround files appears as a single surround source media file in the Batch window.

5 Do one of the following to apply the appropriate Apple setting from the Dolby Digital Professional category to the source audio file:

   • Choose a setting from the pop-up menu in the Settings column of the Batch table.
   • Drag a setting from the Settings tab of the Presets window to the source audio file in the Batch window.

6 Make any necessary adjustments in the Inspector window and click Submit.

Compressor creates an AC-3 surround audio stream.

Assigning Files to Surround Sound Channels (Automatic Methods)

Compressor offers some streamlined channel assignment techniques that can save you time.

To assign files to surround channels with channel identifier codes:

1 Append the channel identifier code of the target surround channel to the filename of each source audio file. (See the table below for a list of the appropriate channel identifier codes.)

For example, for if a source audio file is named *lemur* and is intended for the left front channel, then you would be rename the file *lemur.L.*

Channel assignment	Channel Identifier Code
Left front channel	.L
Right front channel	.R
Center front channel	.C
Left surround channel	.Ls
Right surround channel	.Rs
Center surround channel	.Cs
Low frequency channel (Subwoofer, LFE)	.S

Note: Mac OS X may require that you add a file extension like *.aiff*. This will *not* interfere with this channel assignment method. So the complete filename would look like this: *lemur.L.aiff.*

Note: If you are creating Dolby Digital Professional (AC-3) surround sound streams, you will not use all of the channels listed in the table at once. See "Audio Tab Settings" on page 95 for a diagram of the Dolby audio coding modes.

2 Drag the renamed source audio files to the Batch window.

If the following conditions are met, Compressor automatically collapses the entire group of files into what appears as a single surround source media file in the Batch window:

- The files in the group must be named correctly. (See table above.)
- The total number of files in the group must be fewer than seven.

3 Do one of the following to apply the appropriate Apple setting from the Dolby Digital Professional category to the source audio file:

- Choose a setting from the pop-up menu in the Settings column of the Batch table.
- Drag a setting from the Settings tab of the Presets window to the source audio file in the Batch window.

4 Make any necessary adjustments in the Inspector window and click Submit.

Compressor creates an AC-3 surround audio stream.

Note: In Mac OS X, the above suffixes can be interpreted as information about the file creator. As a result, the files that make up the different channels can be associated with various Mac OS X applications based on the suffix. This has no effect on the decoding of the files.

Assigning Files to Surround Sound Channels with Droplets

You can further streamline the channel assignment process by encapsulating the "automatic" method described above in a "droplet."

For more information about droplets, see "Using Droplets" on page 235.

Options for Spatial Mixing

This section offers additional insights and suggestions for using the channels in a Dolby Digital Professional program.

Using the Center Channel

In a multichannel system, there are three ways to achieve a centrally placed sound image:

- *Create a "phantom center" (mix sound to the left and right equally, as with stereo).* Commonly used, but assumes the listener is seated exactly between the speakers (which is not possible in automobiles and not always the case in homes). The timbre of sound is not the same as from a direct speaker because of cross-cancellation effects.
- *Use the center channel alone.* This creates a stable center image for listeners in any location. (To prevent the audio from sounding too focused or narrow, its reverb can be spread to the left and right channels.)
- *Use all three front channels equally or in various proportions.* This method allows for greater control of the range of spatial depth and width. The phantom center can be reinforced by additional signals in the center channel, which can be enhanced by signal spread into the left/right pair. The disadvantage is that sound from all three speakers may not blend well or may not arrive at the listener at the same time, causing side effects such as comb filtering, shifts in tone color, or smearing. To counteract these side effects, you can first process the additional signals to change their spatial character, timbre, or prominence relative to the main center signal.

Using Surround Channels

Subtle surround effects can greatly enhance the listener's sense of depth compared to conventional stereo. Popular music often benefits from creative use of surround. But don't overdo it. The film industry guideline—don't use surround effects to distract the listeners from the story—also works well for music.

Limitations of the LFE Channel

The Low Frequency Effects (LFE) channel is a separate signal with a limited frequency range, and is created by the mixing engineer and delivered alongside the main channels in the mix. A "brick wall" filter at 120 Hz in the Dolby Digital Professional encoder limits use of the LFE channel to the bottom two audible octaves. Dolby recommends limiting the signal to 80 Hz when mixing your sound.

In most music productions (with such exceptions as the famous cannon shots in Tchaikovsky's "1812 Overture"), the LFE channel is not necessary. The LFE signal is also discarded in the Dolby Digital Professional downmix process, so intense bass signals do not stress small stereo systems. Be sure not to include vital information in the LFE channel that would be missed in mono, stereo, or Pro Logic playback.

Because LFE is separate from other channels, its ability to blend with higher frequencies can be affected by filters used to generate the LFE signal. To ensure a cohesive audio signal, keep the entire signal together in the main channel or channels.

Avoid creating an LFE channel for material originally produced without one. Dolby Digital Professional's five main channels are all full-range, and the LFE channel does not increase the frequency response. Dolby Digital Professional decoders offer bass management, directing low frequencies to a subwoofer or other suitable speakers. An LFE track may interfere with bass management.

Accommodating Stereo Playback

Even with the popularity of 5.1 systems, you should always address stereo reproduction. There are three basic ways to do this:

- Prepare a new stereo mix from the original multitrack elements (using conventional stereo-mixing sessions).
- Prepare a studio-adjusted downmix from the multichannel mix. This method takes advantage of the work that has gone into mixing the 5.1 version. It retains flexibility in the exact proportions of each channel represented in the final stereo mix.
- Let the decoder derive a stereo downmix, based on preset formulas in the decoder. Downmix options and dynamic range control effects can be previewed and adjusted in the production studio, and a range of adjustments are possible.

Always check the mix on an inexpensive surround system to evaluate how well it sounds on modest playback systems.

Note: For more information about Dolby Digital Professional, see "Frequently Asked Questions about Dolby Digital Professional," available at the Dolby Laboratories Inc. website: http://www.dolby.com

Creating H.264 DVD Output Files

8

Compressor can output H.264, also known as MPEG-4 Part 10. This ultra-efficient, fully scalable video technology produces higher quality video at lower data rates.

Compressor 2 adds output for H.264, also known as MPEG-4 Part 10. Not only is H.264 very efficient, providing extremely high quality in smaller files, but H.264 is also scalable, producing video for everything from 3G for mobile phones to High Definition (HD). H.264 is currently mandatory in both new high definition DVD specifications (HD DVD and Blu-Ray) and functionally included in hundreds of new electronics products.

At DVD data rates, H.264 is twice as efficient as MPEG-2. That means you can count on a lower bit rate to get the same quality, or higher quality at the same bit rate. H.264 is the result of the combined efforts of two standards bodies — the ITU (International Telecommunication Union) and ISO MPEG (International Organization for Standardization's Moving Picture Experts Group). H.264's outstanding performance and efficiency makes it the likely successor to MPEG-2 in the professional media industry.

This chapter contains the following:

For information on creating H.264 files for uses other than DVD authoring (such as web video), see "Creating QuickTime Movie Output Files" on page 163.

About the H.264 Encoder Pane

This section contains detailed information about the elements of the H.264 Encoder pane in the Inspector window. You make your H.264 settings using this pane, by either modifying an existing setting or creating a new setting in the Settings tab of the Presets window.

Note: This particular Encoder pane is devoted to encoding H.264 files intended for authoring high definition (HD) format video DVDs. For information about using H.264 for other purposes, see "Creating QuickTime Movie Output Files" on page 163.

The H.264 pane contains the following items:

- *File Extension field:* Displays the QuickTime file extension (mov) automatically after the H.264 output format is selected from the File Format pop-up menu.
- *Allow Job segmenting:* This checkbox allows you to turn off job segmenting. It is only relevant if you are using Compressor with distributed processing and with two pass or multi-pass encoding. (The Compressor 2 distributed processing feature is limited to computers that have either Final Cut Studio or DVD Studio Pro 4 installed.) For more information, see "Job Segmenting and Multi-pass" on page 112.
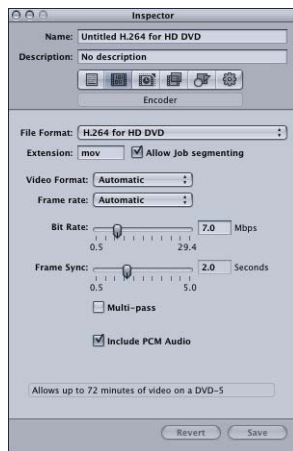
- *Video Format:* Use the Video Format pop-up menu to choose from the following four choices. All of them are HD progressive formats:
  - *576p*: 16x9 anamorphic format (720 x 576 PAL-only @ 50p fps)
  - *480p*: 16x9 anamorphic format (720 x 480 NTSC-only @ 59.94p fps)
  - *720p*: 16x9 format (1280 x 720 NTSC @ 59.94p fps or 1280 x 720 PAL at 50p fps)
  - *Automatic*: Choose this setting if you are unsure of your source media file's video format. This setting analyzes your source media clip's frame rate and frame size to determine the correct video format.

- *Frame Rate*: Use the Video Format pop-up menu to choose from the following options:
  - *50* fps (for PAL)
  - *59.94* fps (for NTSC)
  - *Automatic*: Choose this setting if you are unsure of your source media file's video format. This setting analyzes your source media clip's frame rate to determine the correct frame rate.

Note: If you choose a format in the Video Format menu, the Frame Rate menu will be filled in automatically.

- *Bit Rate*: Choose the bit rate to use for the output video with the slider, or enter a value directly. While the available range is between 0.5 and 29.4 Mbps, typical HD-based DVD video bit rates with H.264 might range from 7 to 15 Mbps, depending on your DVD bit-budget and the nature of your source media files. The H.264 file format is twice as efficient as the standard MPEG-2 format. This means you can count on a lower bit rate to get the same quality, or higher quality at the same bit rate.

- *Frame Sync:* Use the slider to choose the Frame Sync rate for the output video or enter a value directly. Also known as the key frame interval, this value represents how often a keyframe is inserted in the H.264 stream. More frequent keyframes will increase the quality and the bit rate; less frequent keyframes will reduce the quality and bit rate. The default setting is 2 seconds.
- *Multi-pass:* Use this checkbox to turn on multi-pass encoding. Similar to two pass MPEG-2 encoding, multi-pass offers the best possible quality. For faster (single-pass) encodes, turn this feature off by deselecting the checkbox.
- *Include PCM Audio*: Use this checkbox to include a 16-bit, 48kHz stereo PCM audio track in the output QuickTime movie. Most DVD producers will use a Dolby Digital Professional (AC-3) setting for the audio with its much higher efficiency. In that case, you can deselect this checkbox and make sure that a Dolby 2.0 setting is applied to the job in the Batch window. If you select the checkbox, encode the H.264 movie, and then import the movie into DVD Studio Pro, the video track and the audio track will appear as two separate items in the Assets tab, as if you had imported one video asset and one audio asset.

Job Segmenting and Multi-pass

If you choose the multi-pass mode, and you are using Compressor 2 or higher with distributed processing enabled, you may have to make a choice between speedier processing and ensuring the highest possible quality. The Apple Qmaster distributed processing system speeds up processing by distributing work to multiple processing nodes (computers). One way it does this is by dividing up the total amount of frames in a job into smaller segments. Each of the processing computers then works on a different segment. Since the nodes are working in parallel, the job is finished sooner than it would have been on a single computer. But with Multi-pass (and two-pass VBR MPEG-2), each segment is treated individually so the bit-rate allocation generated in the first pass for any one segment does not include information from the segments processed on other computers.

First, evaluate the encoding difficulty (complexity) of your source media. Then, decide whether or not to allow job segmenting (with the "Allow Job segmenting" checkbox at the top of the Encoder pane). If the distribution of simple and complex areas of the media is similar in any given segment as it is across the whole source media file, then you can get the same quality whether segmenting is turned on or not. In that case, it makes sense to allow segmenting to speed up the processing time.

However, you may have a source media file with an uneven distribution of complex scenes. For example, suppose you have a 2-hour sports program in which the first hour is the pregame show with relatively static talking heads, and the second hour is high-action sports footage. If this source media were evenly split into 2 segments, the bit rate allocation plan for the first segment would not be able to "donate" some of its bits to the second segment because the segments would be processed on separate computers. The quality of the more complex action footage in the second segment would suffer. In this case, if your goal were ensuring the highest possible quality over the entire 2-hour program, it would make sense to *not* allow job segmenting by de-selecting the checkbox at the top of the Encoder pane. This forces the job (and therefore, the bit-rate allocation) to be processed on a single computer.

H.264 Workflows for DVD

The efficiency and quality of H.264 creates a number of options for DVD producers:

- Since H.264 can deliver high definition (HD) video at standard definition (SD) bit rates, you can get 90 minutes of HD content on a regular DVD-5 disc, which will be playable on the next generation of DVD players.
- Video resolutions supported by SD DVDs are also supported by HD DVDs. This means that a high definition DVD can use an HD video resolution file for its main content, such as a feature film, and then use SD video resolution files for additional features like trailers and a "making-of" documentary.

Creating MPEG-1 Output Files

9

Compressor provides the tools you need to create exceptional MPEG-1 transcoded files.

MPEG-1 is an internationally accepted compression standard developed by the Motion Picture Experts Group (MPEG). MPEG-1 allows you to create VHS-quality video files and was designed to support SIF (Standard Interface Format) resolution non-interlaced (progressive) video using relatively low bit rates (Compressor supports 0.5 Mbps to 2 Mbps). It also allows you to create compressed 1-channel and 2-channel audio.

This chapter covers the following:

Common Uses for MPEG-1

MPEG-1 is a widely adopted standard, so it can be used in many different ways. Here are a few:

DVD, VCD, and CD ROM

MPEG-1 is the video compression format used for video CD (VCD) titles and is compatible for use on DVD titles since all DVD players contain the hardware required for MPEG-1 playback. MPEG-1 is commonly used in videos distributed on CD ROM. Its low bit rate and small file sizes are useful when you must fit multiple hours of video onto a DVD and do not require the broadcast quality of MPEG-2 encoding. A DVD can contain a mix of MPEG-2 and MPEG-1 video.

On the Web

Since MPEG-1 was one of the first widely adopted compression standards, it has an advantage of being compatible with most media players. This makes MPEG-1 attractive for use on the web when you need maximum compatibility with relatively high quality.

Audio-Only

MPEG-1 audio provides a way to reduce audio file sizes and reduce the bit rate needed to play the files. You can use MPEG-1 audio in conjunction with MPEG-2 video on a DVD, which is useful when you want to maximize the amount of disc space and bit rate available for your project's video.

MPEG-1 Specifications

Compressor supports all the MPEG-1 specifications for frame sizes, frame rates, video encoding, and audio encoding.

MPEG-1 Frame Sizes and Frame Rates

Compressor can produce full frame rate video (25 fps and 29.97 fps for DVD and 23.976 fps, 25 fps, and 29.97 fps for the web) with SIF resolutions dependent on the use:

- *Web:* 320 x 240
- *NTSC:* 352 x 240
- *PAL:* 352 x 288

While the NTSC and PAL resolutions are roughly half the full resolution of MPEG-2 video, when played on a DVD player they automatically expand to fill the entire screen.

MPEG-1 File Format Specifications

MPEG-1 video encoding uses a process very similar to MPEG-2 encoding—many of the same terms and settings apply. In Compressor, the encoding settings are set as follows:

- *Encoding mode:* One pass
- *GOP structure:* Open
- *GOP pattern:* BBIBBP
- *GOP length:* 15 frames for NTSC; 12 frames for PAL

These settings are fixed and apply to all Compressor MPEG-1 video output files. See "GOP Tab" on page 138 for information about Group of Pictures (GOP) settings. See "Quality Tab" on page 134 for information on the encoding mode.

The MPEG-1 output files can have I-frames forced on specific frames by placing compression markers on them. These markers can be added to the source media file using Final Cut Pro or can be added manually in the Preview window. See "Adding Markers to a Clip" on page 220 for more information.

The MPEG-1 format does not support named chapter markers.

About the MPEG-1 Encoder Pane

This section contains detailed information about the various tabs within the MPEG-1 Encoder pane of the Inspector window. You make your MPEG-1 settings using these tabs, by either modifying an existing setting or creating a new setting in the Settings tab of the Presets window.
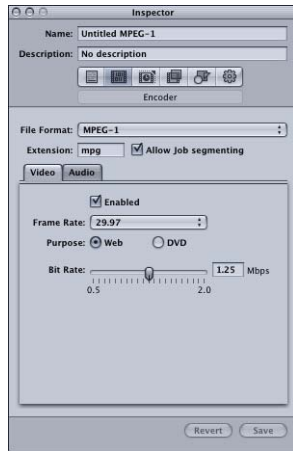
The MPEG-1 Encoder pane opens with the default Video Format tab on top and contains the following items:

- *Extension:* This field displays the MPEG-1 file extension *mpg* automatically after the MPEG-1 output format is selected from the File Format pop-up menu, or the (+) pop-up menu in the Settings tab of the Presets window. Changes to *m1v* if the Audio tab is disabled, or *m1a* if the Video tab is disabled.

- *Allow cluster segmenting:* This checkbox allows you to turn off cluster segmenting. It is relevant only if you are using Compressor 2 or higher with distributed processing enabled. (The Compressor 2 distributed processing feature is limited to computers that have either Final Cut Studio or DVD Studio Pro 4 installed.) For more information, see "Encoder Pane" on page 43.

- *Video and Audio tabs:* These buttons open the Video and Audio tabs described next.

Video Tab

You use the Video tab to make settings related to the video format.
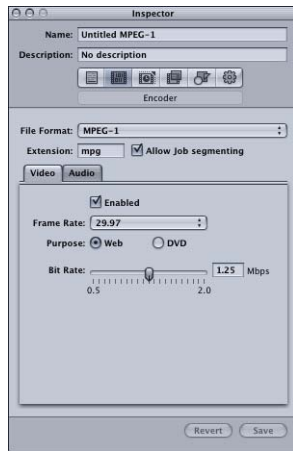
- *Enabled checkbox:* Make sure this box is selected if you want the MPEG-1 output format to include the Video tab settings.
- *"Frame rate" pop-up menu:* Choose the frame rate of the video you are encoding.
  - *With Purpose set to Web,* the choices are 23.976, 25 (PAL frame rate), 29.97 (NTSC frame rate), and Automatic.
  - *With Purpose set to DVD,* the choices are 25 (PAL frame rate), 29.97 (NTSC frame rate), and Automatic.

  Choosing Automatic forces the encoder to determine the proper frame rate by choosing the rate that most closely matches the source frame rate.

  Note: Using the Automatic setting with nonstandard source frame rates may result in output frame rates that do not match the intended video frame rate. For example, a source frame rate of 15 fps with the Purpose set to DVD results in an automatic selection of 25 (PAL). If you are intending to use the output on an NTSC DVD, you must choose 29.97 as the frame rate.

- *Purpose buttons:* Choose the intended purpose for the output files.
  - *Web:* Forces the resolution to 320 x 240 regardless of the "Frame rate" selection.
  - *DVD:* Allows the "Frame rate" selection to set the resolution. With the 29.97 frame rate, the resolution is 352 x 240. With the 25 frame rate, the resolution is 352 x 288.

- *Bit rate:* Use this slider to choose the bit rate to use for the output video, or enter a number directly into the text field. While the available range is from 0.5 Mbps to 2.0 Mbps, the actual setting you should use depends on how the output is to be used. Higher bit rates produce better picture quality, but they also produce larger output files.
  - *For web projects,* choose a bit rate that best balances the picture quality with file size and download expectations.
  - *For VCD projects,* the recommended video bit rate is 1.15 Mbps, with a system stream (multiplexed video and audio in the same file) bit rate of under 1.3944 Mbps.
  - *For DVD projects,* the typical video bit rate is 1.15 Mbps with 1.856 Mbps being the maximum allowed.

Audio Tab

You use the Audio tab to make settings related to the audio format.
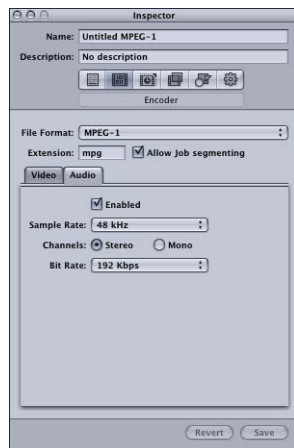
- *Enabled checkbox:* Make sure this box is selected if you want the MPEG-1 output format to include the Audio tab settings.
- *"Sample rate" pop-up menu:* Choose the sample rate of the output audio.
  - *48 kHz:* Required for use on DVDs.
  - *44.1 kHz:* Used on audio CDs. This is the most commonly supported sample rate.
- *Channels buttons:* Choose whether to create a stereo or mono output audio.
- *"Bit rate" pop-up menu:* Choose the bit rate to use for the output audio. Choices are 64 Kbps, 128 Kbps, 192 Kbps, 224 Kbps, and 384 Kbps. While higher bit rates produce higher quality audio, they also produce larger output files.

  Note: The 224 Kbps and 384 Kbps settings are not available when Channels is set to Mono.

About System and Elementary Streams

You can use Compressor to create system or elementary MPEG-1 streams.

System Streams

System streams, also known as multiplexed streams, combine the video and audio components into the same file. This type of stream is most often used in web applications.

Compressor automatically creates a system stream when you enable both the Video and Audio tabs in the same setting.

Elementary Streams

With elementary streams, there are separate files for the video and audio components. Elementary streams are required by some applications, such as DVD Studio Pro.

Compressor automatically creates an elementary stream when only the Video or Audio tab is enabled, but not both. To create elementary streams of both the video and the audio, you must use two settings—one with the Video tab enabled using the file extension of .m1v, and a second with the Audio tab enabled using the file extension of .m1a.

MPEG-1 Transcoding Workflow

This section gives step-by-step instructions for setting your MPEG-1 attributes prior to creating MPEG-1 output files with Compressor. Make your MPEG-1 settings from the MPEG-1 Encoder pane by either modifying an existing setting or creating a new setting. See the following steps for working with the MPEG-1 output file format.

Example MPEG-1 Settings

The settings you use depend on whether you are encoding for use on the web or in a DVD project.

Encoding for the Web

Use the following settings when encoding MPEG-1 system streams for the web.

Video tab
- *Frame rate:* Automatic
- *Purpose:* Web
- *Bit rate:* As low as you can set it and get acceptable picture quality

Audio tab
- *Sample rate:* 44.1 kHz
- *Channels:* Stereo with two-channel sources; Mono with one-channel sources
- *Bit rate:* As low as you can set it and get acceptable audio quality; use higher bit rates when encoding stereo audio

Encoding for DVD

Use the following settings to configure two settings when encoding MPEG-1 elementary streams for DVD authoring.

Video elementary stream setting—Video tab
- *Frame rate:* 29.97 for NTSC or 25 for PAL
- *Purpose:* DVD
- *Bit rate:* 1.15 Mbps

Video elementary stream setting—Audio tab
- Enabled box deselected

Audio elementary stream setting—Video tab
- Enabled box deselected

Audio elementary stream setting—Audio tab
- *Sample rate:* 48 kHz
- *Channels:* Stereo with two-channel sources; Mono with one-channel sources
- *Bit rate:* 192 Kbps or 224 Kbps

Configuring the MPEG-1 File Format for Web Use

The following steps guide you through configuring the MPEG-1 output file format for web use. This process creates a single MPEG-1 system stream.

Step 1: Open the MPEG-1 Encoder pane and choose Video settings

1   Open the Settings tab of the Presets window, then choose MPEG-1 from the "Create a New Setting" (+) pop-up menu.

The MPEG-1 Encoder pane opens in the Inspector with the default Video tab displayed.

Select to enable the Video tab. — Choose the frame rate.

Select Web to set the resolution to 320 x 240. — Choose the bit rate.
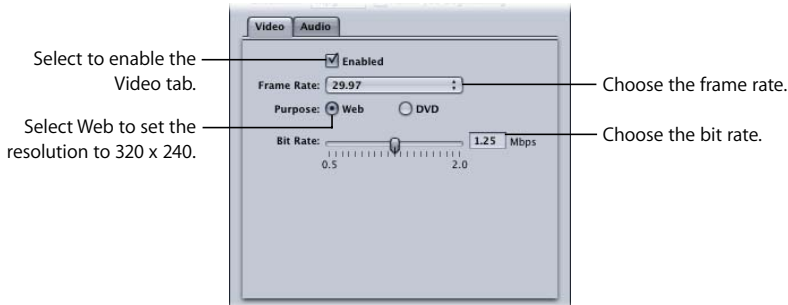
2   Select the Enabled box.

3   Choose Automatic from the "Frame rate" pop-up menu.

You can also choose 23.976, 29.97, or 25 if you know the frame rate of the source video.

4   Select the Web button.

This sets the resolution of the output to 320 x 240.

5   Choose the bit rate to use from the "Bit rate" slider, or enter a value directly.

Step 2: Choose Audio settings

1 Click the Audio button in the MPEG-1 Encoder pane to open the Audio tab.

Select to enable the Audio tab.

Select the number of audio channels.

Choose the 44.1 kHz sample rate.

Choose the bit rate.

2 Select the Enabled box.

3 Choose 44.1 kHz from the "Sample rate" pop-up menu.

4 Select Stereo when using two-channel audio sources, or Mono when using one-channel audio sources.

5 Choose the bit rate to use from the "Bit rate" pop-up menu.

Configuring the MPEG-1 File Format for DVD Use

The following steps guide you through configuring the MPEG-1 output file format for DVD use. This process creates two settings, one for video and another for audio, creating elementary streams.

Creating the MPEG-1 Video for DVD Setting

The following steps create the setting for an MPEG-1 elementary video output file.

Step 1: Create the MPEG-1 Video for DVD setting

1 Open the Settings tab of the Presets window, and choose MPEG-1 from the "Create a New Setting" (+) pop-up menu.

This adds a new setting to the existing list.

2 Name the new setting "MPEG-1 Video for DVD. "

See "To assign a pre-existing destination preset:" on page 68 for more information.

Step 2: Open the MPEG-1 Encoder pane and configure the Video settings

1 Click the Encoder tab and choose MPEG-1 from the File Format pop-up menu.

2 Click the Video button in the MPEG-1 Encoder pane to open the Video tab.

Select to enable the Video tab.

Select DVD to set the resolution to match the frame rate.

The file extension changes to m1v once the Audio tab is disabled.

Choose the frame rate.
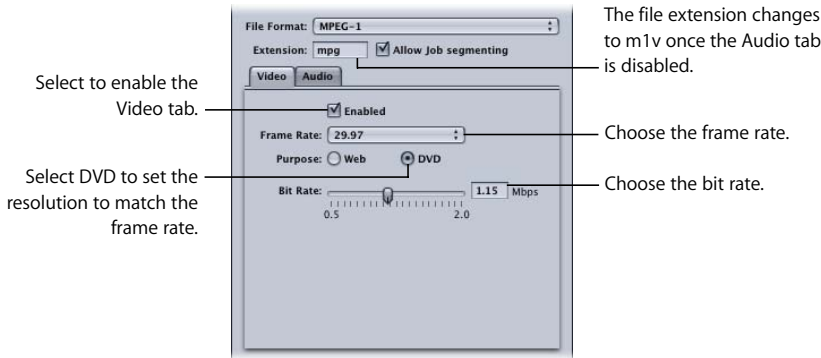
Choose the bit rate.

3 Select the Enabled box.

4 Choose the frame rate that matches your source video, either 29.97 or 25, from the "Frame rate" pop-up menu.

5 Select the DVD button.

This sets the resolution of the output to match the selected frame rate.

6 Choose the bit rate to use with the "Bit rate" slider, or enter a value directly.

The typical value used for DVD projects is 1.15 Mbps, with 1.856 Mbps being the maximum allowed.

Step 3: Turn off audio for the video setting

1 Click the Audio button in the MPEG-1 Encoder pane to open the Audio tab.

2 Deselect the Enabled box.

This ensures that this setting (preset) will only create an elementary video stream and sets the file extension to m1v.

Deselect to disable the Audio tab.
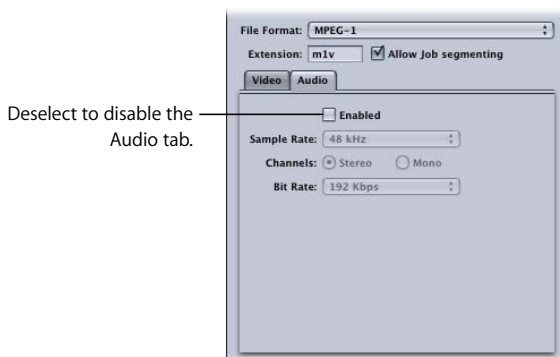
3 Select a different setting in the Settings tab.

This opens a dialog prompting you to save the current setting.

4 Select the Save button and click OK.

This saves the "MPEG-1 Video for DVD" setting.

Creating the MPEG-1 Audio for DVD Setting

The following steps create the setting for an MPEG-1 elementary audio output file.

Step 1: Create the MPEG-1 Audio for DVD setting

1 Open the Settings tab of the Presets window and click the Add Preset (+) button.

This adds a new setting to the existing list.

2 Name the new setting "MPEG-1 Audio for DVD." See "To assign a pre-existing destination preset:" on page 68 for more information.

Step 2: Turn off the video for the audio setting

1 Click the Encoder tab and choose MPEG-1 from the File Format pop-up menu.

2 Click the Video button in the MPEG-1 Encoder pane to open the Video tab.

Deselect to disable the Video tab.

The file extension changes to m1a once the Video tab is disabled.
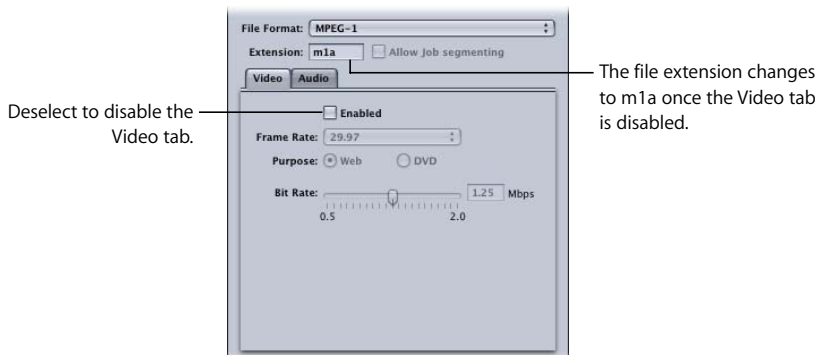
3 Deselect the Enabled box.

This ensures that this preset will only create an elementary video stream and sets the file extension to m1a.

Step 3: Configure the Audio settings

1 Click the Audio button in the MPEG-1 Encoder pane to open the Audio tab.

2 Select the Enabled box.

Select to enable the Audio tab.

Select either Stereo or Mono.

Choose the 48 kHz sample rate.
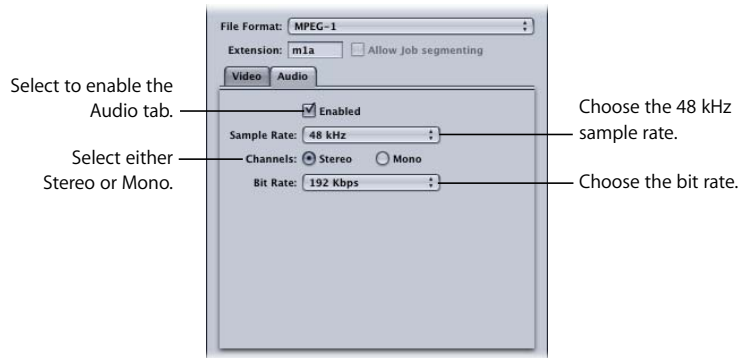
Choose the bit rate.

3 Choose 48 kHz from the "Sample rate" pop-up menu.

4 Select Stereo when using two-channel audio sources, or Mono when using one-channel audio sources.

5 Choose the bit rate to use from the "Bit rate" pop-up menu.

The typical values used for DVD projects are 192 Kbps and 224 Kbps.

6 Select a different setting in the Setting tab of the Presets window.

This opens a dialog prompting you to save the current preset.

7 Select the Save button and click OK.

This saves the "MPEG-1 Audio for DVD" preset.

Creating a Group and Destination

To make it easy to use these two MPEG-1 presets with a source, you can create a preset group using them. See "Creating Groups of Settings" on page 75 for more information.

Also, to make it easier to use the output files created by these presets in DVD Studio Pro, create a destination that ensures the video and audio output files have the same name, only with different file extensions. See "Creating Destinations for Use With DVD Studio Pro" on page 232 for more information.

Creating MPEG-2 Output Files

10

Compressor provides the tools you need to create exceptional MPEG-2 transcoded files.

MPEG-2 is an internationally accepted compression standard developed by the Motion Picture Experts Group (MPEG). MPEG-2 allows you to create broadcast-quality video files and was designed to support high-resolution, high bit-rate video. It is the video compression format used for high-quality video titles on DVD and home satellite dish systems. All DVD players contain the hardware required for MPEG-2 playback.

This chapter covers the following:

About Standard Definition MPEG-2

Standard MPEG-2 is full frame rate (23.98–29.97 fps) and full-screen resolution (720 x 480 for NTSC and 720 x 576 for PAL). MPEG-2 has the following characteristics:

- *Support for interlaced video:* MPEG-2 can support either interlaced or progressive video. Because MPEG-2 streams are generally played from a local DVD drive, rather than over a network with variable bandwidth, video frame rate usually stays constant, and the video normally looks completely smooth.
- *No streaming support:* MPEG-2 is not suitable for streaming video files over the web because it requires a high bit rate (2 to 9 Mbps) to maintain acceptable image quality.

  Note: The Compressor MPEG-2 encoder has been optimized for creating MPEG-2 video streams for the DVD-Video format. To create DVD-Video discs, you must use a DVD authoring application, such as DVD Studio Pro, in conjunction with Compressor.

About High Definition Sources and MPEG-2

Compressor has several different options and workflows for transcoding high definition (HD) video source files into MPEG-2 files.

HD on DVD

Compressor can output MPEG-2 files for creating HD-resolution DVDs from either HD or standard definition (SD) source media. Compressor can retain the various frame sizes and frame rates of high definition video when transcoding to MPEG-2. And Compressor supports the higher bit rates required by HD-based DVD formats. For more information on creating output for HD-based DVDs, see "About the MPEG-2 Encoder Pane" on page 129 and the *DVD Studio Pro User Manual*.

Note: The other output file format option for HD-based DVDs is H.264, also known as MPEG-4 Part 10. H.264 is currently mandatory in both new high definition DVD specifications (HD DVD and Blu-Ray). For more information about creating H.264 files for HD on DVD, see "Creating H.264 DVD Output Files" on page 109.

HD to SD Downconversion

For those situations in which you are editing high definition (HD) sources in Final Cut Pro and want to create a standard definition (SD) DVD from them, Compressor provides high-quality downconversion. Compressor retains as much detail as possible during scaling and correctly preserves progressive or interlaced formats when encoding to MPEG-2 for DVD.

To see the source media resolution and frame rate:

1 Import the source media file into the Batch window.

2 Click the source's name in the Batch window.

The source media file's resolution and frame rate, along with its duration, appear in the lower-left corner of the Preview window.

About the MPEG-2 Encoder Pane

This section contains detailed information about the various tabs within the MPEG-2 Encoder pane in the Inspector window. You make your MPEG-2 settings using these tabs, by either modifying an existing setting or creating a new setting in the Settings tab of the Presets window.
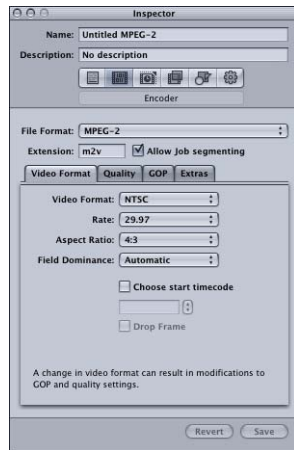
The MPEG-2 pane opens with the default Video Format tab on top and contains the following items:

- *File Extension field:* Displays the MPEG-2 file extension (m2v) automatically after the MPEG-2 output format is selected from the File Format pop-up menu.
- *Allow Job segmenting:* This checkbox allows you to turn off job segmenting. It is only relevant if you are using Compressor with distributed processing *and* with two pass or multi pass encoding. (The Compressor 2 distributed processing feature is limited to computers that have either Final Cut Studio or DVD Studio Pro 4 installed.) For more information, see "Job Segmenting and Two Pass VBR" on page 136.
- *Video Format, Quality, GOP, and Extras:* These buttons open the Video Format, Quality, GOP, and Extras tabs described next.

Video Format Tab

You use the Video Format tab to make settings related to video formats, frame rates, aspect ratio, field dominance, and timecode. It contains the following controls:

- *Video Format pop-up menu:* Choose your output video file format as either NTSC (default), PAL, 720p, 1080i (HDV res), 1080i (Std. res), Automatic (SD), or Automatic (HD). When you choose a Video Format setting, the other settings in this tab will be filled in with default values, or they will be grayed out, indicating that there are now options for that setting. The NTSC and PAL items refer to standard definition settings for the NTSC and PAL TV standards. Of the major-market DVD regions, NTSC is used in North America and Japan, and PAL is used throughout Europe.

  Generally, the output video format should match the source video format. For interlaced video originating from traditional NTSC or PAL camcorders, choose NTSC or PAL from this pop-up menu. If you are unsure of what your source media file's video format is, you can choose either Automatic (SD) for standard definition or Automatic (HD) for high definition. This setting analyzes your source media clip's frame rate to determine the correct video format.

Note: If you choose Automatic, the GOP size is limited to 12 or 15, with a closed IBBP pattern. With Automatic selected, you cannot change any of the frame rate and field dominance settings in this tab, or the GOP settings in the GOP tab. See "Understanding GOPs and Frame Types" on page 140 for more information about GOPs.

Note: Since MPEG-2 for DVD uses fixed video frame sizes (shown in the table below), Compressor enters the output frame size in the fields in the Geometry pane based on your video format selection.

Note: The normal frame dimensions of standard definition (SD) NTSC digital video are 720 x 486. If you want to transcode a source file using the NTSC setting, Compressor crops the file to achieve the required MPEG-2 frame size of 720 x 480, unless you have already specified cropping attributes for your setting. If not, Compressor crops two rows of pixels from the top and four from the bottom. This crop attribute is only temporary and is not saved in the setting. You can see the effects of the crop by double-clicking the setting in the Batch table to open the Preview window.

The video format you choose determines the options for the associated characteristics such as frame size and rate, aspect ratio, and field dominance.

Video format	Frame size (pixels)	Frame rate (fps)	Interlaced source
NTSC	720 x 480	29.97	Y
PAL	720 x 576	25	Y
720p	1280 x 720	23.98, 50, 59.94	N
1080i (HDV res)	1440 x 1080	23.98, 25, 29.97	Y
1080i (Std. res)	1920 x 1080	23.98, 25, 29.97	Y

Note: The NTSC frame rate is frequently mentioned as 29.97 fps. Similarly, the "NTSC version" of 24 fps is mentioned as 23.98 fps. Both these numbers are actually approximations to the true values 30/1.001 and 24/1.001, or 29.97003 and 23.97602 shown to more decimal places. These numbers show that 29.97 is a pretty good approximation to 30/1.001 (only 3 frames drift in 100,000 seconds), but that 23.976 would be much better than 23.98. In fact, even though 23.98 is used as shorthand in the Compressor Help and in the Compressor user interface, accuracy of 23.976 or better is maintained internally in Compressor, and generally within *QuickTime* as well.

- *Rate:* Choose the intended frame rate for the MPEG-2 output file. Film and some new camcorders create progressive material at 24 fps (or the NTSC variant 23.98 fps). Although the term "24p" implies video with a frame rate of 24 fps, the frame rate is usually 23.976 fps (rounded to 23.98) fps. To transcode these sources for DVD playback on NTSC-related TVs, choose the 23.98 setting. See "About 24p (23.98p)" on page 133 for more information.
- *Aspect Ratio pop-up menu:* Choose the aspect ratio of your video file. The default is 4:3. The other option of 16:9 is used for anamorphic DVD. The aspect ratio determines how the picture fills the television screen. A 16:9 (widescreen) DVD viewed on a typical 4:3 television displays in letterbox format (black bars at the top and bottom of the screen). However, a widescreen DVD displayed on a 16:9 (widescreen) TV fills the screen.
- *Field Dominance pop-up menu:* Choose whether the top field or the bottom field of your interlaced source media file will be the dominant (first) field in the output MPEG-2 video file. If you choose Automatic (the default), Compressor analyzes the source video and attempts to determine field dominance automatically. Bottom field is dominant for DV source video. This setting pertains only to interlaced video output formats, not 720p.

  Note: For interlaced video, the top field is also known as the *upper* or *odd* field, and the bottom field is also known as the *lower* or *even* field.
- *"Choose start timecode" checkbox and field:* If you leave the checkbox deselected (the default), Compressor embeds the source media file's existing timecode into the output media file. Selecting this box allows you to override the source media file's existing timecode and enter a new timecode in the timecode field. This field remains dimmed unless the checkbox is selected, and if it is left blank, the output media file uses the default timecode of 00:00:00:00.
- *"Drop frame" checkbox:* If you have already selected the "Choose start timecode" checkbox, and you want your timecode to be drop frame (rather than non-drop frame), you must also select this checkbox.

  Timecode is a numbering system for labeling the frames in a video sequence. The type of timecode designed for 30 fps video has a frame counter which counts from 0 to 29, and then increments the seconds counter and returns to 0. This type of timecode, also known as *non-drop frame* timecode, maintains an accurate measure of elapsed time for true 30 fps video. However, the NTSC frame rate is 29.97 fps, and so *drop frame* timecode was defined to provide a more accurate measure of elapsed time for NTSC. Drop frame timecode skips frame numbers 0 and 1 once a minute on the minute, except for every 10 minutes. For example, drop frame timecode 01:08:59;29 is followed by 01:09:00;02, skipping timecodes 01:09:00;00 and 01:09:00;01.

  Note: Drop frame timecode only applies if you are using interlaced NTSC video.

About 24p (23.98p)

For DVD authoring and encoding, 24p refers to a video sequence that contains 24 progressive (non-interlaced) frames per second, with NTSC-related standard definition frame dimensions (720 x 480 for MPEG-2). Film-based movies have a native frame rate of 24 fps, and because the MPEG-2 format is able to represent 24 fps video internally, many commercial movie DVDs are encoded in this way. But any time you use NTSC video in your project, the frame rate of film-transferred material will be slowed down from 24 fps to 23.976 fps (rounded to 23.98) and a 2:3:2:3. *pull-down* is added. So, the more accurate term is actually "23.98p."

Compressor can also do this for 24P source video files. For such material, the 23.98 frame rate option (in the Video Format tab) compresses each source frame one-for-one, without compressing repeated frames or fields in order to achieve a 29.97 fps display rate. This results in higher quality at a lower compressed bit rate than would be possible if the 24p material were converted to 29.97 fps prior to transcoding. Compressor also sets internal MPEG-2 frame flags correctly, so DVD players will properly apply the *3:2 pull-down* process for display on 29.97 fps interlaced NTSC TV sets.

This capability is supported in the Apple end-to-end 24p (23.98p) editing and delivery solution (Final Cut Pro with Cinema Tools). The workflow typically goes like this:

23.98 fps film > Telecine > 29.97 fps video > Final Cut Pro > Cinema Tools > 23.98 fps video > Compressor > DVD Studio Pro

Note: If your source video has a frame rate of 24.00 fps rather than 23.98 fps, Compressor skips one out of every 1000 source frames. If the 24p source video is 23.98 fps, Compressor transcodes all source frames, without skipping (or repeating) any of them.

Quality Tab

The Quality tab allows you to set the bit rate for your video so that it can be transcoded to a suitable data size and quality.

In addition to the controls, the lower-right corner shows an estimate of how many minutes of video would fit on a 4.7 GB DVD using the current settings. This time assumes a single AIFF audio stream to be used with the MPEG-2 stream.

The Quality tab contains the following controls:

Mode pop-up menu

Motion Estimation pop-up menu

Time estimate for a 4.7 GB disc with a stereo AIFF audio stream
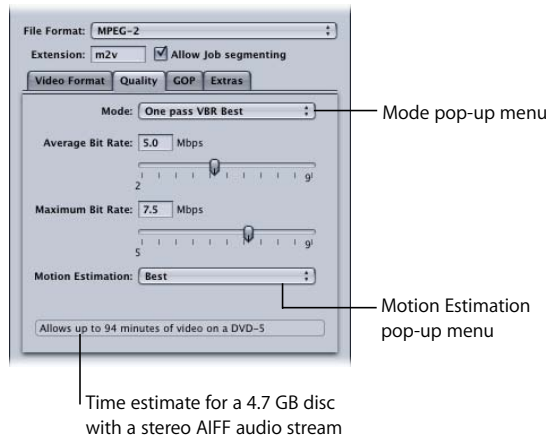
- *Mode pop-up menu:* Allows you to choose one of the following MPEG-2 encoding modes. High Definition (HD) quality modes will be One pass VBR Best or Two pass VBR Best.
  - *"One pass":* Using this mode, the output MPEG-2 video stream's bit rate is held approximately constant from one GOP to the next. This is the fastest Compressor MPEG-2 encoding mode, and it provides good to very good quality, especially at bit rates between 5 and 9 Mbps.
  - *"One pass VBR":* This VBR (variable bit rate) encoding mode aims to maintain constant quality (at the expense of constant bit rate) for the transcoded video file. This means that in scenes with much detail or fast motion, Compressor allows a higher bit rate than it allows in less detailed or still parts of the stream. In spite of this bit rate variability, Compressor ensures your specified average bit rate is achieved accurately and that the maximum bit rate is not exceeded. Unlike the two pass modes, one pass VBR doesn't have a "bird's eye" view of the source media prior to encoding, so its bit allocation is less optimized than two pass VBR. Nonetheless, for most Standard Definition (SD) media files at bit rates of 3.5 Mbps and above, this mode provides good to excellent quality and transcodes quickly.

- *"One pass VBR Best":* This is similar to one pass VBR, but with this mode, Compressor applies greater effort to its internal decision-making processes. Although one pass VBR Best transcodes slower than one pass VBR, it provides excellent to outstanding SD video quality at bit rates of 3 to 3.5 Mbps and above. Bit rates for HD MPEG-2 can range from 10–29Mbps average, 12–29Mbps maximum. Compared to one pass VBR, one pass VBR Best provides higher quality, especially for difficult material at low bit rates.

Note: For short streams of 1 to 2 minutes or less, if you are using one pass VBR or one pass VBR Best, the average bit rate accuracy may be compromised by as much as 10 to 30 percent.

- *"Two pass VBR":* In this mode, Compressor reads through the entire source video file twice. In the first of these passes, Compressor analyzes the entire source video stream prior to transcoding it to determine the degree of encoding difficulty of each scene. It then creates a bit rate allocation plan that gives the higher bit rate to complex scenes and a lower bit rate to easy scenes, so as to average out to the specified average bit rate while ensuring that the specified maximum bit rate is not exceeded. In the second pass, Compressor does the actual compression, creating the MPEG-2 output video file according to its bit rate allocation plan. Like one pass VBR, the goal of two pass VBR is constant quality rather than constant bit rate. Unlike One-pass VBR, Two-pass VBR is able to establish an overview of where best to spend its bits across the entire source media file, before beginning the actual encoding. The result of this process is that transcoding time is almost twice that of one pass VBR. Although the benefit is not twice the quality, two pass VBR provides more consistent overall quality than one pass VBR, especially in source media files where the difference between the most and the least complex scenes is substantial.

- *"Two pass VBR Best":* This mode devotes more effort to its internal decision-making process than does two pass VBR. Encoding time for Two pass VBR Best is slower than it is for Two pass VBR, but it provides the best possible quality that the Compressor MPEG-2 encoder has to offer. This mode provides outstanding quality at bit rates of 3–3.5 Mbps and above for standard definition (SD) video.

Job Segmenting and Two Pass VBR

If you choose a two-pass VBR mode, and you are using Compressor 2 or higher with distributed processing enabled, you may have to make a choice between speedier processing and ensuring the highest possible quality. The Apple Qmaster distributed processing system speeds up processing by distributing work to multiple processing nodes (computers). One way it does this is by dividing up the total amount of frames in a job into smaller segments. Each of the processing computers then works on a different segment. Since the nodes are working in parallel, the job is finished sooner than it would have been on a single computer. But with two-pass VBR (and multi-pass H.264) each segment is treated individually so the bit-rate allocation generated in the first pass for any one segment does not include information from the segments processed on other computers.

First, evaluate the encoding difficulty (complexity) of your source media. Then, decide whether or not to allow job segmenting (with the "Allow Job segmenting" checkbox at the top of the Encoder pane). If the distribution of simple and complex areas of the media is similar in any given segment as it is across the whole source media file, then you can get the same quality whether segmenting is turned on or not. In that case, it makes sense to allow segmenting to speed up the processing time.

However, you may have a source media file with an uneven distribution of complex scenes. For example, a 2-hour sports program in which the first hour is the pre-game show with relatively static talking heads, and the second hour is high-action sports footage. If this source media were evenly split into two segments, the bit-rate allocation plan for the first segment would not be able to "donate" some of its bits to the second segment because the segments would be processed on separate computers. The quality of the more complex action footage in the second segment would suffer. In this case, if your goal was ensuring the highest possible quality over the entire 2-hour program, it would make sense to *not* allow job segmenting by deselecting the checkbox at the top of the Encoder pane. This forces the job (and therefore, the bit-rate allocation) to be processed on a single computer.

Note: The "Allow Job segmenting" checkbox only affects the segmenting of individual jobs (source files). If you are submitting batches with multiple jobs, the distributed processing system will continue to speed up processing by distributing (unsegmented) jobs, even with job segmenting turned off.

For more information on the Apple Qmaster distributed processing system, see the *Distributed Processing Setup* guide.

- *Average Bit Rate slider and field:* Choose an average bit rate between 2 Mbps and 9 Mbps for standard definition (SD) video, or between10 and 29 Mbps for high definition (HD) video. You can also enter any number in these ranges into the accompanying field.
- *Maximum Bit Rate slider and field:* Choose a maximum bit rate between 5 Mbps and 9 Mbps for standard definition (SD) video, or between 12 and 29 Mbps for high definition (HD) video. You can also enter any number within these ranges into the accompanying fields. This slider is only available with the VBR modes and cannot be set lower than the average bit rate.

  Important: When determining average and maximum bit rates for standard DVD playback, remember to consider the bit rate of your audio track as well as the MPEG 2 bit rate. You must keep the total of both average and maximum audio and video bit rates under 10.08 Mbps, the maximum guaranteed transfer rate from standard DVD players. (Because DVD-compatible audio formats are constant bit rate (CBR), there is no maximum audio bit rate to worry about.) For example, if you are using AIFF audio at 1.5 Mbps, you should keep both the average and maximum video bit rates under 8.5 Mbps. Typically, your average bit rate will be lower than this (for example, 3.5 Mbps for 2 hours of footage on your DVD). However, your maximum bit rate must also stay under this number. 8.0 Mbps maximum bit rate is recommended to provide an extra margin for error (for example, to accommodate subtitle streams). If you are using one of the DVD-compatible compressed audio formats such as Dolby Digital or MPEG-1/Layer-2, your audio bit rate may be as low as 0.2 to 0.4 Mbps, in which case you can set your maximum bit rate about 1 Mbps higher. As a general rule, set your maximum bit rate at least 1 Mbps higher than your average bit rate, to allow for bit rate variability in achieving the goal of constant quality.

- *Motion Estimation pop-up menu:* This menu is another trade-off between image quality and processing time, especially if there is a lot of motion in the source file. Choose one of the following settings:
  - *Good:* The fastest ME setting. This mode does well even with significant amounts of motion between frames, *if* the motion has minimal interfield motion within frames. For example, footage that has been exposed to frame-rate conversion or other effects processes tends to have little interfield motion. In general, use Good with the one pass encoding mode.

- *Better:* A good general purpose ME setting. The Better mode provides good results even with complex interlaced motion. Better works well for almost all types of interlaced video sources, even shaky footage from hand-held consumer camcorders. In general, use Better with One pass VBR and Two pass VBR.

Note: If you are using a progressive video format, the Better mode will do only frame-based ME, and not field-based motion-vector searching, which is not relevant for progressive source. In this case the Better mode will run somewhat faster.

- *Best:* This is the highest quality ME setting and should be used for the most demanding and complex motion for interlaced sources. It is slower than the Better mode. In general, use the Best mode to maximize quality when using One pass VBR Best or Two pass VBR Best.

Note: Choose a Motion Estimation (ME) mode from the Motion Estimation pop-up menu that is appropriate for the encoding mode you have selected from the five possibilities above. Use Good ME mode for one pass, Better mode for the One pass VBR and Two pass VBR modes, and Best mode for one pass VBR Best and Two pass VBR Best. Any of the ME modes work with any of the encoding modes but these combinations are most suitable. See below for more information about the options in this pop-up menu.

GOP Tab

You use the GOP (group of pictures) tab to select a GOP format, structure, and size. It contains the following controls. See "Understanding GOPs and Frame Types" on page 140 for more information.

GOP Structure pop-up menu
Pattern field
Closed button
GOP Size pop-up menu
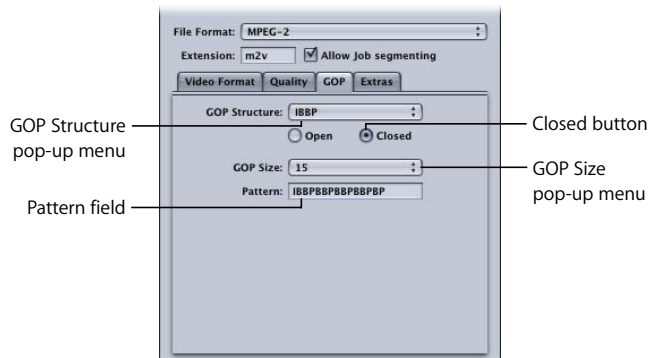
- *GOP Structure pop-up menu:* This setting specifies whether there will be two, one, or no B-frames between the reference frames within a GOP. GOP structure, along with GOP size, determines the number of I-frames, P-frames, and B-frames that are used within a GOP during encoding. Choose from one of the following:
  - *IP:* No B-frames are used with this setting. Choose IP only if your media contains fast motion which was encoded without sufficient quality using an IBBP or IBP structure. Set the average bit rate as high as 8 Mbps or more for good quality.
  - *IBP:* One B-frame is used between reference frames (I-frames and P-frames) with IBP. Choose this setting only if your media contains fast motion which was encoded without sufficient quality using an IBBP structure. Set the average bit rate as high as 6 to 8 Mbps for good quality.
  - *IBBP:* Use IBBP for the majority of MPEG-2 encoding situations, along with a GOP size of 15 for NTSC, or 12 for PAL. Two B-frames are used between reference frames with this setting.

Note: For all HD MPEG-2 formats, the GOP structures are closed.

- *GOP Size pop-up menu:* Choose how many frames are contained within your GOP, following the format of the chosen GOP structure. The maximum GOP size you can choose within Compressor is 15 frames (NTSC) or 12 frames (PAL and 720p). The minimum GOP size for all video formats is 6 frames (closed GOP) or 7 frames (open GOP). The relationship between GOP structure and GOP size gives you GOP patterns. See "Understanding GOPs and Frame Types" on page 140 for more information.

Note: For HD MPEG-2 formats, GOP sizes are fixed at 15 for all 30p and 60i formats, and at 12 for 50i, 50p and 24p formats.

Note: For most DVD authoring MPEG-2 encoding situations, choose IBBP as the GOP structure setting, and GOP size 15 for NTSC, or GOP size 12 for PAL. These selections will give the best results in most situations.

- *Open and Closed buttons:* Closed GOPs may not contain any frame which refers to a frame in the previous GOP, while open GOPs begin with one or more B-frames that reference the last P-frame of the previous GOP. Closed GOPs created by the Compressor MPEG-2 encoder begin with an I-frame. Choose your GOP type (open or closed) based on whether and how you create chapter markers for DVD authoring with DVD Studio Pro, and whether you intend to use multiple video angles in your title. See "Open and closed GOPs" on page 141 for more information.
- *Pattern field:* This field cannot be edited but displays the actual GOP pattern based on your chosen GOP structure and size

Understanding GOPs and Frame Types

A major feature of MPEG-2 encoding is its ability to remove redundancy, not only within a frame, but also among a group of frames. MPEG-2 uses three frame types (I, P, and B) to represent the video. A group of pictures (GOP) setting defines the pattern of the three frame types used. These three picture types are defined in the following way:

- *Intra (I):* Also known as the *keyframe*. Every GOP contains one I-frame. The I-frame is the only MPEG-2 frame type which can be fully decompressed without any reference to frames that precede or follow it. It is also the most data-heavy, requiring the most disk space. If you want to place an I-frame at a scene change or some other specific frame location, you need to manually set it using the Preview window. This is known as a *forced* I-frame. See "Adding Markers to a Clip" on page 220 for more information.
- *Predicted (P):* Encoded from a "predicted" picture based on the closest preceding I- or P-frame. P-frames typically require much less disk space than do I-frames because they reference a preceding I- or P- frame in the GOP.

  Note: Both I-frames and P-frames are also known as *reference* frames, because a B-frame may refer to either one or both frame types.
- *Bi-directional (B):* Encoded from an interpolation of succeeding and preceding reference frames, either I-frame or P-frame. B-frames are the most storage-efficient MPEG-2 frame type, requiring the least amount of disk space.

The use of B- and P-frames is what allows MPEG-2 to remove temporal redundancy, contributing to its ability to compress video efficiently.

Things to Consider When Choosing a GOP Setting

You need to consider the following aspects when choosing a GOP setting:

GOP structure

This setting specifies whether there will be two, one, or no B-frames between the reference frames within a GOP. GOP structure, along with GOP size, determines the number of I, P, and B-frames that will be used during transcoding.

The GOP structure you choose depends on how far apart P-frames should be spaced. Since a P-frame is predicted from the previous reference frame (either an I-frame or a P-frame), if there are one or two B-frames in between, the prediction must cover the distance objects can move over the duration of two to three frames.

In principle, the less average motion there is from one frame to the next, the farther apart P-frames can be spaced, and the greater the compression can be. For most video material, the IBBP structure is a good choice. Material with unusually fast motion throughout the entire sequence may benefit from an IBP or IP structure, but in such cases a relatively high bit rate (6 to 8 Mbps for SD video) may be required for good quality.

GOP size

This setting specifies the number of frames within a GOP. Because exactly one I-frame exists per GOP, longer GOP sizes generally provide greater compression, because B- and P-frames are smaller than I-frames.

For most media, spacing I-frames about 1/2 second apart gives good results. This equates to a GOP size of 15 frames for NTSC and 12 frames for PAL. The DVD-Video specification prohibits GOP lengths from being much longer than this. Generally, only material with scene changes occurring less than 1/2 second apart frequently throughout the video will benefit from shorter GOP sizes.

Open and closed GOPs

Open GOPs are most efficient because they allow B-frames from one GOP to look at the last P-frame from the preceding GOP as well as the first I-frame of their own GOP. Open GOPs don't have to start with I-frames as shown below:
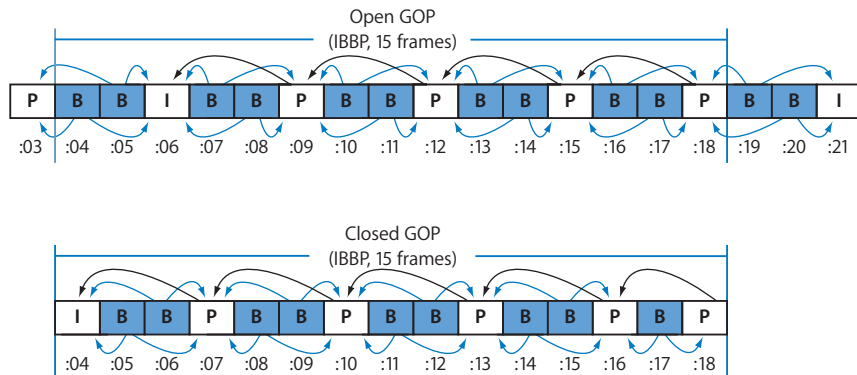
By definition, closed GOPs cannot contain any frame that refers to a frame in the previous GOP. In contrast, open GOPs begin with one or more B-frames that reference the last P-frame of the previous GOP. Closed GOPs created by Compressor always begin with an I-frame.

Open GOPs generally provide slightly better compression than do closed GOPs of the same structure and size. The illustration above shows that a closed GOP contains one more P-frame than does an open GOP of the same length. Since P-frames generally require more bits than do B-frames, the open GOP achieves slightly better compression.

There are limitations to using open GOPs for DVD-Video discs that are created using a DVD authoring application such as DVD Studio Pro. One limitation is that only closed GOPs are permitted within MPEG-2 streams that will be used for mixed-angle or multi-angle DVDs.

The other limitation is that DVD chapter markers can only be set at the beginning of a closed GOP. The best time to define chapter markers is before doing MPEG-2 transcoding. For example, if you specify your chapter markers in Final Cut Pro, you can set Compressor to do MPEG-2 transcoding with open GOPs. Compressor will then force a closed GOP to begin only at the specified chapter markers, and will make all other GOPs open. You can also accomplish this by specifying "forced I-frames" in the Compressor Preview window, and giving them a chapter name to be used by DVD Studio Pro.

However, if you want to specify chapter markers at any GOP boundary after your video has been transcoded in the MPEG-2 format, you should only use closed GOPs. This freedom is limited, as it allows you to set chapter markers only at GOP boundaries, rather than at any video frame.

Extras Tab

You use the Extras tab to control the inclusion or exclusion of specific MPEG-2 authoring information. The Extras tab contains the following controls:
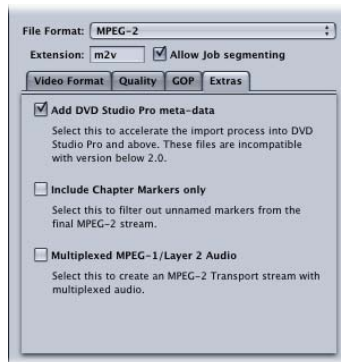
- *Add DVD Studio Pro meta-data:* Selecting this checkbox allows Compressor to parse specific MPEG-2 authoring information during the transcoding process to accelerate the import process into DVD Studio Pro. However, these MPEG-2 files will be incompatible with versions of DVD Studio Pro 1.5 or earlier. Leaving the checkbox unselected means the information will be parsed later in DVD Studio Pro.

  Note: MPEG-2 streams with additional DVD Studio Pro metadata are only compatible with DVD Studio Pro 2 (or later) versions. MPEG-2 streams with this checkbox selected will not be compatible with versions prior to DVD Studio Pro 2, or with other DVD authoring tools. All Apple settings have this box checked by default. To make your MPEG-2 files compatible with other DVD authoring tools, uncheck this box, and then save the setting.

- *Include chapter markers only:* Selecting this checkbox excludes unnamed compression markers from the stream but still retains the chapter markers. Leaving the checkbox unselected allows all markers to be recognized in the output media file. See "Adding DVD Studio Pro Chapter Markers to a Clip" on page 222 for more information about chapter markers.

- *Multiplexed MPEG-1/Layer 2 Audio:* Selecting this checkbox makes the output file a transport stream rather than an elementary stream. A *transport* stream combines multiple *elementary* streams, in this case, video and audio, into a single file for real-time distribution such as television. The audio in this stream will be MPEG-1 Layer 2, with a sample rate of 44.1 kHz or 48 kHz (depending on the source) and a bit rate of 384 kbps. To create an audio-only (MPEG-1/Layer 2 Audio) elementary stream, see "Creating the MPEG-1 Audio for DVD Setting" on page 125.

About MPEG-2 Markers and DVD Studio Pro

The following MPEG-2 markers can be found in a source media file:

- *Chapter markers:* These identify frames that should be encoded as I-frames and are recognized as chapter markers when imported into DVD Studio Pro.
- *Forced compression markers:* These are added by an editor during editing, and identify frames in the video that should be forced to I-frames for better quality encoding, such as the first frame of a new scene. Forced compression markers are not recognized as chapter markers by Final Cut Pro.
- *Automatic compression markers:* These are inserted by Final Cut Pro at all edit points, forcing I-frames where scene changes are likely to occur. Automatic compression markers are not recognized as chapter markers by DVD Studio Pro. These will not be included if you select the "Include chapter markers only" checkbox.

If the "Include chapter markers only" checkbox is not selected, Compressor automatically places I-frames at all three kinds of markers. In most cases, this produces the best results. However, if you intend to use the media files as part of a mixed-angle or multi-angle DVD title, all media files must have identical I-frame patterns.

Chapter markers set in Final Cut Pro and transcoded in Compressor, or set directly in Compressor, will not be present in the imported MPEG-2 data in versions earlier than DVD Studio Pro 2. However, I-frames will be set where chapter markers were named. If you are using a version earlier than DVD Studio Pro 2, you have the following options:

Final Cut Pro native projects

You have the following two options for Final Cut Pro native projects:

- *Export using Compressor:* If quality and transcoding controls are important to your project, use Compressor to export your MPEG-2 media file. You will save time and avoid generation loss.
- *Export a QuickTime Reference Movie:* You will not get the high quality and encoding options that Compressor provides, but you be able to continue editing in your Final Cut Pro timeline while Compressor works in the background.

Compressor native projects

You can set chapter markers using the Compressor Preview window, but they will not be preserved when exported to versions earlier than DVD Studio Pro 2. I-frames will be preserved. If you are using a version prior to DVD Studio Pro 2, you can manually set the chapter markers directly in DVD Studio Pro.

MPEG-2 Transcoding Workflow

This section gives step-by-step instructions for setting your MPEG-2 attributes prior to creating MPEG-1 output files with Compressor. Make your MPEG-2 settings from the MPEG-2 Encoder pane by either modifying an existing setting or creating a new one in the Settings tab of the Presets window. See the following steps for working with the MPEG-2 output file format:

Example MPEG-2 Settings

The following MPEG-2 settings can be used for the most general MPEG-2 encoding situations. Open the MPEG-2 Encoder pane and click the appropriate button to access these tabs.

Note: Be aware that many of the settings shown in this example are not suitable for all video input formats, nor for all encoding situations. Some alternative settings are shown in parentheses where appropriate. See the sections at the beginning of this chapter for details on how and when to use other settings.

Video Format tab
- *Video Format:* NTSC (PAL, 720p, 1080i-HDV, 1080i-Std, Automatic-SD, or Automatic-HD)
- *Aspect Ratio:* 4:3 (16:9 for anamorphic widescreen)
- *Field Dominance:* Automatic (not available for 720p)

Quality tab
- *Mode:* One pass VBR Best (Other one pass and two pass settings)
- *Average Bit Rate:* 5 Mbps (2 to 9 Mbps) for standard DVD

Note: Your choice of bit rate may be influenced by several factors, including the complexity of your source video, the format and number of your audio streams, and the total duration of all video clips to fit on your DVD.

- *Maximum Bit Rate:* 8.0 Mbps for standard DVD
- *Motion Estimation:* Best

GOP tab
- *GOP Structure:* IBBP
- *GOP Size:* 15 (12 for PAL and 50i, 50p, and 24p HD formats)
- *GOP Type:* Open (Closed)

Note: Your choice of GOP type (Open or Closed) may be influenced by whether and how you create chapter markers for DVD authoring with DVD Studio Pro and whether you intend to use multiple video angles in your title. See "Adding DVD Studio Pro Chapter Markers to a Clip" on page 222 for more information.

Step 1: Open the MPEG-2 Encoder pane and choose Video Format

It's important to match the video format, aspect ratio, and field dominance to those of your source media file. See "Video Format Tab" on page 130 for a more detailed description of each of these settings.

1 Open the Settings tab of the Presets window, then choose MPEG-2 from the Add Preset (+) pop-up menu button.

The MPEG-2 Encoder pane opens in the Inspector window with the default Video Format tab displayed.
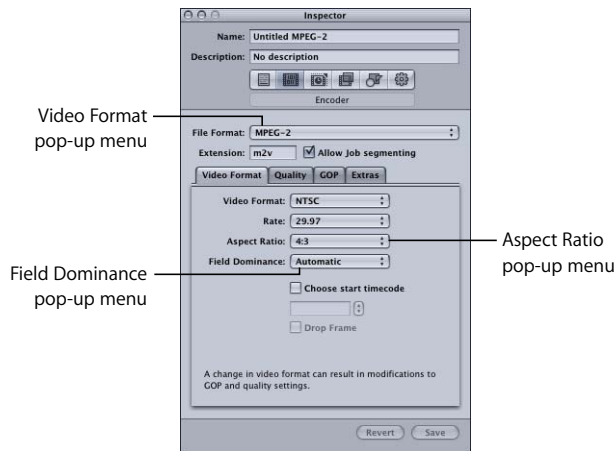
2 Choose a format from the Video Format pop-up menu:

- NTSC (default)
- PAL
- 720p
- 1080i (HDV res)
- 1080i (Std. res)
- Automatic (SD
- Automatic (HD)

If you are unsure of what your source media file's video format is, you can choose either Automatic (SD) for standard definition or Automatic (HD) for high definition and Compressor will determine the correct setting.

3 Choose an aspect ratio from the Aspect Ratio pop-up menu.

You must determine whether the intended shape of your source video is 4:3 (normal) or 16:9 (widescreen) before you can choose your aspect ratio.

4 Choose a field dominance setting based on your source media type from the Field Dominance pop-up menu. For example, for DV choose Bottom First. Or choose Automatic to let Compressor determine the correct setting.

5 If you want to use the timecode from your source video, leave the "Choose start timecode" checkbox unselected. Otherwise, select this box and enter a new timecode.

6 If you have checked the "Choose start timecode" checkbox, and if your video format is NTSC, select the "drop frame" checkbox if you want to use drop frame (rather than non-drop frame) timecode.

See "Video Format Tab" on page 130 for more information.

Step 2: Choose Quality settings
In the Quality tab, you set the MPEG-2 encoding attributes that have the greatest influence on the resulting quality of your MPEG-2 video output file: encoding mode, average and maximum bit rate, and type of motion estimation.

1 Click the Quality button in the MPEG-2 Encoder pane to open the Quality tab.
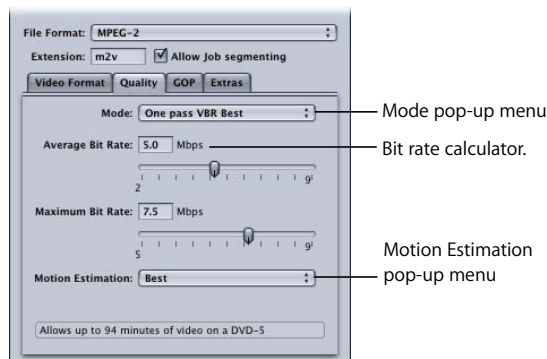
2 Make a selection from the Mode pop-up menu.

For best image quality, choose One pass VBR Best or Two pass VBR Best. For faster encoding, with excellent image quality, choose One pass VBR or Two pass VBR. For HD sources, choose either One pass VBR Best or Two pass VBR Best.

With two pass modes, the source media file is examined on the first pass and transcoded on the second pass, with bit rates tailored to the video content. Alternatively, one pass modes transcode the material more quickly, but allocate bits less optimally than do the corresponding two pass modes.

Note: If you are using two pass VBR and Compressor 2 or higher with distributed processing enabled, you may want to uncheck the "Allow Job segmenting" checkbox in the Encoder pane. See "Job Segmenting and Two Pass VBR" on page 136 for more information.

3   Choose an average bit rate using the Average Bit Rate slider or field.

Choose an appropriate bit rate based on the content and length of your source video and the intended size (in bytes) of your output file. In DVD authoring, the entire video must fit on the DVD disc—the lower the bit rate, the more data you can store. However, the higher the bit rate, the better the image quality will be.

Note: As you change the Average Bit Rate value (with the slider or the field), the bit rate calculator at the bottom of the Quality tab dynamically shows the maximum number of minutes of video on a DVD-5. The calculator assumes 1.5 Mbps for audio (two-channel AIFF).

See the following table for some average bit rates and corresponding footage times for a 4.7 GB DVD:

Average bit rate[1]	Approximate duration for 4.7 GB DVD
3.5 Mbps	121 minutes
5.0 Mbps	94 minutes
6.0 Mbps	82 minutes
7.5 Mbps	68 minutes
8.0 Mbps	65 minutes

[1] For DVD clip with video, audio, and subpictures: assumes 1.5 Mbps for audio (two-channel AIFF).

The lower-right corner of the Quality tab shows an estimate of how many minutes of video would fit on a 4.7 GB DVD using the current settings. As in the above table, this time assumes a single AIFF audio stream to be used with the MPEG-2 stream.

Note: When One pass VBR or One Pass VBR Best is chosen for very short clips (less than a minute or two in length), the resulting MPEG-2 output file size may not accurately reflect the average bit rate you specified. If the MPEG-2 output media file is larger than you want, you can try transcoding it again at a lower average bit rate.

4   If available, use the Maximum Bit Rate slider or field to set a maximum bit rate.

Because DVD players support peak bit rates of up to 10.08 Mbps for video plus audio, you should set the maximum video bit rate between 8.0 to 8.5 Mbps if you are using a 1.5 Mbps (two-channel AIFF) audio track.

5 Choose one of the following settings from the Motion Estimation (ME) pop-up menu:

- *Good:* The fastest ME setting—sufficient when there is relatively low motion between frames
- *Better:* A good general purpose ME setting—provides very good results even in the presence of complex interlaced motion
- *Best:* The highest quality setting to handle the most demanding and complex motion for interlaced sources—somewhat slower than the Better mode

See "Quality Tab" on page 134 for more information.

Step 3: Choose GOP settings

Select a suitable GOP structure and size, and decide whether you want the GOPs to be open or closed.

1 Click the GOP button in the MPEG-2 Encoder pane to open the GOP tab.
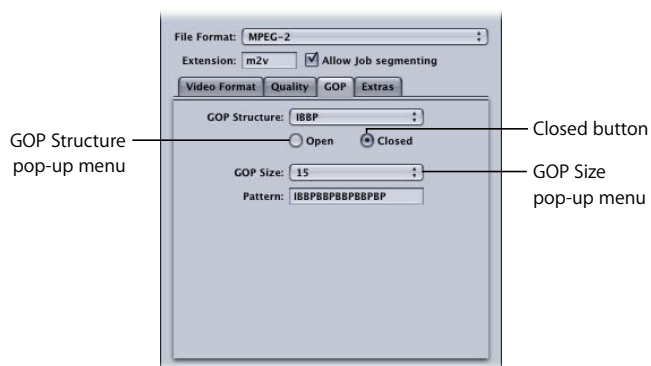
2 Choose a GOP structure from the GOP Structure pop-up menu.

For the majority of MPEG-2 encoding jobs for DVD authoring, choose the IBBP GOP structure.

3 Choose a GOP size from the GOP Size pop-up menu.

For the majority of MPEG-2 encoding jobs for DVD authoring, choose GOP size 15 for NTSC and GOP size 12 for PAL and 24P.

The options available in this menu are determined by the GOP structure you choose, and whether or not the GOP is open or closed.

4 Decide whether you want the GOP pattern to be open or closed and click the appropriate button.

> ### Working With MPEG-2 I-Frames
> The Compressor Preview window offers additional MPEG-2 transcoding flexibility by allowing you to manually insert I-frames into your output MPEG-2 file at any frame location, regardless of your chosen GOP pattern and size. These are known as *forced* I-frames, and may be useful for improving the quality of the MPEG-2 file in the vicinity of the scene change. See "Understanding GOPs and Frame Types" on page 140 for more information on I-frames.
>
> In addition, adding I-frames to your clip allows you to create chapter markers that DVD Studio Pro can understand and use. See "Adding Markers to a Clip" on page 220 and "Adding DVD Studio Pro Chapter Markers to a Clip" on page 222 for more information.

Note: For all HD MPEG-2 formats, the GOP structures are closed.

See "Understanding GOPs and Frame Types" on page 140, "Things to Consider When Choosing a GOP Setting" on page 140, or "GOP Tab" on page 138 for more information about GOPs.

Step 4: Choose Extras settings
You can control the inclusion or exclusion of specific MPEG-2 authoring information in the Extras tab.

1 Click the Extras button in the MPEG-2 Encoder pane to open the Extras tab.

2 Select the "Add DVD Studio Pro meta-data" checkbox if you want Compressor to parse specific MPEG-2 authoring information rather than parse the information later in DVD Studio Pro.

> *Warning:* Checking this box may make your MPEG-2 files incompatible with any DVD authoring tools other than DVD Studio Pro 2 (or later).

3 Select the "Include chapter markers only" checkbox if you want to exclude automatic compression markers from the stream but still retain the chapter markers.

See "Extras Tab" on page 143 and "About MPEG-2 Markers and DVD Studio Pro" on page 144 for more information.

Also, to make it easier to use the output files created by these presets in DVD Studio Pro, create a destination that ensures the video and audio output files have the same name, only with different file extensions. See "Creating Destinations for Use With DVD Studio Pro" on page 232 for more information.

Creating MPEG-4 Output Files **11**

Compressor provides the tools you need to create
exceptional MPEG-4 transcoded files.

MPEG-4 Part 2 (known as *MPEG-4 video* in QuickTime 6) plays an important role in the
evolution of standards for the Internet and wireless multimedia industries, where it has
been widely adopted.

Use MPEG-4 Part 2 anywhere you want to be compatible with MPEG-4 Part 2 devices or
players, such as the millions of 3G mobile phones and digital still cameras that capture
and play back MPEG-4 Part 2 video.

H.264, also known as MPEG-4 Part 10, is a newer technology than MPEG-4 Part 2,
providing up to four times the frame size of video encoded with the MPEG-4 Part 2
codec at a given data rate. But, just as MPEG-1 and MPEG-2 are still used in the industry
today, MPEG-4 Part 2 will continue to be used.

Note: MPEG-4 Part 2 is both a QuickTime codec *(MPEG-4 Video)* and an output format.
This chapter discusses MPEG-4 Part 2 as an output format.

MPEG-4 Part 2 offers the following advantages:
- *Standards compliance:* Output is with MPEG-4 Part 2 devices and other standards-
  based (ISMA) players, such as mobile phones.
- *High-quality video:* A versatile transcoder that can be set to a target data rate and—
  using one-pass variable bit rate (VBR)—can maximize the highest quality output or
  speed for the fastest possible transcode.
- *Advanced Audio Coding (AAC):* MPEG-4 audio accommodates a wide variety of source
  audio, and brings true variable bit rate (VBR) audio transcoding to QuickTime. It uses
  the Advanced Audio Coding (AAC) codec, which provides more clarity than MP3 audio
  at the same bit rate with smaller file sizes, or files of the same size at higher quality.

- *Hinting for streaming:* Hinting refers to how a video stream is divided into streamable pieces. To create streaming video, the streaming server needs some hints about what data to send out and when. These hints consist of defining a maximum packet size and maximum packet duration. A hint track contains information needed to stream your output file. A hint track is created for every streamable media track in the output file (video and audio), and the streaming server uses the hint track to turn the media into real-time streams.

About the MPEG-4 Encoder Pane

The MPEG-4 Part 2 Encoder pane allows you to select a variety of streaming types and options.
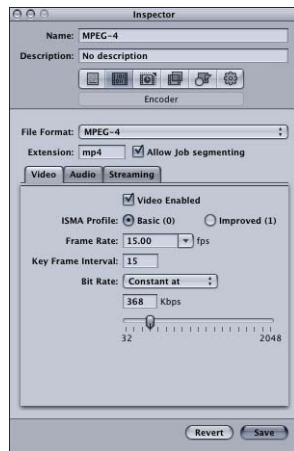
The MPEG-4 Part 2 pane contains the following items:

- *File Extension field:* Displays the MPEG-4 Part 2 file extension mp4 as soon as the MPEG-4 output format is selected from the File Format pop-up menu, or the (+) pop-up menu in the Settings tab of the Presets window.
- *Video, Audio, and Streaming buttons:* These buttons open the Video, Audio, and Streaming panes, described next.
- *Allow Job segmenting:* This checkbox allows you to turn off job segmenting. It is only relevant if you are using Compressor with distributed processing *and* with two pass or multi-pass encoding. (The Compressor 2 distributed processing feature is limited to computers that have either Final Cut Studio or DVD Studio Pro 4 installed.) Since the MPEG-4 Part 2 format uses single pass VBR, you can leave this box checked in all cases for added speed gains with distributed processing. For more information, see "Job Segmenting and Two Pass VBR" on page 136.

Video Pane

The Video pane allows you to make settings for the quality (ISMA profile), frames per second (fps) rate, key frame interval, and bit rate of your MPEG-4 Part 2 output file. The pane contains the following controls:
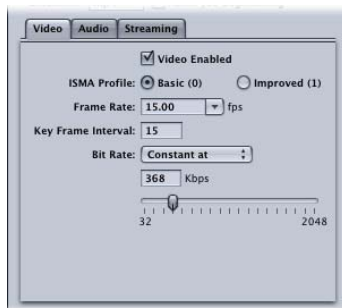
Either enter a number in the Bit Rate field or use the slider to set the bit rate (only available with "Constant at" setting).

• *Video Enabled checkbox:* Make sure that this box is selected if you want the MPEG-4 Part 2 output format video settings to be applied.
• *ISMA Profile buttons:* Choose from one of the following MPEG-4 Part 2 quality settings:
    • *Basic (0):* Ensures playback on all MPEG-4 Part 2 devices.
    • *Improved (1):* Gives better output quality, but this setting is not compatible with older MPEG-4 Part 2 devices.
• *Frame Rate (fps) pop-up menu and field:* Choose or enter a number to set the overall frame rate of your output media file.
• *Key frame interval field:* Enter a value to designate how often (number of frames) you want keyframes created in your output media file.
• *Bit Rate pop-up menu:* Choose from one of the following bit rate settings. Whatever setting you choose, quality will vary from frame to frame to maintain the selected bit rate.
    • *Constant at:* Sets a manually specified bit rate based on your slider setting.
    • *Low VBR:* Sets an overall low quality for all frames.
    • *Medium VBR:* Sets an overall medium quality for all frames.
    • *High VBR:* Sets an overall high quality for all frames.
• *Bit rate slider and field:* (Only available with the "Constant at" setting.) Move the slider to set the overall video bit rate for your output media file between the range of 32 Kbps to 2048 Kbps, or enter a specific number in the accompanying field.

Audio Pane

You use the Audio pane to set the audio track quality, sample rate, quality, and bit rate of the MPEG-4 output file. Use the following buttons and slider to make more detailed adjustments:

"Sample rate" pop-up menu

Bit Rate slider
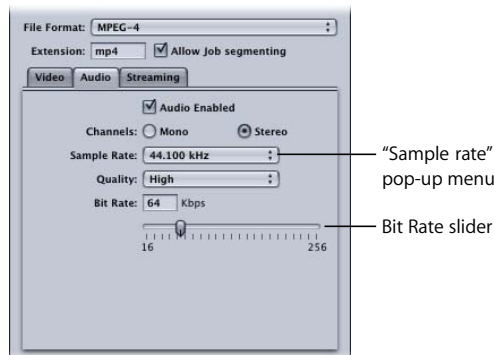
- *Audio Enabled checkbox:* Make sure that this box is checked if you want the MPEG-4 Part 2 output format audio settings to be applied.
- *Channels buttons:* Choose the audio channel for your output media file to be either mono or stereo.
- *"Sample rate" pop-up menu:* Choose from one of the following sample rates: 8, 11.025, 22.05, 24, 32, 44.1, or 48 kHz.
- *Quality pop-up menu:* Choose one of the following for the audio quality of your output media file:
  - *Low:* This allows for fast transcoding, but it is at the expense of output file quality.
  - *Medium:* The audio quality is better than Low, but this takes longer to transcode.
  - *High:* This is the best audio quality setting available. Use this setting when the audio quality is important for the output media file and you don't mind how long it takes to transcode.
- *Bit Rate slider and field:* Move the slider to set the overall audio bit rate for your output media file between the range of 16 Kbps (2 KB/sec.) to 256 Kbps (32 KB/sec.), or enter a specific number into the accompanying field.

Streaming Pane

You use the Streaming pane to set hints for your output file, as well as set the maximum packet size and packet duration limits of the MPEG-4 Part 2 output file. You can also set your output media file to work with an older version of QuickTime Streaming Servers (version 4.1 or earlier).

The Streaming pane contains the following controls:

- *"Streaming hints enabled" checkbox:* Make sure that this box is selected if you want the MPEG-4 Part 2 output format streaming settings to be applied.
- *"QuickTime Streaming Server Compatibility (pre v4.1)" checkbox:* Select this checkbox if you want your output media file to work with an older QuickTime Streaming Server (version 4.1 or earlier). You don't need to select this box if you are using a newer version of QuickTime, because any streaming compatibility issues are automatically resolved.
- *Packet Maximums Size field:* Enter a number to specify the largest file size allowable (in bytes) for a streaming packet in your output media file. The packet size you choose should be no larger than the largest packet used on any network between the streaming server and the viewer.
- *Packet Maximums Duration field:* Enter a number to specify the longest duration allowable (in milliseconds) for a streaming packet in your output media file. The duration affects MPEG-4 Part 2 audio only. It limits the maximum amount of audio (in milliseconds) in any packet, which limits the audio dropout created by the loss of a packet.

MPEG-4 Part 2 Transcoding Workflow

If you don't need to customize the video and audio settings of your MPEG-4 Part 2 file, you can use the "quick-and-easy" method to transcode your source media files. This consists of accepting the following default MPEG-4 Part 2 output format settings:

Video pane

- *Video Enabled checkbox:* Selected
- *ISMA Profile:* Basic
- *Frame Rate:* 15 fps
- *Key frame interval:* 15 frames
- *Bit Rate:* 368 Kbps
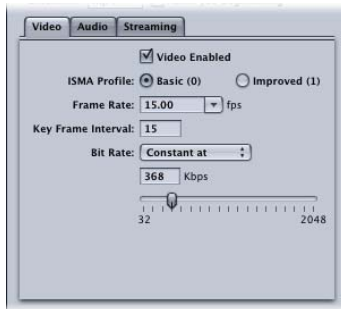
See "Video Pane" on page 155 for more information.

Audio pane
- *Audio Enabled checkbox:* Selected
- *Channels:* Stereo
- *Sample Rate:* 44.1 kHz
- *Quality:* High
- *Bit Rate:* 64 Kbps

See "Audio Pane" on page 156 for more information.

Streaming pane
- *"Streaming hints enabled" checkbox:* Selected
- *Packet Maximums Size:* 1,450 bytes
- *Packet Maximums Duration:* 100 milliseconds

See "Streaming Pane" on page 157 for more information.

If these settings are acceptable to you, there is nothing further that you need to do, and you can begin transcoding source media files immediately.

If you want to customize your MPEG-4 Part 2 file format settings, you need to perform a more detailed transcoding workflow than the one described above, that involves the following steps:

Step 1: Customize MPEG-4 video settings

1 In the Inspector window, click the Encoder pane and choose MPEG-4 from the File Format pop-up menu.

The MPEG-4 Encoder pane opens, displaying mp4 in the File Extension field, and the default Video pane.

Either enter a number in the Bit Rate field or use the slider to set the bit rate.
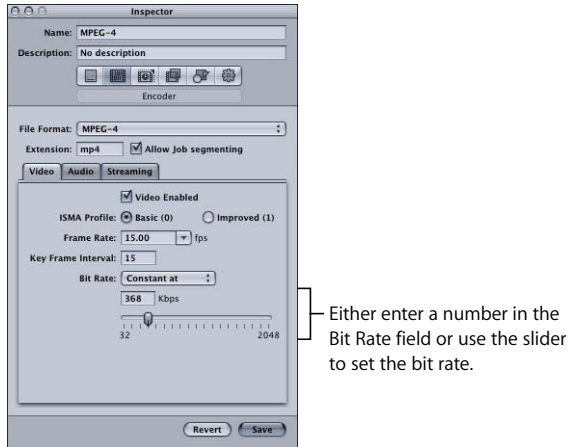
2 Adjust the MPEG-4 video settings using the available controls.

Note: Make sure the Video Enabled checkbox is selected.

See "Video Pane" on page 155 for details about MPEG-4 Part 2 video settings.

If you don't want to edit any other attributes, your MPEG-4 setting can be assigned to any source media file in the usual way. See "Preparing Compressor for Transcoding" on page 28 for more information. Otherwise, go to the next step to edit MPEG-4 audio settings.

Step 2: Customize MPEG-4 audio settings

1 Click the Audio button to open the Audio pane.

Either enter a number in the
Bit Rate field or use the slider
to set the bit rate.

2 Adjust the MPEG-4 audio settings using the available controls.

Note: Make sure that the Audio Enabled box is selected.

See "Audio Pane" on page 156 for details about MPEG-4 Part 2 audio settings.

If you don't want to edit any other attributes, your MPEG-4 setting can be assigned to any source media file in the usual way. See "Preparing Compressor for Transcoding" on page 28 for more information. Otherwise, go to the next step to edit streaming settings.

Step 3: Edit MPEG-4 streaming settings

1 Click the Streaming button to open the Streaming pane.

2 Select the "QuickTime Streaming Server Compatibility (pre v4.1)" checkbox if your intended distribution method is via a QuickTime Streaming Server earlier than version 4.1.

3 Enter new numbers into the Size and Duration fields for Packet Maximums, and make sure that the "Streaming hints enabled" checkbox is selected.

4 See "Streaming Pane" on page 157 for details about MPEG-4 Part 2 streaming settings.

Adding Additional Settings and Presets

Although the output format setting is the most important component of the Compressor workflow, you can also add other settings and presets, such as filters, cropping, frame sizing, actions and destinations. For further instructions on how to add these settings, see the following:

- Chapter 14, "Adding Filters to a Setting," on page 185
- Chapter 15, "Adding Frame Controls, Geometry, and Actions to a Setting," on page 195
- Chapter 17, "Creating and Changing Destinations," on page 223

Creating QuickTime Movie Output Files

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Compressor provides the tools you need to create QuickTime media files.

QuickTime is cross-platform multimedia technology, and allows Mac OS applications to capture and play back video, audio, and still-image files. QuickTime supports a wide variety of codecs and can also be extended to accommodate additional codec options and third-party codecs. See "Creating QuickTime Export Component Output Files" on page 177 for more information about additional QuickTime export options.

This chapter contains the following:

Creating QuickTime Output Files

QuickTime is an open standard with many built-in codecs, and is both a multimedia and streaming media architecture. It is widely used for both authoring and delivery. For example, many video editing and compositing applications use QuickTime as their base format, and most title developers author their CD-ROM content using the QuickTime format. QuickTime contains a wide range of video and audio codecs suitable for everything from streaming video to DVD. The QuickTime architecture can also handle file formats other than QuickTime movies, such as AVI files and 3G streams. For more information on creating those kinds of formats, see Chapter 13, "Creating QuickTime Export Component, AIFF, and TIFF Files," on page 177.

QuickTime Media Files for the Web

You can play your output media files over the web with QuickTime, once they are compressed to a data rate appropriate for the bandwidth you expect the users to have. You can do this by making your output media files either QuickTime Fast Start movies (pre-buffered download) or QuickTime Streaming movies (complete download).

Compressor allows you to choose different streaming options via the Streaming pop-up menu in the QuickTime Encoder pane. See the Streaming pop-up menu item for more information about streaming QuickTime media files over the web.

About the QuickTime Movie Encoder Pane

The following options appear when you choose *QuickTime Movie* from the File Format pop-up menu:
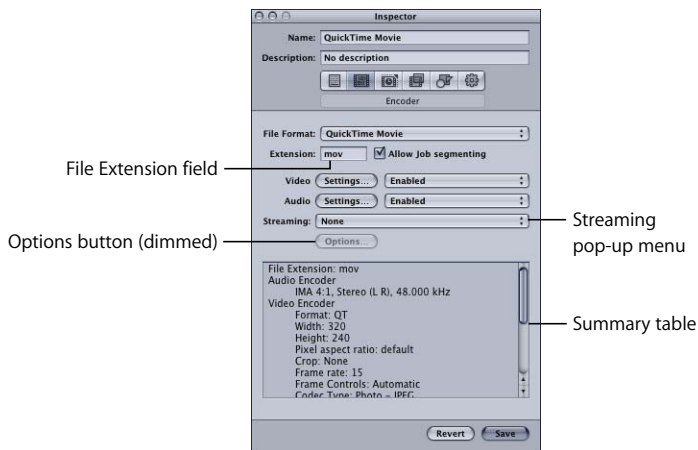
- *File Extension field:* Indicates the file extension for this output file format. The file extension *.mov* represents QuickTime. It is recommended that you don't alter this field.
- *Allow Job segmenting:* This checkbox allows you to turn off job segmenting. It is only relevant if you are using Compressor with distributed processing *and* with two pass or multi pass encoding. (The Compressor 2 distributed processing feature is limited to computers that have either Final Cut Studio or DVD Studio Pro 4 installed.) For more information, see "Encoder Pane" on page 43.
- *Video Settings and Audio Settings:* These buttons open the QuickTime Compression Settings and Sound Settings dialogs. Use these dialogs to select suitable codecs and change other video or audio compression settings. See "About the Sound Settings Dialog" on page 169 and "About the Compression Settings Dialog" on page 167 for more information on these dialogs.
- *Enabled/Disabled:* Use these pop-up menus to enable or disable Video and Audio settings. *Enabled* means the video or audio track will be included in the output movie. *Disabled* means the video or audio track will be excluded from the output movie.
- *Streaming:* Choose one of the following QuickTime streaming options from this pop-up menu:
  - *None:* If you choose this setting (the default), your output media file will not stream over the Internet.
  - *Fast Start:* This option allows your output media file to be viewed even before it is fully downloaded from its server.
  - *Fast Start–Compressed Header:* This setting achieves the same results as Fast Start (allowing your output media file to be viewed before it is fully downloaded from the server), but the output media files are smaller.
  - *Hinted Streaming:* This setting allows hint tracks to be added to the output media file so that it can be used with a QuickTime Streaming Server.
- *Options button:* This button remains dimmed unless Hinted Streaming is selected from the Streaming pop-up menu. Clicking this button opens the QuickTime Hint Exporter Settings dialog, which allows you to choose extra hinting settings for your stream.
- *Summary table:* Displays full details for this setting.

QuickTime Video and Audio Settings

The QuickTime Video and Audio Settings buttons appear in the Encoder pane if you selected *QuickTime Movie* as the output file format. (The Audio Settings button also appears if you choose AIFF from the File Format pop-up menu.) You use these buttons to open the Compression Settings and Sound Settings dialogs, where you can modify whichever video or audio codec you want to add to the selected setting in the Settings tab of the Presets window.

By default, both the Video and Audio Settings buttons are enabled, but you can disable one or the other by deselecting the appropriate checkbox.

Video codec settings
- For information on how to customize video codec settings, see Step 2: "Add a QuickTime video codec to a setting" on page 172.
- All codecs are compatible with QuickTime, but if you intend to play back the output file using QuickTime Player, the following delivery codecs are recommended:
  - H.264
  - Photo-JPEG

Audio codec settings
- For information on how to customize audio codec settings, see Step 3: "Add a QuickTime audio codec to a setting" on page 173.
- All codecs are compatible with QuickTime, but if you intend to play back the output media file using QuickTime Player, the following delivery codecs are recommended:
  - AAC
  - IMA 4:1

See "QuickTime Audio Codecs" on page 175 for more information about audio codecs.

About the Compression Settings Dialog

You use the Compression Settings dialog to change your video codec settings for the QuickTime output format. To open the Compression Settings dialog, click the Video Settings button in the QuickTime Encoder pane.

If a particular setting can't be changed, it remains dimmed. Some video codecs—such as Sorenson Video 3 and Photo-JPEG—allow you to make additional settings. If this is the case, the Options button becomes available. Click it to make additional settings.
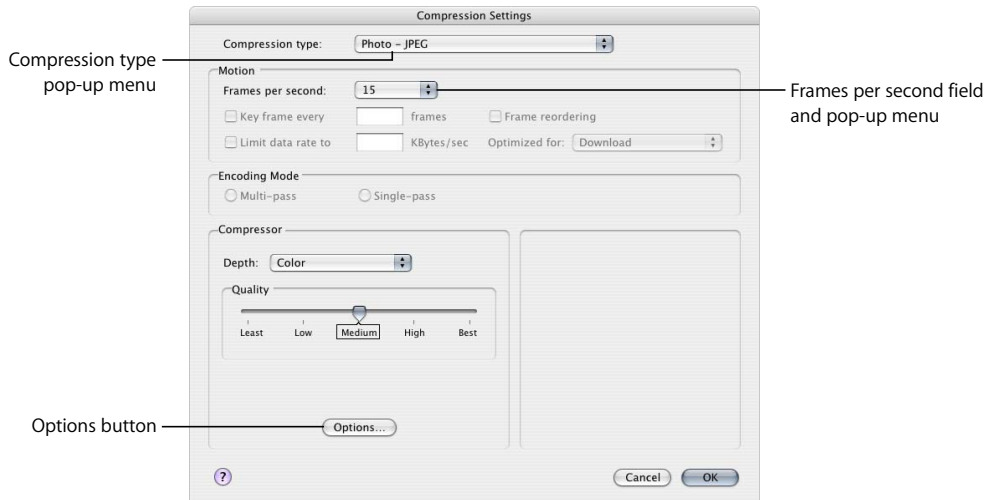
The Compression Settings dialog contains the following items, depending on which codec you choose in the Compression type pop-up menu:

- *Compression type:* Use this pop-up menu to choose the video codec you want to add to your preset.
- *Depth pop-up menu:* You use the Depth pop-up menu to define the color setting. For example, if a QuickTime movie were composed of millions or thousands of colors and the playback computer only showed 256 colors, you would use this setting to resolve this color depth discrepancy.

  The contents of this pop-up menu change depending on the video codec selected in the Compression type pop-up menu. For example, if you choose the PNG codec, you can make a selection ranging from Grays to Millions of Colors+, while the Photo-JPEG codec only allows you to choose between Color and Grayscale.

- *Quality slider:* Use this slider to make general setting changes to the overall image quality of your processed file. Quality is a subjective setting that trades image quality for bandwidth and gives the entire media file the same quality. Lower quality means that the finished file requires less bandwidth and streams faster. Available settings are Least, Low, Medium, High, and Best. You can also drag the slider between any of these settings to obtain a more specific rate (displayed numerically).

- *Options button:* This button remains dimmed unless the codec you selected from the Compression type pop-up menu offers options. It is recommended that you contact the manufacturers of these codecs directly for more information about the additional options they offer.
- *Frames per second:* With this pop-up menu, you can reduce the frame rate of your original file to reduce the size of the compressed file. Higher frame rates make for smoother motion but require more bandwidth. You use the "Frames per second" pop-up menu to choose a different frame rate, but for best results you should change it to a number that the original file can be easily divided by. For example, if your original file had a frame rate of 30 fps, you should use a frame rate of 10 fps or 15 fps. Choosing a frame rate of something like 24 fps would result in uneven motion and even dropped frames, because 30 is not evenly divisible by 24. Choose from the following settings: 8, 10, 12, 15, 23.98, 24, 25, 29.97, 30, 59.94, 60 fps, or choose Custom to enter a number manually.
- *Key frame every:* If your selected codec allows it, use the "Key frame every" field to enter the number of frames you want between your keyframes. Codecs based on the temporal compression method use keyframes. These act as a reference frame for the next sequence of frames, so that any data redundancy between the keyframe and the ensuing frames can be removed. In between keyframes are the less detailed *delta frames*. You need to insert keyframes throughout your media file because content changes. Some video codecs allow you to insert a keyframe every certain number of frames, while other video codecs use natural keyframes by scanning the whole file to detect where the major similarities and differences occur and inserting the keyframes accordingly.

If there's a lot of motion in your media file, you need keyframes more often than you do with something more static, such as a talking head sequence.

- *Limit data rate to:* Use this field to set the number of kilobytes per second (KB/sec.) required to deliver your media file. This setting is useful if you have a specific bit rate (such as a DSL connection) or amount of space (on a DVD or CD ROM). You should choose a data rate that is appropriate for your delivery medium and set it as high as possible within your data limitations. When you set a data rate, you override other codec quality settings because the codec compresses the file as much as it needs to based on its data rate limit.

  Remember that the data rate is only for the video track of a media file. If your media file also contains audio, you must allow some space for that too.

About the Sound Settings Dialog

You use the Sound Settings dialog to change your audio compression settings for either the QuickTime or AIFF output format. To open this dialog, click the Audio Settings button in the QuickTime Movie or AIFF Encoder pane.

If a particular audio setting cannot be changed, it remains dimmed. Some audio codecs—such as Qualcomm PureVoice and QDesign Music 2—allow you to make additional settings. If this is the case, the Options button becomes available. Click it to make additional settings.

The Sound Settings dialog contains the following items, with various choices for each, depending on the audio codec you choose in the Format pop-up menu.

- *Format:* Choose the audio codec you want to add to your setting.
- *Channels:* Choose the type of channel output, such as mono, stereo, or some type of multi-channel output, depending on the codec.
- *Rate:* Choose the sample rate you want to use for your media file. The higher the sample rate, the higher the audio quality, but the larger the file. Downloading a larger file takes longer and requires more bandwidth.
- *Options:* This button remains dimmed unless the codec you selected from the Format pop-up menu offers options. It is recommended that you contact the manufacturers of these codecs directly for more information about the additional options they offer.

QuickTime Audio Sample Sizes and Rates

If you have the disk space and bandwidth, it is best to leave your audio uncompressed. Uncompressed audio normally uses 8-bit (phone quality) or 16-bit (CD quality) samples. Compressor 2 supports up to 64 bits per sample floating point and a maximum sample rate of 192 kHz.

Choosing an Audio Codec

AAC is a good general purpose audio delivery codec and it is compatible with a wide variety of playback devices. For low-bandwidth audio on faster computers, the QDesign Music codec (QDMC) is good for most material, while Qualcomm PureVoice is the best choice for speech-only material. For slower computers, CD-ROM, and kiosk situations, IMA is a better choice, because it is less computer intensive, thus allowing the computer to focus on the more challenging video stream. See "QuickTime Audio Codecs" on page 175 for more information about audio codecs.

QuickTime Transcoding Workflow

The following steps outline the transcoding process required to create QuickTime output media files:

Step 1: Open the QuickTime Encoder pane

There are a multitude of QuickTime video and audio codecs that you can choose from in Compressor. You access all codecs via the Compression Settings and Sound Settings dialogs, opened from the QuickTime Encoder pane by clicking the Video Settings and Audio Settings buttons.

1 In the Settings tab of the Presets window, do one of the following:

  - Make sure that the correct setting is selected.
  - Create a new setting by choosing *QuickTime Movie* from the "Create a new setting" (+) pop-up menu.

2 Open the Encoder pane in the Inspector window.

The default QuickTime Encoder pane appears, containing the Video and Audio Settings buttons, Enable pop-up menus, the Streaming pop-up menu, the Options button (dimmed), and the Summary table. See "About the QuickTime Movie Encoder Pane" on page 164 for more information.

Note: Make sure that the Enable pop-up menus next to the Settings buttons are set to Enable if you want those settings included in the transcoding.

Step 2: Add a QuickTime video codec to a setting

To add a QuickTime video codec to your setting, you need to open the Compression Settings dialog and choose a video codec from the Compression type pop-up menu.

Note: If you don't intend to use any video settings, deselect the Enable checkbox next to the Video Settings button.

1 Click the Video Settings button in the QuickTime Encoder pane.

The Compression Settings dialog opens.

Choose a video codec from the Compression type pop-up menu.
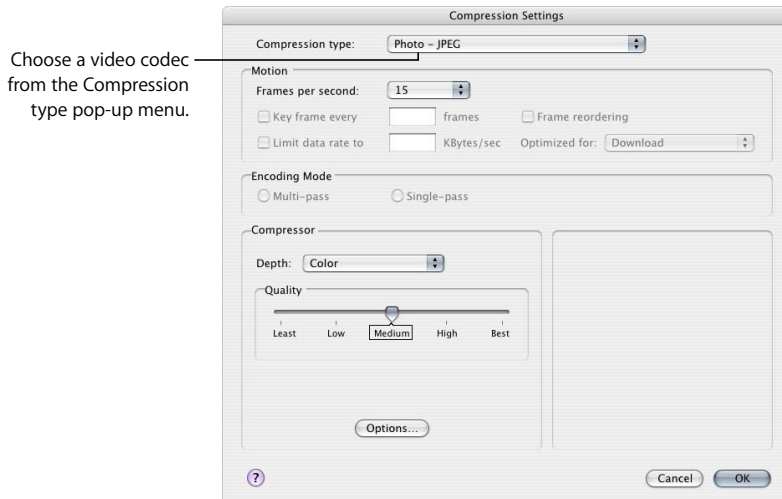
2 Choose a video codec from the Compression type pop-up menu and either accept its defaults or customize the other settings (Motion, Encoding Mode, Quality, Depth, and Options, if available). See any of the following for more information about video codecs:

- "Video codec settings" on page 166
- "About the Compression Settings Dialog" on page 167
- "QuickTime Video Codecs" on page 174

Note: You can see the current contents of your setting by viewing the Summary table.

3 Click OK to save changes and close this dialog.

Step 3: Add a QuickTime audio codec to a setting

If you want to add an audio codec to your setting, you need to open the Sound Settings dialog and choose your audio codec settings from there.

Note: If you don't intend to use any audio settings, deselect the Enable checkbox next to the Audio Settings button.

1 Click the Audio Settings button in the QuickTime Encoder pane.

The Sound Settings dialog opens.

Choose an audio codec from the Format pop-up menu.

2 Choose an audio codec from the Format pop-up menu and either accept its defaults or customize the other audio codec settings (Format, Channels, Rate, and Options, if available).

See any of the following for more information about audio codecs:

- "Audio codec settings" on page 166
- "About the Sound Settings Dialog" on page 169
- "QuickTime Audio Codecs" on page 175

Note: You can see full details of the current contents of your setting by viewing the Summary table.

3 Click OK to save your settings and close this dialog.

Note: If you encode a QuickTime output file with a source file that contains timecode, the source timecode is added to the QuickTime output file.

Understanding Codecs

Codec stands for *compressor (CO)/decompressor (DEC)* pairs. You use different codecs for different playback methods (such as the web or CD-ROM). Once you know the playback method of your target audience, you can pick a suitable codec. To decide which codec is right for your needs, you must choose the necessary level of compression to meet your data rate limits and the level of quality you want.

The following sections discuss issues to be aware of when selecting a video or audio codec.

QuickTime Video Codecs

Each codec offers advantages and disadvantages. Some are more appropriate for storing certain types of media; others introduce more artifacts. Some compress slowly and decompress quickly, while others compress and decompress at the same speed. Some codecs can compress a file to 1/100th of its original size, while others decrease the file size very little. Some codecs are only available on specific operating system platforms, some require a particular processor, and some require a minimum version of QuickTime for playback.

When choosing a codec you should consider the following:

- Minimum system requirements of your target audience
- Source material
- Quality of the compressed media file
- Size of the compressed media file
- Compression/decompression time for the media file
- If the media file will be streamed

Compressor comes equipped with the standard video codecs that QuickTime offers *and* the additional codec options that come with QuickTime Pro. Unless you know your target audience has a particular codec installed on their computers, you should use one of the standard QuickTime codecs to ensure universal conformity.

Note: See the relevant QuickTime documentation for more information about choosing video codecs and how to get the best out of the video codec settings.

Video codecs can be divided into the following two types:

- *Lossless codecs:* Lossless codecs completely preserve the data they compress, and are usually used to transfer footage from one editing suite to another. Lossless codecs can require high data rates and high-end computers with specialized hardware. Examples of lossless codecs are the Animation, 8-bit, and 10-bit uncompressed 4:2:2 codecs.
- *Lossy codecs:* In comparison to lossless codecs, lossy codecs only return an approximation of the data and are usually used to deliver finalized video to an end user. The level of approximation is determined by the quality of the codec. Typically there is a tradeoff between the output quality of the codec and its achievable level of compression. With some codecs, a compression ratio of at least 5:1 can be reached without visible degradation. An example of a lossy codec is the Photo-JPEG codec.

  Low-quality lossy compression introduces unnatural visual artifacts which may become noticeable to the human eye. Using a lossy codec, you should only compress your media file once, because compressing a file multiple times adds more artifacts.

QuickTime Audio Codecs

If you have the disk space and bandwidth, the best thing you can do is leave your audio uncompressed. Uncompressed audio normally uses 8-bit (phone quality) or 16-bit (CD quality) samples. (Compressor 2 supports up to 64 bits per sample floating point and a maximum sample rate of 192 kHz.) If you have disk space and bandwidth limitations, you must compress your audio. However, audio takes up less disk space than video, so it doesn't need to be compressed as much as video.

The two most important components of audio codecs are sampling rates and size. Sampling rate sets the sound quality, and sampling size sets the dynamic range of the sound. QuickTime audio codecs allow you to set both the sampling rate and size of your source media file.

Sound Sampling Rates

Digitized sound consists of sound samples captured at different frequency rates. The more sound samples per second, the higher the sound quality. For example, audio CDs use a 44.1 kHz sampling rate, DVDs sample at 48 kHz, and telephone networks sample voices at 8 kHz. The sample rate you choose depends on the nature of the sound. Music requires a higher sampling rate than voice, because music contains a wider range of frequencies. Spoken voice has a more limited range of frequencies, so you can choose a lower sampling rate and still maintain acceptable audio quality. In most cases, you should choose the highest sampling rate available.

Reducing the sampling rate can shrink a media file by as much as 5:1. The audio quality will be affected, but not as much as it would be if you used 8-bit sampling. The following table shows common sampling rates and the audio device quality to expect at each rate:

Sample rate	Audio device quality
48 kHz	DAT/DV/DVD
44 kHz	CD
22 kHz	FM radio
8 kHz	Telephone

Sound Sampling Size

The sound sampling size determines the dynamic range of the sound. 8-bit sound provides for 256 possible values, whereas 16-bit sound allows for more than 65,000 possible values.

Choose 16 bit for music that has both soft and loud sections, such as orchestral music. For spoken voice or music that has a more or less constant volume level, choosing 8 bit can still yield good results.

If you need to shrink your media file, you can reduce the sample size from 16 bit to 8 bit. This cuts the file size in half but also degrades the audio quality.

Creating QuickTime Export Component, AIFF, and TIFF Files 13

You can use Compressor to output a variety of additional formats.

This chapter discusses a variety of additional file formats that Compressor can output from your source media files:

- Creating QuickTime Export Component Output Files (p. 177)
- Creating AIFF Output Files (p. 180)
- Creating TIFF Output Files (p. 183)

Creating QuickTime Export Component Output Files

Compressor and QuickTime can be extended to support additional codec options and third-party formats. This section focusses on QuickTime's component plug-in feature, which allows you to export exotic file formats that can play on third-party devices and operating systems, such as cell phones. Unlike standard QuickTime movies, these exported files cannot be played back with QuickTime Player or other QuickTime-based applications. (For information on the native QuickTime movie file format, see "Creating QuickTime Movie Output Files" on page 163.)

In the past, creating these kinds of files required multiple steps and multiple operating systems: exporting the file, moving it to a computer on another platform, and then encoding using another software application. The QuickTime Export Components feature allows you to control the third-party encoding engine without having to open another application. This streamlines your workflow and saves you the time and hassle of working with multiple operating systems and software packages.

Installing QuickTime Export Component Plug-Ins

With no additional third party software, Compressor currently supports transcoding to 3G and AVI. The export component feature in Compressor was developed to make it possible to add additional export plug-ins in the future. You would simply install the third-party software and then choose the corresponding output file format from the Encoder Type pop-up menu in the QuickTime Export Components Encoder pane of the Inspector window.

To find out more about the currently available plug-ins and updates, check the Compressor support web site:

• http://www.apple.com/support/compressor

About the QuickTime Export Components Encoder Pane

The following options appear when you choose the QuickTime Export Components output format from the File Format pop-up menu in the Encoder pane of the Inspector window:
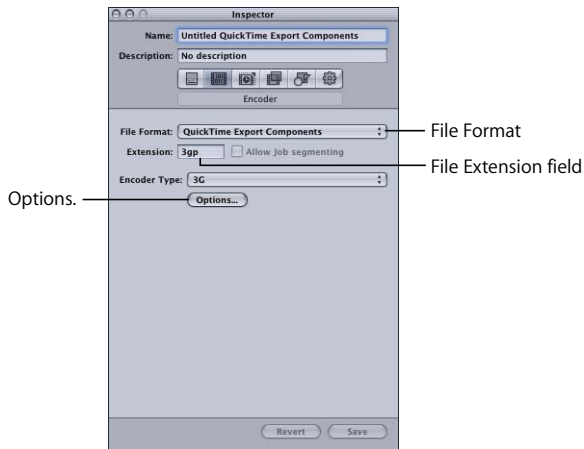
- *File Extension:* This field indicates the file extension for the output format selected from the Encoder Type menu.
- *Allow Job segmenting:* This checkbox allows you to turn off job segmenting. It is only relevant if you are using Compressor with distributed processing *and* with two pass or multi-pass encoding. (The Compressor 2 distributed processing feature is limited to computers that have either Final Cut Studio or DVD Studio Pro 4 installed.) For more information, see "Encoder Pane" on page 43.
- *Encoder Type:* Use this pop-up menu to choose from the available export component output formats (plug-ins).
- *Options:* Click this button to open the Settings window for the output file format selected in the Encoder Type pop-up menu.

Configuring Export Components Settings

When you choose QuickTime Export Components as your output format, you can only create settings for export plug-ins that are already installed.

To create QuickTime Export Components settings:

1 In the Settings tab of the Presets window, do one of the following:

   • Make sure that the correct setting is selected.

   • Create a new setting by choosing QuickTime Export Components from the "Create a new setting" (+) pop-up menu.

2 Choose an output file format from the Encoder Type pop-up menu.

3 Click the Options button in the Encoder pane.

   The Settings window for that particular output file format opens.

Configure settings for the QuickTime export component.
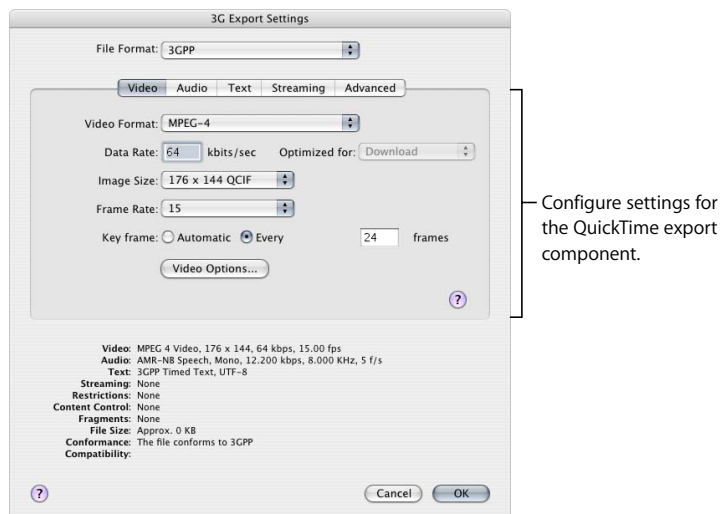
4 Click OK to save your settings and close this dialog.

Creating AIFF Output Files

The AIFF (Audio Interchange File Format) file format was developed by Apple for storing high-quality audio. The format was intended for DVD or CD authoring and is now one of the most commonly used audio file formats for the Mac OS.

About the AIFF Encoder Pane

The following options appear when you choose the AIFF output format from the File Format pop-up menu in the Encoder pane of the Inspector window:

Click to open the Sound Settings dialog.

File Extension field

QuickTime AIFF Summary table
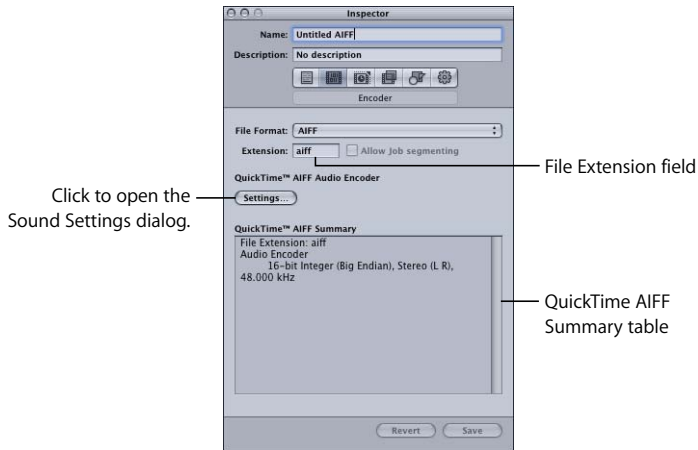
- *File Extension:* This field displays the AIFF file extension (*aiff)* automatically after the AIFF output format is selected from the File Format pop-up menu or the (+) pop-up menu in the Settings tab of the Presets window. Don't alter this field.
- *Settings:* This button opens the QuickTime Sound Settings dialog. Use this dialog to select suitable audio codecs and change other audio compression settings. See "About the Sound Settings Dialog" below for more information.
- *QuickTime AIFF Summary:* This table displays full details for this setting.

About the Sound Settings Dialog

You use the Sound Settings dialog to change your audio compression settings for both the QuickTime and AIFF output formats. To open this dialog, click the Audio Settings button in the AIFF or QuickTime Movie Encoder pane.

If a particular audio setting cannot be changed, it remains dimmed. Some audio codecs—such as Qualcomm PureVoice and QDesign Music 2—allow you to make additional settings. If this is the case, the Options button becomes available. Click it to make additional settings.

The Sound Settings dialog contains the following items, with various choices for each, depending on the audio codec you choose in the Format pop-up menu.

- *Format:* Choose the audio codec you want to add to your setting.
- *Channels:* Choose the type of channel output, such as mono, stereo, or some type of multi-channel output, depending on the codec.
- *Rate:* Choose the sample rate you want to use for your media file. The higher the sample rate, the higher the audio quality, but the larger the file. Downloading a larger file takes longer and requires more bandwidth.
- *Options:* This button remains dimmed unless the codec you selected from the Format pop-up menu offers options. It is recommended that you contact the manufacturers of these codecs directly for more information about the additional options they offer.

QuickTime Audio Sample Sizes and Rates

If you have the disk space and bandwidth, it is best to leave your audio uncompressed. Uncompressed audio normally uses 8-bit (phone quality) or 16-bit (CD quality) samples. Compressor 2 supports up to 64 bits per sample floating point and a maximum sample rate of 192 kHz.

Choosing an Audio Codec

AAC is a good general purpose audio delivery codec and it is compatible with a wide variety of playback devices. For low-bandwidth audio on faster computers, the QDesign Music codec (QDMC) is good for most material, while Qualcomm PureVoice is the best choice for speech-only material. For slower computers, CD-ROM, and kiosk situations, IMA is a better choice, because it is less computer intensive, thus allowing the computer to focus on the more challenging video stream.

Configuring AIFF Settings

When you choose the AIFF output file format as your output format, you can only create audio settings (because it is an audio-only format). If you want to add an audio codec to your AIFF preset, you need to open the Sound Settings dialog and choose your audio codec settings from there.

To create an AIFF audio codec setting:

1   In the Settings tab of the Presets window, do one of the following:

   • Make sure that the correct setting is selected.

   • Create a new setting by choosing AIFF from the "Create a new setting" (+) pop-up menu.

2   Click the Settings button in the AIFF Encoder pane.

   The Sound Settings dialog opens.

Choose an audio codec from the Format pop-up menu.
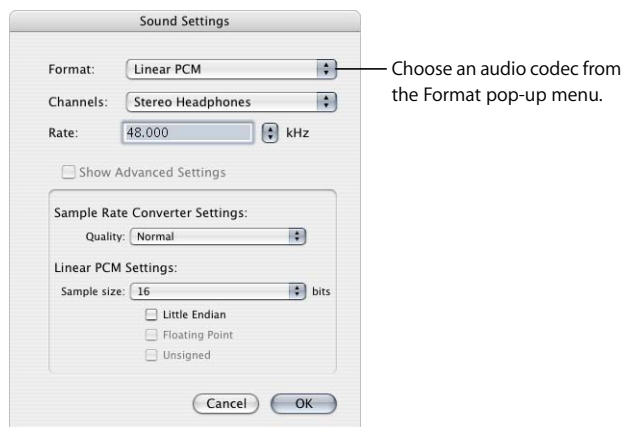
3   Choose an audio codec from the Format pop-up menu and either accept its defaults or customize the other audio codec settings (Format, Channels, Rate, and Options, if available). See "About the Sound Settings Dialog" on page 181 for more details.

   Note: You can see full details of the current contents of your preset by viewing the QuickTime AIFF Summary table in the Encoder pane.

4   Click OK to save your settings and close this dialog.

Creating TIFF Output Files

TIFF (Tagged Image File Format) is one of the most common and flexible still-image formats, and was developed to create a standard file format for storing and exchanging digital graphics used in desktop publishing. It is compatible with a wide range of compositing and image processing applications. Use this encoder to convert a video clip to an image sequence for use with compositing applications that aren't compatible with QuickTime.

About the TIFF Encoder Pane

File Format pop-up menu

Choose a frame rate from the Frame Rate pop-up menu.
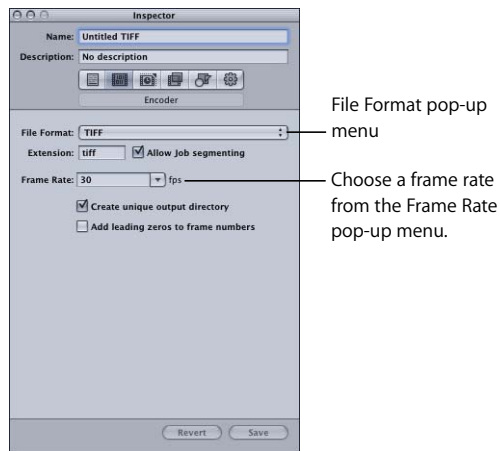
The TIFF Encoder pane contains the following items to help you create your TIFF output file:

- *File Extension:* This field displays the TIFF file extension (*tiff*) automatically after TIFF output format is selected from the File Format pop-up menu or the (+) pop-up menu in the Settings tab of the Presets window. Don't alter this field.
- *Allow Job segmenting:* This checkbox allows you to turn off job segmenting. It is only relevant if you are using Compressor with distributed processing *and* with two pass or multi-pass encoding. (The Compressor 2 distributed processing feature is limited to computers that have either Final Cut Studio or DVD Studio Pro 4 installed.) For more information, see "Job Segmenting and Two Pass VBR" on page 136.
- *Frame Rate (fps):* Use this field and pop-up menu to enter the frame rate at which you want the TIFF still images to be created. The higher the frame rate, the greater the number of still images created and the larger the output file. For example, if you choose 30 fps, Compressor creates 30 still images for every second of the video clip you are transcoding. If you choose 8 fps, Compressor only creates 8 still images per second.

- *Create unique output directory:* Select this checkbox to create a folder for the resulting TIFF output files. The folder is given the same name as that of the media file, and the TIFF files are stored inside the folder and named *frame-nnn.* For example, if the output filename is *test,* the directory path is *destination/test/frame-nnn.*

  If you don't select this box, the TIFF files are stored at the top level of your destination folder and named *filename-nnn* rather than *frame-nnn.* Be aware that even at the slow rate of 8 fps, a large number of TIFF files are created when you transcode to this output format, so creating an output directory is a good way to keep your TIFF files organized.

- *Add leading zeros to frame numbers:* Select this checkbox to add leading zeros to the frame number. When choosing this method, all the TIFF files consist of multidigit filenames, such as *frame-000001* (or *filename-000001* if these files aren't being saved in a unique output directory). If you don't select this checkbox, each TIFF file uses a regular filename, such as *frame-1* (or *filename-1* if these files aren't being saved in a unique output directory).

Configuring TIFF Settings

You use the TIFF output format if you want to transcode a video clip into a series of still images.

To create a TIFF setting:

1 In the Settings tab of the Presets window, do one of the following:

- Make sure that the correct setting is selected.
- Create a new setting by choosing TIFF from the "Create a new setting" (+) pop-up menu.

2 Click the Encoder tab, then choose TIFF from the File Format pop-up menu.

The TIFF Encoder pane appears.

3 Enter a number in the Frame Rate (fps) field or choose a frame rate from the pop-up menu.

4 Select the "Create unique output directory" checkbox if you want your TIFF files stored in their own folder in the destination folder.

5 Select the "Add leading zeros to frame numbers" checkbox if you want your output TIFF files numbered with the format *0000nn.*

See "About the TIFF Encoder Pane" on page 183 for more information about the TIFF Encoder pane.

Note: You can see the current contents of your setting by viewing the Summary pane of the Inspector window.

Adding Filters to a Setting

14

Compressor comes with a variety of filters (such as deinterlacing and noise removal) that you can use to adjust the details of your transcoding projects.

This chapter contains the following:

Working With Filters

Because the characteristics of broadcast video differ significantly from the characteristics of video played back on computers, it is sometimes necessary to modify the visual quality of the source media so that it looks acceptable during multimedia playback.

You can treat your source media file with a variety of filters before you transcode it to help improve the output quality of your video. The best way to assign these filter settings is to look at your source media file and choose the most suitable one based on its content.

Note: You can always preview a clip containing your current settings by double-clicking the setting in the Batch window to open it in the Preview window. The Preview screen is split into original and transcoded versions of your media file so that you can see the effects of your filter settings before processing the batch (as long as the checkbox for that particular filter is selected). Once you are reasonably happy with your settings, it's a good idea to scan through the whole movie to ensure that your changes are not too extreme for some scenes. See " for more information.

Adjustments you make in the Filters list can be viewed in the Preview window.

Deinterlacing

NTSC and PAL video is interlaced. This means that each frame of video consists of two fields (1/60th of a second apart), one with the odd broadcast lines and one with the even lines of the image. The differences between these two fields create the impression of motion. Our eyes combine these two images into one whole frame of smooth, realistic motion at 30 fps in standard definition television, and because of the high field-refresh speeds (1/60th of a second), the interlacing is invisible.

Because interlacing creates two fields for each frame, areas with fast movement within the field become separated into alternating jagged lines. You can view your source media one frame at a time and check for horizontal stripes along the leading and trailing edges of moving objects. If you find these, you need to deinterlace your source media to convert it to a frame-based format.

Interlacing creates a "comb" effect that should be removed.

Note: For deinterlacing, the Frame Controls feature is recommended over the Deinterlacing filter (a legacy filter) as it will always provide much higher quality. See "Working With Frame Controls" on page 195 for more information.

Removing Video Noise

You can improve image quality and spatially compress your material more efficiently by reducing its fine detail. Video noise is any sort of excessive detail which can make compression more difficult. The noise reduction filter allows you to blur areas of low contrast while leaving high-contrast edges sharp. This is known as *adaptive noise reduction*. The results are imperceptible to the human eye, but improve the final compression of the source media. It is especially important to use this filter with live video.

Color Spaces

Compressor supports the following color spaces—YUV (R408), 2VUY, RGBA, ARGB, and YUV (v210). Some filters require a color space conversion and some filters can handle various color spaces. For each media file, Compressor chooses the most suitable color space to provide the best output and performance results based on the color space of three attributes: the source media format, the output file format, and chosen filters.

About the Filters Pane

Use the following features in the Filters pane of the Inspector to select and adjust filters that you want to assign to your settings.

- *Filters list:* Select the checkbox next to the filters you want to add to your presets. Filter settings you select appear in the Summary table in the Summary pane. You can reorder filters by dragging them up or down in the Filters list. Because these filters are processed one by one during transcoding—starting with the first entry in the list—it is important that your filters are organized correctly. For example, it is sensible to place your text overlay filter last, so that the text color you selected doesn't get modified by some other filter.

- *Filter controls:* The controls available depend on the filter selected in the Filters list. The slider allows you to make large numerical changes to your setting, while the arrow control lets you make single incremental number changes. The setting number appears in the field located between the slider and arrow control.
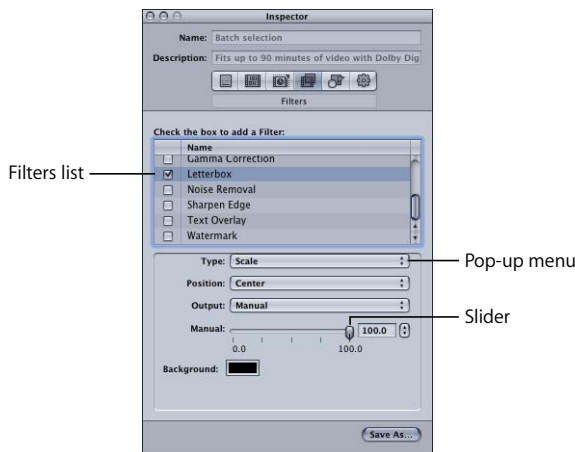
Note: Once you make any adjustment to a filter, its checkbox is automatically selected. If you decide that you no longer want to use that filter, be sure to deselect that particular filter's checkbox before transcoding.

The Filters pane contains the following available filters in the Filters list:

• *BlackWhite Restore:* Restores nearly black colors to pure black and nearly white colors to pure white without affecting colors in the rest of the image. Use this filter to better compress the solid black and white areas (the luminance) in the image, such as backgrounds. The two sliders allow you to separately set values between 0 and 100 for black and white. See "Color Spaces" on page 187 for information on how color spaces relate to this filter.

• *Brightness Contrast:* Alters the overall color and luminance values of your output media file to a brighter or darker level. Some QuickTime codecs darken your video file, so you can use this filter to compensate for that. Choose any number between −100 and 100, but avoid the extreme settings as they give a very washed-out quality.

• *Color Correct Highlights:* Corrects white balance inaccuracies and creates color effects on the bright areas of your clip. Adjust red, green, and blue values independently between −100 to 100.

• *Color Correct Midtones:* Corrects white balance inaccuracies and creates color effects on the midtone areas of your clip. Adjust red, green, and blue values independently between −100 and 100.

• *Color Correct Shadows:* Corrects white balance inaccuracies and creates color effects on the dark areas of your clip. Adjust red, green, and blue values independently between −100 and 100.

• *Deinterlacing:* Removes the effects of interlacing. If your source media file needs to be converted to a frame-based format, you must deinterlace it to remove the effects of interlacing. Interlacing on computer displays can cause high-motion parts of your video to look fuzzy, so this is especially important if you're outputting a QuickTime movie for desktop playback, or for streaming over the web. You can remove the upper (odd) or lower (even) field from an interlaced video file, although smooth motion may be compromised within the clip. This filter can also be used to eliminate flickering caused by interlacing in still frames that have thin vertical lines, such as title pages with small text. The remaining fields are interpolated to create a whole image, resulting in an overall softening of the image.

Note: The Frame Controls feature is recommended over the Deinterlacing filter (a legacy filter) as it will always provide much higher quality. See "Working With Frame Controls" on page 195 for more information.

Experiment with one of the following deinterlacing methods in the pop-up menu to see which one works best with your footage:

- *Blur:* Blends the odd and even fields together. This setting gives more importance to temporal data and preserves motion better, but because individual frames consist of a composite of both frames, they don't look good when you pause playback.
- *Even:* Keeps the even fields and ignores the odd fields, avoiding motion blur.
- *Odd:* Keeps the odd fields and ignores the even fields, avoiding motion blur.
- *Sharp:* Looks at both fields to make all edges sharper. This setting gives more importance to spatial data.

- *Gamma Correction:* Controls the overall brightness of an image as displayed on a monitor by changing the gamma amount of the media file. This filter can be used to remove detail from an underexposed clip or reduce an overexposed clip's saturation to an acceptable level without washing out the image too much. Computers using different operating systems have different monitor settings. For cross-platform viewing, correcting the gamma will improve the image for all platforms. Choose a gamma setting between 0.1 and 4.0.

- *Letterbox:* Scales and positions the image in the frame within horizontal letterbox bars.
  - *Type:* This pop-up menu allows you to choose the type of letterboxing to use. Scale vertically compresses the video to fit within the letterbox bars. *Matte* crops off the video where the letterbox bars are placed.
  - *Position:* This pop-up menu allows you to choose the position of the video. Center places letterbox bars above and below the video, keeping the video centered. Bottom positions the video at the bottom of the screen with a single letterbox bar above it. Top positions the video at the top of the screen with a single letterbox bar below it.
  - *Output:* This pop-up menu allows you to choose the specific aspect ratio to use for the letterbox. Each setting is followed by a value that shows the ratio of the width to the height for that setting. For example, the Academy setting shows its aspect ratio as 1.85:1, indicating that the image's width is 1.85 times the size of its height. The Manual setting enables the Manual slider which you can use to manually set the letterbox aspect ratio.
  - *Manual slider:* Used when Manual is selected in the Output pop-up menu. Allows you to manually set the letterbox aspect ratio. The Manual slider has no effect when Manual is not selected in the Output pop-up menu.
  - *Background color box:* Sets the letterbox color. Click this box to choose a background color from the color picker.

- *Noise Removal:* Reduces random flecks of noise from the image. Some codecs introduce noise into the video file, which can be softened with the Noise Removal filter. You can improve image quality and spatially compress your material more efficiently by reducing its fine detail.
  - *Apply To:* This pop-up menu allows you to choose which channels you want to filter the noise from. The default is All Channels, which filters out noise from all channels including the alpha channel. The other option is Chroma Channels, which filters out noise only from the two chroma channels—U and V—in the AYUV color space (or R408 in Final Cut Pro terminology).
  - *Iterations:* This pop-up menu smooths out image noise. Choose how many times (between 1 and 4) you want the selected algorithm applied to the source media file. The modified image is used each time as a starting point for the algorithm. The more iterations used, the fuzzier the image becomes.
  - *Algorithm:* Select one of the following algorithms from the Algorithm pop-up menu: *Average* (each pixel's color is modified by taking an average color of pixels around it, including its own color value); *Replace* (each pixel's color is modified by taking an average of pixels around it, while ignoring its own color value); and *Merge* (each pixel's color is modified by taking a weighted average of surrounding pixels and itself; the pixel's own color value is given greater weight).
- *Sharpen Edge:* Enhances the image contrast around object edges. Some codecs blur the video image, so this filter can counteract the softening effect of noise removal or blurred source material and increase the perception of sharpness in the image. When used to an extreme, the output media file can look grainy. Choose any number between 0 and 100.
- *TextOverlay:* Superimposes text onto the image. This is a useful tool for stamping other relevant text information onto your output media file. Use the following controls to position text, select color and font, and set its opacity:
  - *Position pop-up menu:* Positions text in the image clip. Choose from one of the following positions: Center, Lower Left, Lower Left - TV Safe, Lower Right, Lower Right - TV Safe, Upper Left, Upper Left - TV Safe, Upper Right, Upper Right - TV Safe.
  - *Alpha:* This slider sets the text opacity. Choose between 0 and 1. A value of 0 makes the text completely transparent, while a value of 1 makes it completely opaque.
  - *Overlay Text:* Type your text here.
  - *Text Color:* Click this box to choose a text color from the color picker.
  - *Select Font:* Click this button to open a font selection palette for selecting type, style, and size.

- *Watermark:* Superimposes a watermark onto the image. This is a useful tool for stamping a suitable logo onto your output media file. It allows you to make any stored image into a watermark image to add to your output media file. Use the following pop-up menus, fields, and sliders to position and size the watermark and set its opacity:
  - *Position:* This pop-up menu positions the watermark image in the image clip. Choose from one of the following positions: Center, Lower Left, Lower Left - TV Safe, Lower Right, Lower Right - TV Safe, Upper Left, Upper Left - TV Safe, Upper Right, Upper Right - TV Safe.
  - *Scale By:* This slider sets the size of the watermark image size.
  - *Alpha:* This slider sets the watermark image opacity. Choose between 0 and 1. A value of 0 makes the watermark image completely transparent, while a value of 1 makes it completely opaque.
  - *Choose:* Click this button to open the file selection dialog and select a stored watermark image.

Adding Filters to a Setting

You use the Filters pane in the Inspector window to add filters to your settings.

To add filters to a setting:

1 Open the Settings tab of the Presets window.

2 Select the setting in the Settings table that you want to modify. (Or select a setting already applied to a source media file in the Batch window. This way, you can open the Preview window and see the effects of your filter adjustments.)

3 Click the Filters tab in the Inspector.

4 Make adjustments to any filters that you want added to the setting.

Note: A checkmark appears automatically as soon as you make adjustments to any filter.
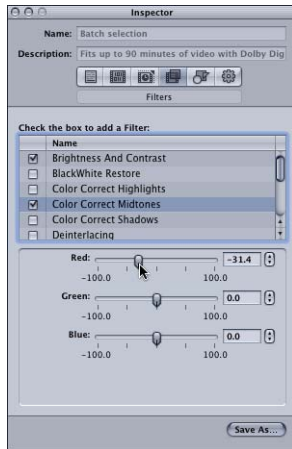
5 Drag the filters up or down within the Filters list to set the order in which you want them applied to the source media file during transcoding.
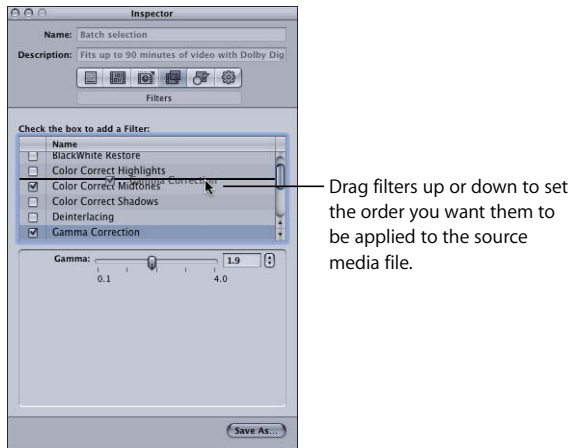
Drag filters up or down to set the order you want them to be applied to the source media file.

Because these filters are processed one by one during transcoding—starting with the first item in the list—it is important that your filters be organized in the order you want them. For example, it is sensible to place your text overlay filter last, so that the text color you selected doesn't get modified by some other filter.

If you move a filter, be sure to select the checkbox so that Compressor knows to apply the filter to that setting. As an additional reminder, once you select the moved filter and then try to select another setting, the Save dialog appears, requiring you to save or revert the changes to that setting. By default, all selected filters are displayed first in the list.

Note: You can see setting details in the Summary pane of the Inspector window.

See "About the Filters Pane" on page 188 for more details.

Adding Frame Controls, Geometry, and Actions to a Setting

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You can make advanced adjustments to your settings with the Frame Controls, Geometry, and Actions panes of the Inspector window.

This chapter contains the following sections:

Frame Controls

Geometry

Actions

Working With Frame Controls

Compressor now offers high-quality transcoding from many different source formats to many different target formats using advanced image analysis. That means you can now do any of the following at levels of quality that were previously only available through expensive hardware solutions:

- Convert video files between international television standards such as PAL to NTSC, or NTSC to PAL.
- Downconvert high definition (HD) video sources to standard definition (SD), or upconvert SD to HD.
- Convert a progressive stream to an interlaced one, or interlaced to progressive.

Note: The Advanced Format Conversions settings group in the Settings tab of the Presets window has particular relevance to working with frame controls.

About the Frame Controls Pane

Use the following features in the Frame Controls pane of the Inspector to select and adjust frame controls attributes that you want to assign to your settings.

Frame Controls

Use this pop-up menu to choose from the following Frame Controls options:

- *Off:* The default setting for most Apple presets. Choose Off if your Compressor project does not involve changes to the frame size, frame rate, or field dominance.
- *Automatic:* Compressor analyzes the transcoding job (the source media file and the applied setting), and then automatically determines the appropriate Frame Controls attributes.
- *Custom:* Allows you to manually adjust all of the attributes in the Frame Controls pane (below).

  Note: In Automatic mode, frame controls technology is engaged in the following two types of transcodes only:

  - Transcoding from high definition (HD) sources to standard definition (SD) MPEG-2 output files.
  - Transcoding from interlaced sources to H.264 for HD DVD (progressive) output files.

Resizing Control

Use the controls in this section to choose the algorithm with which frames are resized.
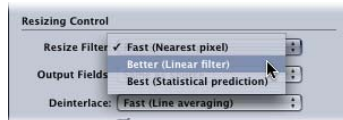
- *Resize filter:* Use this pop-up menu to choose from the following re-size options. This decision is a trade-off between faster processing time and higher output quality in projects that involve a change in resolution.
  - *Fast (Nearest pixel)*
  - *Better (Linear filter)*
  - *Best (Statistical prediction)*

- *Output fields:* Use this pop-up menu to choose the output scanning method (either the field dominance or a conversion to progressive scanning).
  - *Same as Source:* No change to the scanning method.
  - *Progressive:* Scanning method where each frame is complete (not divided into fields).
  - *Top first:* Interlaced field dominance (field order), also known as *field two, the upper field,* or *the odd field.*
  - *Bottom first:* Interlaced field dominance (field order), also known as *field one, the lower field,* or *the even field.*

Note: Frame Controls is recommended over the Compressor Deinterlacing filter (a legacy filter in the Filters Pane) as it will always provide much higher quality.

- *Deinterlace:* Use this pop-up menu to choose from several levels of mesh warping. This decision is a trade-off between faster processing time and higher output quality.
  - *Fast (Live averaging)*
  - *Better (Motion adaptive)*
  - *Best (Motion compensated):* This option intelligently deinterlaces only those parts of the image that are in motion. This increases source resolution, improves quality, and removes noise from static areas.

Warning: Using all *Best* settings may result in unexpectedly long processing times.

Note: Frame Controls is recommended over the Compressor Deinterlacing filter (a legacy filter in the Filters Pane) as it will always provide much higher quality.

- *Adaptive Details:* Click this checkbox to use advanced image analysis to distinguish between noise and edge areas.
- *Anti-alias:* Use this slider to set a softness level from 0 to 100.
- *Details Level:* Use this slider to set a level (from 0 to 100) to preserve sharp edges.

Retiming Control

Use the controls in this section to choose the algorithm by which frame rates are adjusted.

- *Rate Conversion:* Use this pop-up menu to choose from the following options. This decision is a trade-off between faster processing time and higher output quality.
  - *Fast (Nearest frame):* No frame blending is applied; Compressor simply uses a copy of the nearest available frame to fill the new in-between frames.
  - *Good (Frame blending):* Averages neighboring frames together to create new in-between frames.
  - *Better (Motion compensated):* Uses motion vectors to interpolate frames.
  - *Best (High quality motion compensated):* Uses motion vectors to interpolate frames; this option is particularly useful for transcodes that involve increases in frame rates (for example, 23.98 fps to 59.94 fps).

> *Warning:* Using all *Best* settings may result in unexpectedly long processing times.

Adding Frame Controls to a Setting

You use the Frame Controls pane in the Inspector window to add frame resizing and retiming adjustments to your settings.

To add automatic frame control adjustments to a setting:

1 Open the Settings tab of the Presets window.

2 Select the setting in the Settings table that you want to modify. (Or select a setting already applied to a source media file in the Batch window.)

3 Click the Frame Controls tab in the Inspector.

4 Choose Automatic from the Frame Controls pop-up menu.

Compressor analyzes the transcoding job (the source media file and the applied setting), and then automatically determines the appropriate Frame Controls attributes.

To add custom frame control adjustments to a setting:

1 Open the Settings tab of the Presets window.

2 Select the setting in the Settings table that you want to modify. (Or select a setting already applied to a source media file in the Batch window.)

3 Click the Frame Controls tab in the Inspector.

4 Choose Custom from the Frame Controls pop-up menu.

Custom allows you to manually adjust all of the attributes in the Frame Controls pane.

5 Make changes to any of the following controls in the Frame Controls pane. (See "About the Frame Controls Pane" on page 196 for details on each of the controls.)

- Resize filter
- Deinterlace
- Adaptive Details
- Anti-alias
- Details Level
- Rate Conversion

6 Click Save to save the changes.

Working With Cropping and Scaling

Scaling involves shrinking your output media image size to save storage space or reduce the bit rate. Cropping deals with removing unnecessary image area (such as the overscan area, which is necessary for television, but not computers) to make what's left seem bigger in the same frame size. Cropping also allows you to reduce the output media image size more than can be achieved by simply scaling the image.

You can significantly reduce the file size of your output media file by cropping the actual image to be transcoded and selecting its output frame size dimensions. For example, a media file that is destined to be viewed only on a website doesn't require a full-screen frame and remains perfectly viewable at a 320 x 240 frame size.

Note: It's important to understand that these aspect ratio dimensions are based on the *cropped* frame size, not the *original* frame size of the source media file.
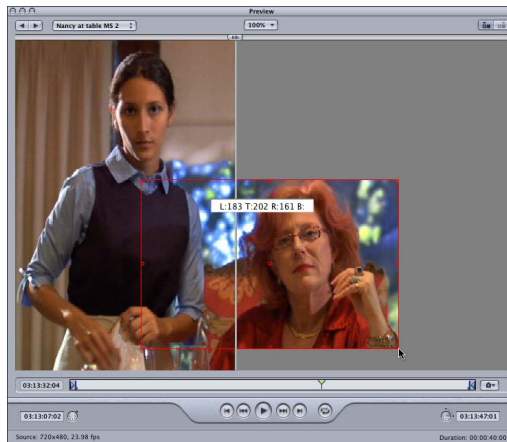
As you reduce the clip image by cropping it, the output image will be scaled up to fill the new output frame size. This effect is similar to zooming in on an image, which results in larger pixels and overall image degradation.

About the Geometry Pane

You use the Geometry pane to choose cropping and sizing settings, output media file sizes, and the aspect ratio (the ratio between image frame width and height):

Cropping fields — — Output size fields
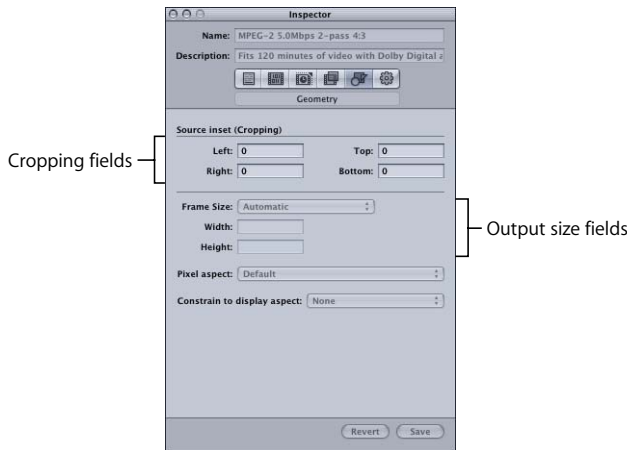
- *Source inset (Cropping):* The four cropping fields (Left, Top, Right, and Bottom) allow you to crop the frame of your source media file in pixel increments. Most broadcast video files have overscan areas. If the output file will be shown exclusively on a computer screen rather than a television screen, you can safely remove some edging from your file without impacting the picture area. The numbers give the distance (in pixels) between the edge of the original frame and the resulting cropped frame. All fields default to 0.

  Note: The regular ("action safe") overscan area is the outer five percent of the image on all four sides. Cut in an additional five percent and you have the more conservative "title safe" area. So you can safely crop anywhere between five and ten percent of your outer frame area and still preserve the essential material.

- *Frame size:* This pop-up menu and associated text fields allow you to customize the frame size and aspect ratio of your output file's frame size. Choose from one of the following: 100% of source, 50% of source, 25% of source, 320 x 240, 640 x 480, or Custom (a manually created setting). With this last option, you enter whichever dimensions suit your needs in the Width and Height fields. This is useful when dealing with square/non-square pixel discrepancies. Resizing a 720 x 480 frame to 640 x 480 compensates for this type of image distortion.

  Note: If you are either modifying or creating an MPEG-1, MPEG-2, or H.264 for HD DVD setting, all of the Geometry pane pop-up menus and fields are dimmed. The relevant output size dimensions are automatically entered in the Width and Height fields based on the video format you selected (NTSC or PAL) from the Video Format pop-up menu in the Encoder pane.

Note: If you want to transcode a normal size standard definition (SD) source media file (720 x 486) using an MPEG-2 NTSC setting, your output media file will be automatically cropped (two pixels from the top and four from the bottom) to achieve the MPEG-2 required dimensions of 720 x 480, unless you already specified cropping attributes. This crop attribute is only temporary and is not saved in the setting. You can see the automatic crop in the usual way, by double-clicking the setting in the Batch table to open the Preview window.

See "About the MPEG-2 Encoder Pane" on page 129 for more information about the Video Format pop-up menu.

- *"Pixel aspect" pop-up menu:* Forces the pixel aspect ratios to conform to specific formats. This is especially important when using some filters. For example, if the graphic you use for the Watermark filter uses a circle and you want to be sure it still looks like a circle when finished (as opposed to an oval), you must choose the "Pixel aspect" setting that matches your output format. Options include:
  - *Default:* The pixel aspect ratio is not changed.
  - *Square:* Use this when the output is to be displayed on computers.
  - *NTSC CCIR 601/DV:* Forces the pixel aspect ratio to 4:3 using 720 x 480 pixels.
  - *NTSC CCIR 601/DV (Anamorphic):* Forces the pixel aspect ratio to 16:9 using 720 x 480 pixels.
  - *PAL CCIR 601:* Forces the pixel aspect ratio to 4:3 using 720 x 576 pixels.
  - *PAL CCIR 601 (Anamorphic):* Forces the pixel aspect ratio to 16:9 using 720 x 576 pixels.
  - *DVCPRO HD 720p60 (16:9):* Forces the pixel aspect ratio to 16:9 using 1280 x 720 pixels.
  - *DVCPRO HD 1080i60 (16:9):* Forces the pixel aspect ratio to 16:9 using 1920 x 1080 pixels.
  - *HDV 1080i (16:9):* Forces the pixel aspect ratio to 16:9 using 1440 x 1080 pixels.
- *"Constrain to display aspect" pop-up menu:* Forces the entered output size width and height values to conform to a designated aspect ratio. You can leave it at the default of None, or set it to either 4:3, 16:9, or 2.35:1. If you choose anything other than None, and enter either a Width or a Height value, the other value will be calculated automatically.

Making Geometry Adjustments to a Setting

You use the Geometry pane in the Inspector window to crop, scale, and change the frame aspect ratio in a setting.

To add cropping, frame sizing, and aspect ratio settings to your setting:

1   Open the Settings tab of the Presets window.

2   Select the setting in the Settings table that you want to modify. (Or select a setting already applied to a source media file in the Batch window.)

3   Click the Geometry tab in the Inspector.
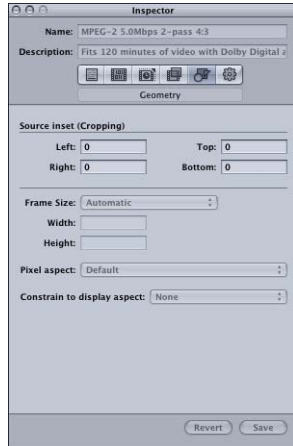
4   Enter your source inset (cropping) settings, choose output size dimensions from the Frame Size pop-up menu, and choose aspect ratio settings from the "Constrain to display aspect" pop-up menu.

You can see all changes you make to your setting by viewing the Summary table in the Summary pane.

Note: There are two ways to adjust frame size. You can either enter numbers in the cropping fields or drag the red frame bars in the Preview window. Using the latter method, the resulting numbers dynamically appear in the cropping fields so that you can see a numerical representation of your frame cropping. Hold down the Shift key to constrain the crop to either the source aspect ratio, the source height, or the source width.

If Batch selection is selected, any resizing in the Preview window is reflected in the Geometry pane. You can also directly enter numbers into these cropping fields.

Drag the red frame bars (by the handles) to adjust the output file frame size.
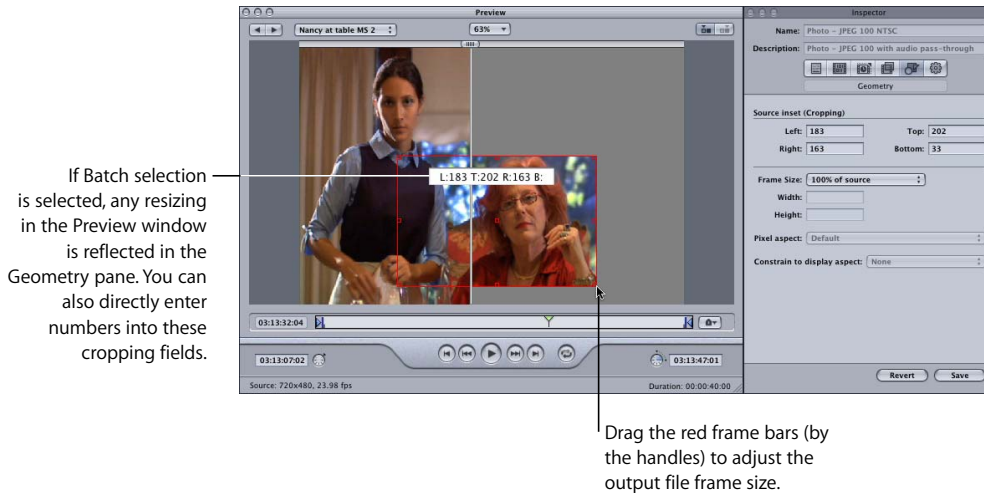
See "About the Geometry Pane" on page 201 or "Previewing a Clip" on page 215 for more details.

Working With Post-Transcoding Options

Compressor can send an email to one recipient per preset, giving notice of when a transcode is complete. You can also add one AppleScript per preset. This gives you some post-transcoding options for your output media file, such as creating an AppleScript for adding metadata to QuickTime files or automatically transferring the transcoded file to a streaming web server.

Note: You need to have your Internet preferences set up with an outgoing mail server for email notification. This option is not available for mail services that require SMTP authentication.

About the Actions Pane

You use the Actions pane in the Inspector to set options related to transcode completion notification emails and post-transcoding AppleScript options.

Email notification checkbox

Choose button
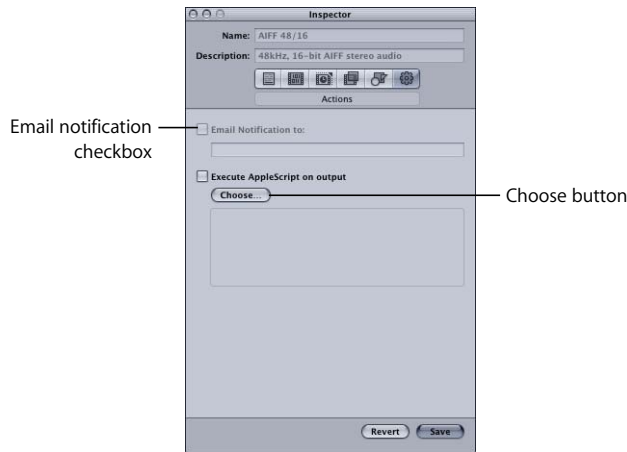
The Actions pane contains the following items:

- *Email Notification to:* If you want to be notified when a particular transcoding job has been completed, select this box and enter the appropriate email address in the text field. (You can only enter one email address.) This is useful if you are transcoding an especially large source media file that may take many hours to complete. Rather than continuously checking to see if the transcoding is finished, you just wait until you receive an email.

Note: To enable this email feature, you must first enter an email address and outgoing mail server in Compressor Preferences. (Choose Compressor > Preferences.)

- *Execute AppleScript on output:* Select this box to activate a chosen AppleScript. Even if you have chosen an AppleScript, it will not run unless you have selected this box.
- *Choose button:* Click this button to select an existing AppleScript that you want to assign to the output file. Adding an AppleScript is a useful way of applying post-transcoding actions to your job, such as adding metadata to QuickTime files or adding interactive QuickTime elements.

Adding Actions

You use the Actions pane in the Inspector window to set post-transcoding options for your output media file, such as sending an email, adding metadata to QuickTime files, or transferring the transcoded file to a streaming web server or to DVD Studio Pro.

To add an email notification to your setting:

1 Open the Settings tab of the Presets window.

2 Select the setting in the Settings table that you want to modify. (Or select a setting already applied to a source media file in the Batch window.)

3 Click the Actions tab in the Inspector.

4 Select the "Email Notification to" checkbox and enter the relevant email address in the accompanying field.

   Note: To enable this email feature, you must first enter an email address and outgoing mail server in Compressor Preferences. (Choose Compressor > Preferences.)

To add an AppleScript to your setting:

1 Open the Settings tab of the Presets window.

2 Select the setting in the Settings table that you want to modify. (Or select a setting already applied to a source media file in the Batch window.)

3 Click the Actions tab in the Inspector.

4 Click the Choose button.

The File Selection dialog appears.

5 Navigate to the relevant AppleScript file and click Open.
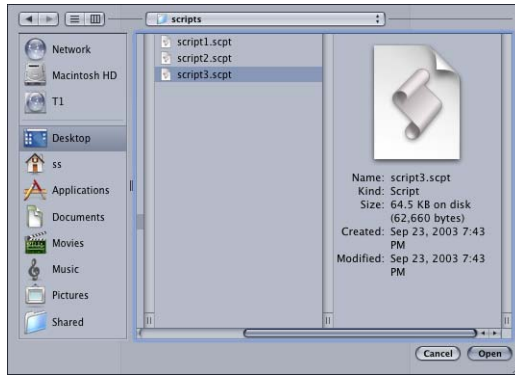
The path to the AppleScript file appears below the Choose button. Make sure the checkbox is selected; otherwise, the AppleScript won't be applied to the setting.

See "About the Actions Pane" on page 205 for more details.

Using the Preview Window 16

The Preview window has two main roles. You can use it to play your source media file in its original format, or you can preview your source media file with whichever settings have been assigned to it.

This chapter contains the following:

When you use the Preview window to compare the original version of the clip with the version that will be output, you can make and view real-time changes. This comparison lets you check the effects of settings on your file before spending time and resources transcoding it. Do this to check the quality of the output media file.

Original version of the clip

Scaled, cropped, and filtered version of the clip
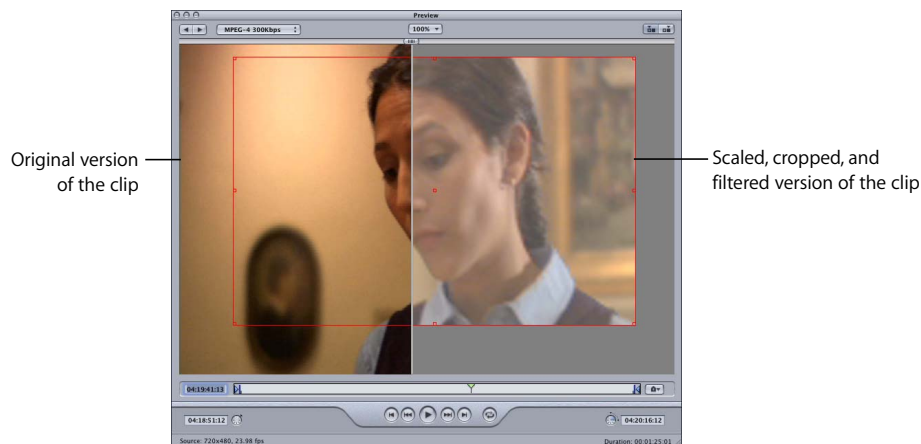
You can also use the Preview window to enlarge the Preview screen size, manually add I-frames (MPEG-1 and MPEG-2 only), and designate a portion of your media file for transcoding using the In and Out markers.

About the Preview Window

The Preview window allows you to play batch items before submitting them for transcoding, and allows you to compare versions of your clip to ensure that the quality of the output media file is acceptable.

The Preview window contains the following items:

- *Preview scale selection:* Adjusts the Preview screen size. The three settings are 100%, 75%, and 50%, but you can also drag the Preview window handle to any size you like.
- *Source/Output selection:* Use these buttons to preview the selected batch item using either the source's aspect and size or the output's aspect and size. The Source View button also provides a cropping boundary that you can use to define one or more edges to be cropped. The Output View button shows the cropped version of the media scaled to its aspect and size setting.
- *Source/Output information:* The clip's frame size and frame rate are shown in the lower-left corner of the Preview window. The clip's duration is shown in the lower-right corner. With the Source View button selected, the frame size, frame rate, and duration represent the source media clip. With the Output View button selected, the frame size, frame rate, and duration represent the setting for this batch item, and the duration is based on the In and Out points set in the Preview window.

Batch item selection control area
You can use the batch item selection area to choose specific items from the Batch window to show in the Preview window.

Batch Item selection buttons ─── MPEG-4 300Kbps ─── Batch Item pop-up menu

- *Batch item selection buttons:* Use these buttons to click backward or forward through the list of source media files and clips with settings available for previewing. As you click through the list, the selected batch item appears in the batch item pop-up menu.
- *Batch item pop-up menu:* Choose the source media file you want to preview from this pop-up menu, with or without its assigned settings.

In and Out controls
Once you have selected the batch item, the In and Out controls can be used to see and adjust the In and Out point timecode information.

In point timecode ─── 04:19:41:13 ─── Out point timecode
Sets In point to current playhead position ─── Output: 146x97, 15.00 fps ─── 04:20:16:12 ─── Sets Out point to current playhead position ─── Duration: 00:00:35:00 (in-out)
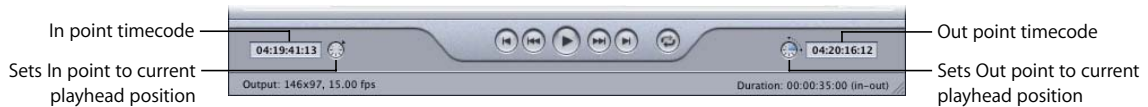
- *In and Out timecode fields:* The exact locations of the In and Out markers are displayed here using the standard timecode format of hh:mm:ss:frame. You can manually edit these fields by selecting the field and entering new values. If a new value is entered, the timeline's relevant In or Out point moves to the specified point in the current batch item.

  Note: If your source media file has a timecode track with a specific timecode, the start and end timecode of the clip will appear in both the In and Out timecode fields. For everything else, the timecode will start with 00:00:00:00.

- *In and Out point buttons:* Drag the In point (right-pointing arrow) or Out point (left-pointing arrow) buttons in the timeline to set a new In or Out point. You can also use the Set In and Set Out buttons (next to the timecode fields) to set In and Out points.

Preview screen area

The Preview screen area displays the currently selected batch item. The Preview screen also contains the following items:

Split screen slider —

Cropping dimensions (also seen in Source Inset fields in the Geometry pane)

Cropping boundary

Cropping handle for the lower-right corner
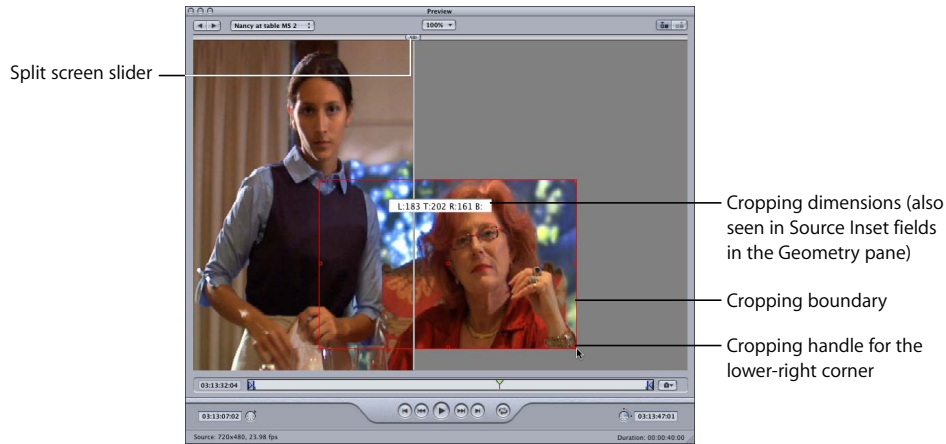
- *Split screen slider:* Drag the split screen slider any distance across the top of the Preview screen to get a comparison view between the source media file (left side) and output media file (right side). In addition to the location of the slider at the top, the screen division is indicated by a vertical white line bisecting the image.
- *Cropping boundary:* The cropping boundary is only available in Source view. Use the handles to drag the red boundary edges and corners in the direction you want to crop your output media file. Use the center handle to drag the entire frame in any direction while still maintaining its dimensions. The new values (for left, top, right, and bottom) appear dynamically in the Preview screen as you crop the frame. If you also have the Inspector window open with the *Batch selection* showing in the Name field, you can see the same values changing in the cropping fields of the Geometry pane. Select the Output view to show the results of the crop boundary settings.

Timeline controls

The timeline controls provide information about the clip, including any markers it has and the current In and Out point settings. You can also use the timeline to position the playhead to a specific frame and set the In and Out points.

In point   Playhead   Out point

Playhead timecode — [04:10:38:05]

Marker
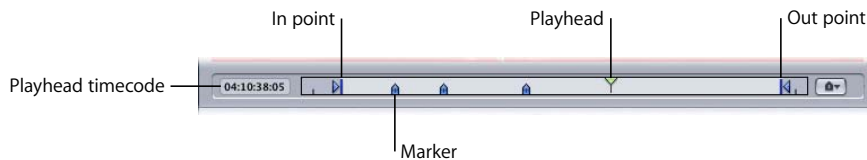
- *Playhead timecode:* Shows the timecode of the playhead's position in the timeline using the standard timecode format of hh:mm:ss:frame. You can enter a new value to precisely position the playhead along the timeline.

  Note: If your source media file has a timecode track with a specific timecode, the timecode of the clip will appear in the playback timecode field. For everything else, the timecode will start with 00:00:00:00.

  In and Out points: Use these if you want to transcode only a section of your source media file, rather than the whole thing. Drag the points to indicate the Start and End points within the source media file that you want to transcode. The In and Out timecode fields at the bottom of the Preview window update as you drag these points. (You can also click the Set In Point or Set Out Point buttons to set the points to wherever the playhead is currently positioned.)

  In and Out points are not preserved after a transcode has been completed, so if you want to resubmit a batch from the History table, you need to reapply these markers to your clip. In and Out markers are assigned to the source media file rather than the setting, so whatever In and Out points you create will be the same for all other settings related to that source media file in the current batch.

- *Playhead:* Gives you a visual indication of where the displayed frame is located within the clip. You can drag the playhead to navigate quickly to a specific location within the clip.

- *Marker:* Gives you a visual indication of where a marker has been placed in the clip. The color of the marker indicates its type:
  - *Blue:* Compression markers
  - *Purple:* Chapter markers
  - *Green:* Edit/cut markers

  See "Adding Markers to a Clip" on page 220 for more information.

- *Playback Loop button:* Click to play the media in a continuous loop.

Transport controls

These move the playhead backward or forward to the exact position of the next marker or In and Out point, making it easy to navigate quickly between existing markers. You can also use these buttons to quickly move the playhead to the start or end of the clip.

Move to previous marker.

Move to next marker.

Playback Loop button

Fast backward

Fast forward
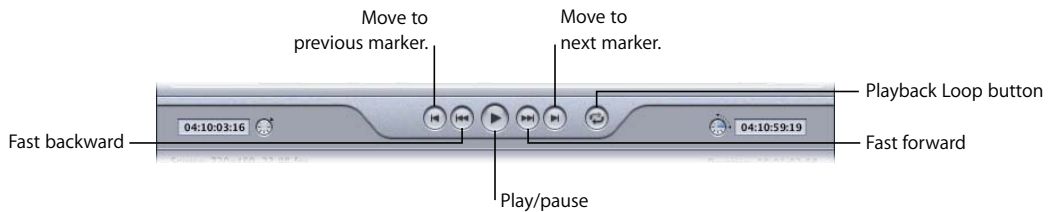
Play/pause

- *Play/Pause button:* Starts or stops playback of the clip. If you stop playback, the playhead remains at its current position. To return to the start of the clip, you need to drag the playhead back to the beginning or click the "move to previous marker" control.
- *Move to previous or next button:* Moves the playhead to the previous or next marker, or to the start or end of the clip if no more markers are present.
- *Fast backward and fast forward buttons:* Allow you to play your clip in either direction at twice the normal speed. Hold down a button to continue scanning in either direction.

Marker pop-up menu

Use the Marker pop-up menu to manage the clip's markers. While you can use markers with all settings, they actually only affect the output file when the setting uses the MPEG-1, MPEG-2, or H.264 for HD DVD output file formats. See "Adding Markers to a Clip" on page 220 for more information.
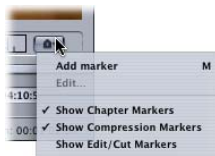
- *Add/Remove marker:* Actual state depends on whether the playhead is positioned on a marker or not.
  - *When not positioned on a marker,* says "Add marker." Choosing "Add marker" places a new marker on the timeline at the playhead's current position.
  - *When positioned on a marker,* says "Remove marker." Choosing "Remove marker" deletes the current marker.

- *Edit:* Only available when the playhead is positioned on a marker. Choosing Edit opens a dialog for naming the marker. Naming a marker makes it a chapter marker that can be used in DVD Studio Pro.
- *Show chapter markers:* Controls whether chapter markers (those with names) are shown in the timeline. A checkmark indicates they are shown.
- *Show compression markers:* Controls whether compression markers (those without names) are shown in the timeline. A checkmark indicates they are shown.
- *Show edit/cut markers:* Controls whether markers automatically placed at each edit point by another application, such as Final Cut Pro, are shown in the timeline. A checkmark indicates they are shown.

Previewing a Clip

You can preview either a source media file clip or a clip with a setting assigned to it. Source media files have no settings assigned to them; in the Batch Item pop-up menu, they appear with a format icon—such as QuickTime—next to their names. (Clips with settings don't have any format icons next to their names, just the setting name.) The kind of clip you choose determines which options you see in the Preview window.

To preview a source media file:

1 Open the Preview window.

   Note: You can open your file into the Preview window in one step, by double-clicking the source media file in the Batch table of the Batch window.

2 Do one of the following:
   - Choose a source media file from the Batch Item pop-up menu (identified by its format icon).

Batch Item pop-up menu
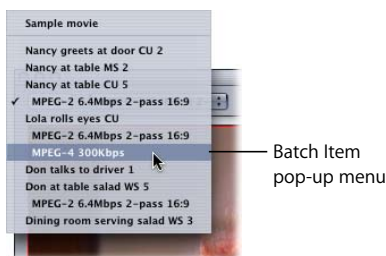
   - Click the Batch Item selection buttons until the source media file appears in the pop-up menu
   - Select the source media file in the Batch table of the Batch window.

   Only the Source View button is active (and the Output View button is dimmed). This is because you selected a regular source media file with no setting assigned, so you can only see the unadulterated clip—without the split screen divider or cropping bars.

3   Choose a Preview screen size from the Preview Scale pop-up menu, or drag the Preview window handle to a size you like.

This does not affect the display frame size of the actual output media file. That can only be set from the Geometry pane in the Inspector window.

4   Click the Play button to preview the selected source media file.

Source media files with markers already added, such as files from Final Cut Pro, will show the markers in the timeline. You can manage the markers if needed. See "Adding Markers to a Clip" on page 220 for more information.

To preview a clip with an assigned setting:

1   Open the Preview window.

Note: You can open the clip into the Preview window in one step, by double-clicking the setting in the Batch table of the Batch window.

2   Do one of the following:

- Choose a setting from the Batch Item pop-up menu (clips with a setting have no format icon next to their names).
- Click the Batch Item selection buttons until the clip with a setting appears in the pop-up menu.
- Select the clip's setting in the Batch table of the Batch window.

Both Source and Setting (Output) View buttons are active so you can switch between these two views. Because you selected a clip with a setting, you can use the split screen slider and cropping boundary in the Preview screen.

3   Click the Setting view button in the upper-right corner of the Preview window.

4   Choose a Preview screen size from the Preview Scale pop-up menu, or drag the Preview window handle to a size you like.

This does not affect the display frame size of the actual output media file. That can only be set from the Geometry pane in the Inspector window.

5   Drag the split screen slider left or right across the top of the screen to move the split screen divider over more or less of the transcoded portion of the clip.

6   Use the cropping boundary to adjust the display frame size of your output media file.

Batch item pop-up menu ——

Split screen slider ——

Split screen divider ——

Source and Setting
View buttons

Cropping dimensions (also
seen in Source Inset fields
in the Geometry pane)

Cropping boundary
and handles
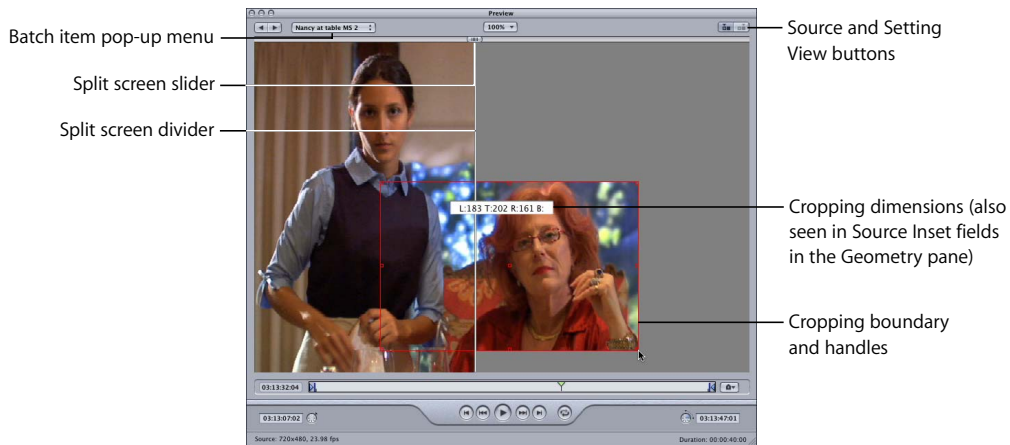
7   Check the results of your cropping by clicking the Source and Setting View buttons.

Note: The more you reduce the clip image by cropping it, the larger the scale factor of the output image will be (as the framing geometry conforms to the settings of the output size ratio rather than to the source file settings). This effect is similar to zooming in on an image, which results in larger pixels and overall image degradation. So make sure that you don't crop in so far that the image is enlarged past its original size relative to the original size of the frame.

Source and Setting
View buttons
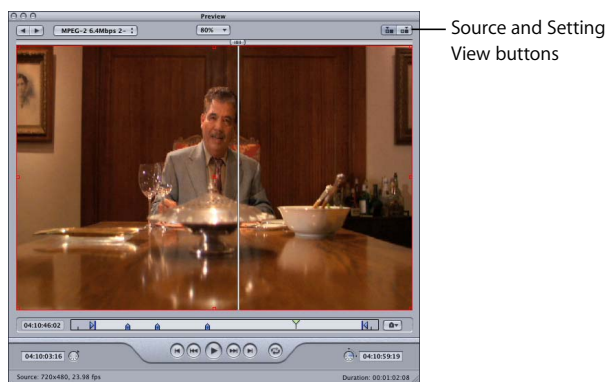
8 Select the filter that you want to adjust and make changes as necessary.

Note: The filter you select must have a checkmark next to it in the Filters list. Otherwise, the filter won't be applied to the setting.

Setting selection —

Selected filter settings seen in the Preview window
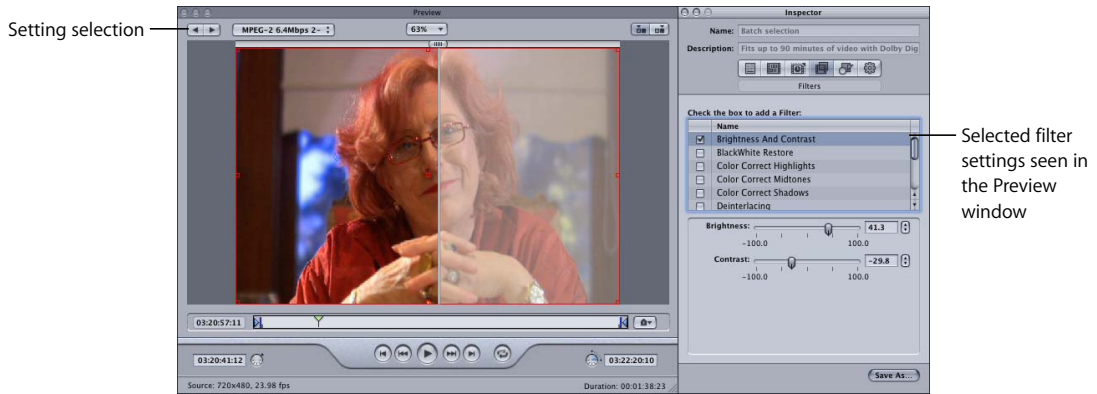
9 If you want to make the display frame size of your output media file different from that of your source media file, open the Geometry pane in the Inspector window and choose a pre-existing value from the "Frame size" pop-up menu or enter different output size values in the relevant fields.

Note: MPEG-2 is limited to pre-established display frame sizes based on MPEG-2 specifications. In this instance, all output size items are unavailable.

Cropping dimensions (also displayed in the Inspector window when cropping bars are dragged)
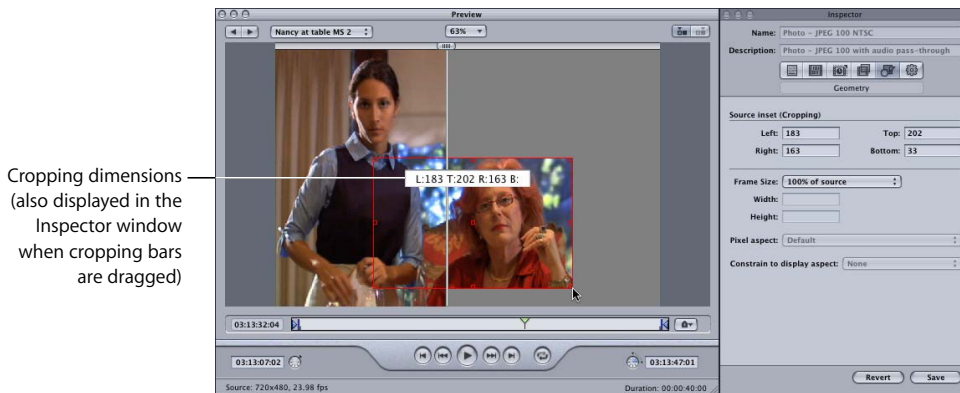
10 Click the Play button in the Preview window to view the clip.

See "About the Preview Window" on page 210 for more information about these settings.

Transcoding a Portion of the Clip With the Preview Window

You can use the Preview window to set In and Out points to transcode only a portion of your media file rather than transcoding the whole thing.

To designate a portion of your media file for transcoding:

1 Open the Preview window.

2 Choose a clip from the Batch Item pop-up menu or click the Batch Item selection buttons until the clip appears in the pop-up menu.

3 Do one of the following:

   • Drag the In point to the appropriate location.

   • Drag the playhead to where you want transcoding to begin and click the Set In Point button.

4 Do one of the following:

   • Drag the Out point to the appropriate location.

   • Drag the playhead to where you want transcoding to end and click the Set Out Point button.

The only segment of the media file that will be transcoded is between the two points that you set. The rest of the clip will not be transcoded.

Adding Markers to a Clip

MPEG-1 and MPEG-2 GOP patterns automatically insert I-frames on whatever basis the pattern dictates. The Preview window offers additional MPEG-1 and MPEG-2 flexibility by allowing you to manually insert compression markers into your source media file wherever you decide additional I-frames are needed, regardless of your chosen GOP pattern and size. These are known as *forced* I-frames, and are useful if you want to mark a major scene change or some other major change in the source media file so that you can improve the quality of the MPEG-1 or MPEG-2 file. See "Understanding GOPs and Frame Types" on page 140 for more information on I-frames.

In addition, adding compression markers to your clip allows you to create chapter markers that DVD Studio Pro can understand and use. See "Adding DVD Studio Pro Chapter Markers to a Clip" on page 222 for more information.

These manual settings are also preserved when you transfer a media file directly from Compressor to another application such as DVD Studio Pro.

Note: I-frames should not be added to anything but MPEG-1 or MPEG-2 output media files. The MPEG-1 format does not support chapter markers.

To add a compression marker to your clip:

1   Open the Preview window.

2   Select the "Show Chapter Markers" and "Show Compression Markers" items from the Marker pop-up menu.
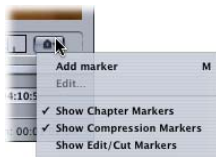
3   Choose a clip from the Batch Item pop-up menu or click the Batch Item selection button until the clip you want appears in the pop-up menu.

Note: Clips that already contain markers, such as those from Final Cut Pro, will show those markers in the timeline. You can edit those markers the same as if you had manually entered them.

4   Make sure that the selected setting is using an MPEG-1 or MPEG-2 output format. (You cannot force keyframes with the H.264 for HD DVD file format.)

5 Do one of the following to determine where the marker is to be placed:

- Drag the playhead where you want to add a marker.
- Enter a timecode value in the playhead timecode field.

6 Do one of the following to add a marker:

- Click the Marker button and choose "Add marker" from the pop-up menu.
- Press M.

A blue marker appears in the timeline.

A blue marker appears under the playhead after the marker is added.

To remove a marker from your clip:

1 Click either the Move to Previous Marker or Move to Next Marker controls to move the playhead to the marker you want to remove.

2 Do one of the following to remove the marker:

- Click the Marker button and choose "Remove marker" from the pop-up menu.
- Press M.

The compression marker disappears.

Adding DVD Studio Pro Chapter Markers to a Clip

If your selected setting is using an MPEG-1, MPEG-2, or H.264 for HD DVD output format, you can add chapter markers that DVD Studio Pro will recognize. See "About MPEG-2 Markers and DVD Studio Pro" on page 144 for more information on markers.

To create a chapter marker from your compression marker:

1 Move the playhead to where you want to add a chapter marker.

2 Click the Marker button and choose Add Marker.

3 Click the Marker button and choose Edit.

   The Marker Name dialog opens.

4 Enter a chapter marker name and click OK.

Enter a chapter marker name.
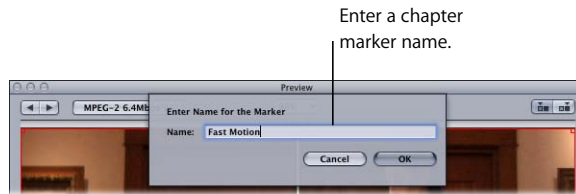
The marker turns purple. When you export your clip, DVD Studio Pro recognizes the marker as a chapter marker.

Preview Window Keyboard Shortcuts

Key command	Function
J	Starts fast reverse motion.
L	Starts fast forward motion.
←	Moves clip forward frame by frame.
→	Moves clip backward frame by frame.
space	Starts or stops clip playback.
M	Adds or removes marker (only with MPEG-1 and MPEG-2).
I	Sets an In point for the clip.
O	Sets an Out point for the clip.

Creating and Changing Destinations

17

Compressor allows you to choose where to save your transcoded files.

This chapter contains the following:

Without a selected destination, the output file is saved to the same folder as the source media file. This may be satisfactory for your needs, but if there are various remote uploading servers, or if you just want a specific type of output file to end up in a specific location, you must assign that destination.

If you have a volume open on your desktop, it is treated the same as a local destination and allows you to save output media files directly, without the extra steps needed for remote destinations, such as specifying the host name and entering the username and password. When you use the remote option for your destination, you can save to any folder under the User directory of that remote computer.

Once you have created all your necessary destinations, you won't have to open the Destinations tab of the Presets window again, because you can select all destinations directly from the Batch window once they have been created.

Note: Make sure that your output files have access and appropriate privileges to any remote destination you assign. An iDisk volume cannot be used as a destination. If you want to save the output media file to a mounted iDisk volume, first save the file to another destination, and then drag it to the mounted iDisk volume after it has been transcoded.

About the Destinations Tab

You use the Destinations tab in the Presets window together with the Inspector window to create, modify, or remove your destination settings and add file identifiers to your output media filename. The Destinations tab of the Presets window contains the following items:
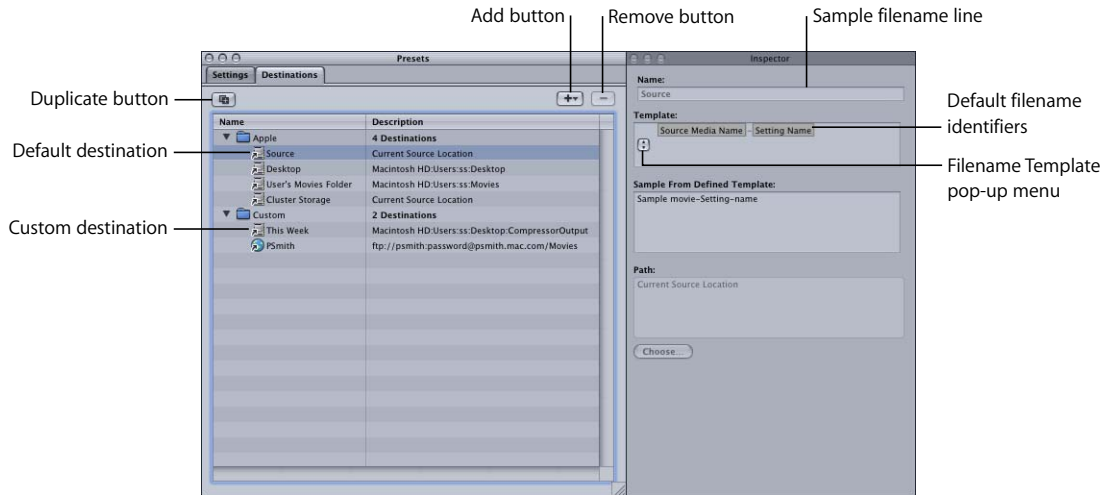
- *Destinations table:* The Destinations table lists destination names and pathnames.
- *Name:* This column displays destination names. There are four default destinations: Source is the same folder from which the source media file originated; Desktop is the user's Desktop folder; User's Movies Folder is the user's Movies folder; Cluster Storage is a cluster's scratch storage location.

  Note: Cluster Storage applies only to certain bundled copies of Compressor 2 that have distributed processing enabled. The Compressor 2 distributed processing feature is limited to computers that have either Final Cut Studio or DVD Studio Pro 4 installed.

  Note: If you are using the default *This Computer* setting in the Cluster pop-up menu in the Compressor Batch window, and you choose Cluster Storage as the destination, the output file will be copied to the Source location.

- *Description:* This column displays the path to the assigned destination folder.
- *Add* (+)*:* To create a local or remote destination, click this button and choose either Local or Remote from the pop-up menu. If you choose Local, a file selection dialog appears in which you can select a destination folder. If you choose Remote, the Remote dialog appears. Enter FTP information concerning host name, file path, user, and password for accessing the remote location.

- *Duplicate button:* (Remains dimmed until there is at least one destination that you have added to the table.) Copies exactly whatever destination is selected. Using this option allows you to create a new destination from a pre-existing destination which you can then adjust according to your needs, rather than creating a new destination from scratch.
- *Remove* (–)*:* (Remains dimmed until there is at least one destination that you have added to the table.) Removes a selected destination from the Destinations table immediately. You are not asked for confirmation, so be sure you want to remove the destination before clicking this button.

About the Destinations Inspector

When you double-click or select a destination in the Destinations tab, the Inspector window opens. It contains the following items:
- *Name:* Use this field to modify the name of the destination preset.
- *Template:* Use this pop-up menu to add file identifiers to your output media file. You can manually edit this field. Selecting any of the following file identifiers adds it to your output media filename:
  - *Date:* Date the file was transcoded in the *YYYY-MM-DD* format
  - *Setting Name:* Name of the setting used for the transcoding job
  - *Source Media Name:* Source media filename without its extension
  - *Source Media Extension:* Extension of the source media file

- *Sample From Defined Template:* Displays a sample of what the output filename will look like with any file identifiers you have added. You cannot edit the Sample line, but it changes dynamically based on the file identifiers you add or delete.

- *Path:* Displays the path to the destination folder.

Creating a Destination

You use the Destinations tab in the Presets window with the Inspector window to create and assign a destination and to add file identifiers to your output file. If you want to save your output media files to a remote destination, you need to enter information into the Remote dialog so that Compressor can successfully access the remote server.

You can create the following destinations:

- *Local:* Any directory on your own computer
- *Open Volume:* Any shared volume open on your desktop
- *Remote:* A directory in the default location of an FTP server, if you have suitable access privileges and permissions

Note: By default, the output media file destination is the same folder from which the source media files originated. You can change the default destination to any other Destination preset. Choose Compressor > Preferences and use the Default Destination pop-menu to choose from the list of Destination presets.

To create a local or open volume destination:

1 Open the Destinations tab of the Presets window.

2 Click the Add (+) button and choose Local from the pop-up menu.

Choose Local from the pop-up menu
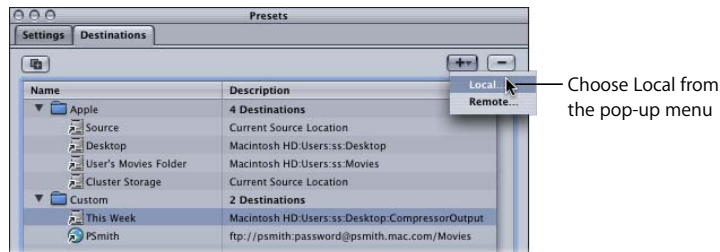
The Destination Selection dialog appears.

3 Navigate to your chosen destination folder or open mounted volume, then click Open.
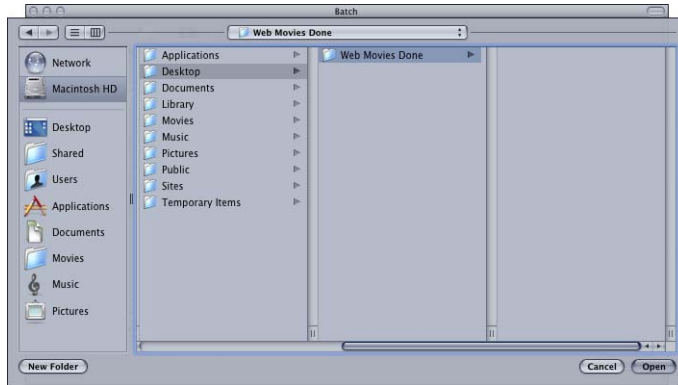
A new destination called *Untitled Local-1* appears in the Custom folder of the Destinations table along with the path to the folder you just assigned.

4 Double click the new destination in the Destinations table.

The Inspector window opens, showing relevant information for the new destination.

5 Do either of the following in the Inspector:

- Modify the name of the new destination in the Name field.
- Modify the pathname of the new destination by clicking Choose to open the destination selection dialog and navigating to a new folder.

6 Add file identifiers to your output filename using the pop-up menu in the Template field.

Filename Template pop-up menu
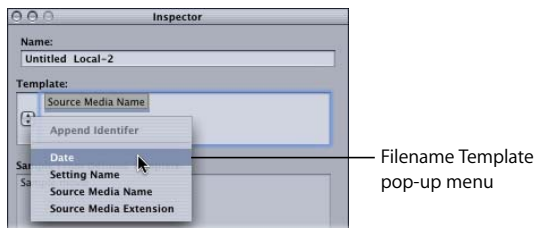
You can also manually edit this field by doing any of the following:

- Drag the file identifiers to rearrange their order.
- Click on either side of the file identifiers to type additional text.
- Use the Delete key on your keyboard to remove any of the file identifiers.

The Sample From Defined Template field in the Inspector window shows a sample of the output filename with its chosen file identifiers. The default file identifier combination is "Source Media Name–Setting Name."

Note: Avoid customizing your filename templates with anything beginning with a period (.). The resulting file will only be visible via the command line and not visible using the Mac OS X Finder.

See "About the Destinations Tab" on page 224 for more details about these settings.

To create a remote destination:

1 Open the Destinations tab in the Presets window.

2 Click the Add (+) button and choose Remote from the pop-up menu.

The Remote dialog appears. It contains the following fields:

- *Name:* Use this field to modify the name of the destination preset.

- *Template:* Use this pop-up menu to add file identifiers to your output media file. You can manually edit this field. Selecting any of the following file identifiers adds it to your output media filename:
  - *Date:* Date the file was transcoded in the *YYYY-MM-DD* format
  - *Setting Name:* Name of the setting used for the transcoding job
  - *Source Media Name:* Source media filename without its extension
  - *Source Media Extension:* Extension of the source media file

- *Sample From Defined Template:* Displays a sample of what the output filename will look like with any file identifiers you have added. You cannot edit the Sample line, but it changes dynamically based on the file identifiers you add or delete.
- *Host Name:* (Required) Name of the host server. Compressor assumes that the URL scheme being used is *ftp:*, so you don't need to enter this or any other URL scheme.
- *File Path:* (Required) Specifies the path on the host where the output media file will be stored. For example: Volumes/Movies/OutputMedia. Only enter the path to the location where the output media file will be stored. You don't need to include the filename.
- *User:* (Optional) This is only required if the host server has access restrictions requiring a username and password. If anyone can access the host server, you can leave this field blank.
- *Password:* (Optional) This is only required if the host server has access restrictions requiring a username and password. If anyone can access the host server, you can leave this field blank.

3 Enter information in the relevant fields, as necessary.

4 Click OK.

Once you have at least one destination in the Destinations table other than Source, you can set a new default destination.

To change the default destination:

1 Choose Compressor > Preferences.

2 Use the Default Destination pop-up menu to choose from the list of existing destination presets.

The destination you choose appears as the default destination when you import a new source file in the Batch Window.

Warning Triangles

When there is a problem with your destination, a yellow warning triangle appears. You must resolve this problem before you can successfully transcode. Warning triangles appear in the Destinations tab in the Presets window if the destination isn't reachable or writable, and in the Batch window if:

• There is already an identical file at that destination.

• You have two destinations with the same name.

• The destination isn't reachable or writable.

The warning appears at whatever level the problem originated (preset, job, or batch), and propagates upward, so that if the problem occurs at the preset level, you see warning triangles next to the preset and job.

If you hold the pointer over the warning triangle for a few seconds, a tooltip displays information about the nature of the problem. As soon as you resolve the problem, the warning triangle disappears and you can continue to transcode.

Warning triangle in the Batch window
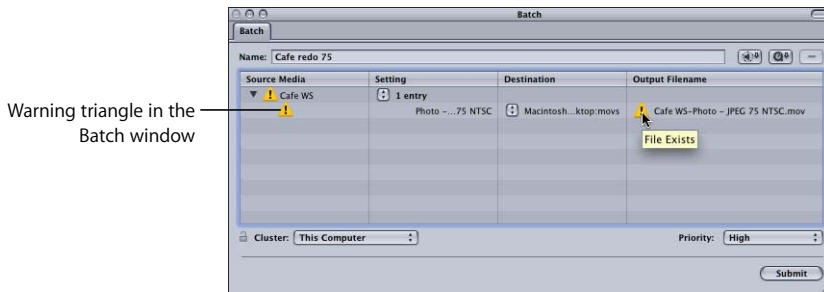
Deleting and Duplicating a Destination

You can manage destinations by deleting those you no longer need and creating new ones based on existing destinations.

To delete a destination:

1 Open the Destinations tab in the Presets window.

2 In the Destinations table, select the destination you want to remove, then click the Remove (–) button, or press Delete.

Important: There is no confirmation step in this process, so you need to be sure you want to remove the destination before clicking the button.

Remove button
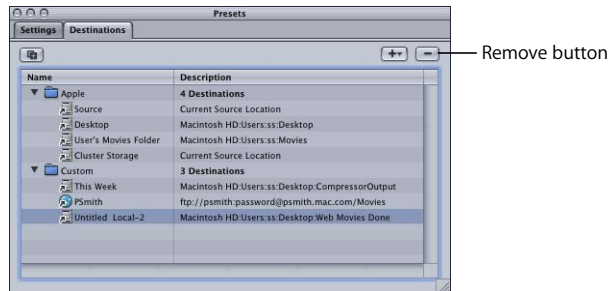
To duplicate a destination:

1 Open the Destinations tab in the Presets window.

2 In the Destinations table, select the destination you want to copy, then click the Duplicate button.

Duplicate button
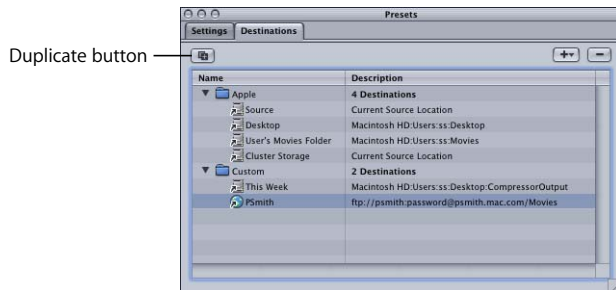
A new entry appears in the Destinations table with *Copy* appended to its name. This destination is identical in all other ways. Rename the duplicate destination as appropriate.
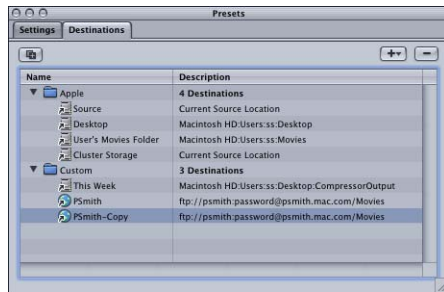
Creating Destinations for Use With DVD Studio Pro

When you are encoding video and audio files for use in DVD Studio Pro, you can make importing and using the files within DVD Studio Pro easier by creating a custom destination for them.

DVD Studio Pro includes the ability to automatically locate and, if applicable, import or use an audio file when you import or use a video file with the same root name. For example, if you assign a video file to a menu's background, DVD Studio Pro looks for an audio file with the same name and automatically sets it as the menu's audio.

The default Compressor destinations add the Setting name to the filename. Since different settings are required to output DVD compatible video and audio files, this results in the video and audio filenames never being the same—even if they are from the same source file.

When creating custom destinations in Compressor, you can choose to not include the preset name file identifier with the output filename.

To remove the setting name from a destination:

1 Double-click the destination.

   The Template field in the Inspector window lists the file identifiers assigned to the destination.

2 If "Setting name" is listed in the Template field, delete it.

Template field

Using Droplets

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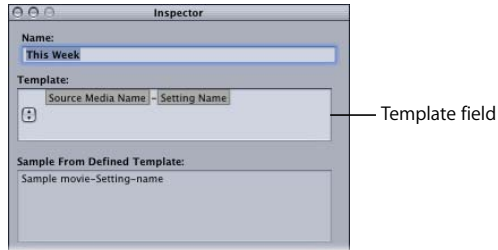
Compressor allows you to save one or more settings or groups of settings into a Droplet. A Droplet is a standalone preset created by Compressor, packaged into a drag-and-drop application and saved as an icon.

When you drag source media files to a Droplet icon, they are automatically submitted for transcoding using the specified embedded settings. The transcoding process begins, whether or not Compressor is open.

You can drag any number of media files onto a Droplet. You can double-click a Droplet to open it and see the settings it contains.

Note: Compressor must already be installed on any computer on which you intend using Droplets.

This chapter contains the following:

About the Droplet Window

You can open any Droplet to view its full details. You can also modify some settings such as the destination for the output media files and the output file identifiers.

Destination field — Template field

Source files table

Setting pop-up menu

Summary table

Show at Launch box — Submit button
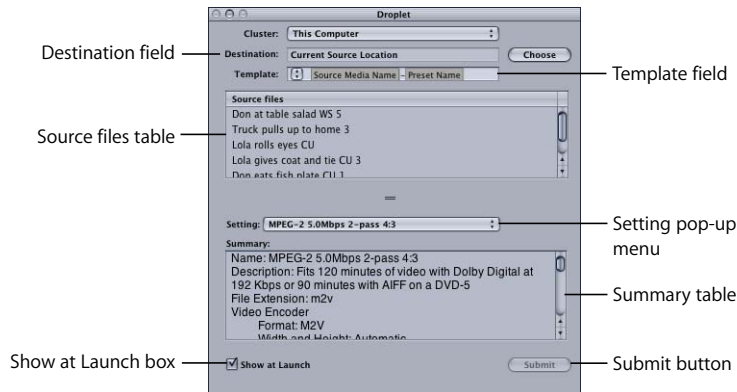
The Droplet window contains the following items:

- *Cluster:* Use this pop-up menu to choose a cluster of computers on your network to which you can submit batches for distributed processing. (The Compressor 2 distributed processing feature is limited to computers that have either Final Cut Studio or DVD Studio Pro 4 installed.) The menu will have only one available option (*This Computer*) unless all of the following conditions are met:
  - Your copy of Compressor 2 has distributed processing enabled.
  - There are other available clusters on the network.
- *Destination:* This field displays the path to the destination folder for the output media file. You can modify this by clicking the Choose button to open the destination selection dialog and navigating to a new folder.
- *Template:* Use this pop-up menu to add file identifiers to your output media file. You can manually edit this field. Selecting any of the following file identifiers adds it to your output media filename:
  - *Date:* Date the file was transcoded in the *YYYY-MM-DD* format
  - *Setting Name:* Name of the setting used for the transcoding job
  - *Source Media Name:* Source media filename without its extension
  - *Source Media Extension:* Extension of the source media file

See "About the Destinations Tab" on page 224 for more information on using file identifiers.

- *Source files:* Contains all jobs in the batch about to be submitted. If the Show at Launch box is checked, the Droplet window opens after you drag your source media files to the Droplet icon, and all the source media files appear in the Source Files table. You can drag one or more source media files into this table, and they will all be transcoded together when you submit the batch, just like a normal batch submission from the Batch window.
- *Setting:* This read-only pop-up menu displays the full list of settings associated with each Droplet. You can assign as many settings to a Droplet as you like by making a Droplet out of a setting group. (See "Creating a Droplet" on page 238 for details.) You can see the full details of each setting by choosing it from the pop-up menu and viewing the Summary table at the bottom of the window.
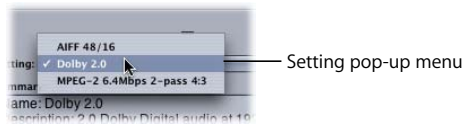
Setting pop-up menu

- *Summary:* This table lists every component of the setting selected in the Setting pop-up menu.
- *Show at Launch:* When this checkbox is selected, the Droplet window opens when you drag source media files to the Droplet icon, before the batch is submitted. This allows you to verify the settings contained within the Droplet. If the box is not selected, the batch is submitted as soon as the batch is dragged to the Droplet icon (as long as there are no errors), and the Droplet window doesn't open.
- *Submit:* Click this button to submit the batch. You only need to do this if the Show at Launch checkbox is selected; if this box is not selected, the batch is submitted automatically.

Creating a Droplet

Droplets are easy to create, and once created, allow you to quickly and easily submit source media files for transcoding.

To create a Droplet:

1 Open the Settings tab of the Presets window.

2 Select the setting or setting group you want to save as a Droplet and click the Save Droplet button.

Save Droplet button

The Save dialog appears.

Note: You cannot select multiple settings to add to a Droplet directly from the Settings table. However, you can place the settings you want to use into a setting group, select that group, and click Save. In this situation, every source media file is transcoded by every setting in the Droplet. For example, if you submitted two source media files to a Droplet containing three settings, Compressor creates six different output media files. For information about creating groups of settings, see "Creating Groups of Settings" on page 75.

3 In the Save dialog, enter a name for the Droplet in the "Save as" field, use the Where pop-up menu to navigate to the Droplet location, then click Save.

You can save your Droplet anywhere on your computer, but it's most convenient to save it on your desktop, so you can conveniently drag source media files to it.

You can choose a destination folder other than Source from the Save dialog, but you can only select destinations that have already been created using the Destinations tab of the Presets window. If no custom destinations have been created, only four default Apple destinations appear in the Choose Destination pop-up menu. See "Creating a Destination" on page 226 for more information about destinations.

To choose an alternate destination for a Droplet:

1 Choose a destination from the Choose Destination pop-up menu.

Note: The Droplet displays a warning triangle if there is a problem with the chosen destination. If this occurs, change your chosen directory until the warning disappears. See "Warning Triangles" on page 230 for more information.

2 Click Save.

Your newly created Droplet appears as an icon at whatever location you selected. You are now ready to use it for transcoding.

Checking Droplet Settings and AppleScript Options

The Show at Launch checkbox at the bottom of the Droplet window determines whether or not a Droplet window opens when a batch is dragged to a Droplet icon. If it is selected, the Droplet window opens when you drag a batch to the Droplet icon, and you can view the Droplet settings.

If this checkbox is not selected, double-click the Droplet icon to open its window and see the settings.

Show at Launch checkbox ——
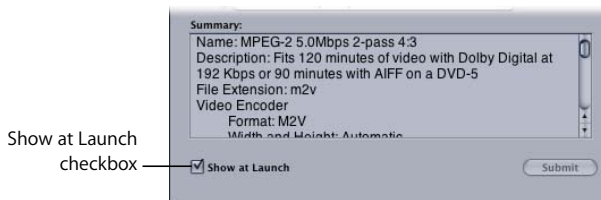
See "About the Droplet Window" on page 236 for more information about Droplet settings.

You can see a list of AppleScript dictionary options that can be used with a Droplet by dragging the Droplet icon over the Script Editor located in /Applications/AppleScript.

Using a Droplet to Transcode Source Media Files

Once you have created a Droplet, you can transcode source media files by dragging them to the Droplet icon.

To transcode source media files using a Droplet:

1   Drag your selected source media files over the Droplet icon.

The Show at Launch checkbox at the bottom of the Droplet window determines what happens next:

•   *If the Show at Launch checkbox is not selected:* The Droplet begins transcoding the source media files immediately.

•   *If the Show at Launch checkbox is selected:* The Droplet window opens with the source media files displayed in the Droplet Source Files table. Proceed to step 2 to submit your batch.

2   If the Droplet window opens, you can check and modify Droplet settings for such items as the destination folder and file identifiers. When you're satisfied with the settings, click Submit.

Each source media file is processed according to the existing setting or group of settings contained within the Droplet.

3   Open the Batch Monitor if you want to view the processing status of your source media files.

See the *Batch Monitor User Manual* for more information.

If a Droplet window is open, you can drag your source media files directly to the Source Files table and submit them for transcoding.

To transcode source media files using an open Droplet:

1 Double-click the Droplet icon to open it.

2 Using the Finder, locate the source media files and drag them into the Droplet's Source Files table.

3 Modify your Droplet settings as necessary, then click Submit.

Each source media file is processed according to the existing setting or group of settings contained within the Droplet. For example, if you submitted two source media files to a Droplet containing three settings, Compressor would create six different output media files.

4 Open the Batch Monitor if you want to view the processing status of your source media files.

See the *Batch Monitor User Manual* for more information.

Customer Support

If you run into problems while working with Compressor, there are several resources you can use to find a solution.

*   *Late-Breaking News:* A late-breaking news page in the Compressor Help menu provides last-minute information that didn't make it into the *Compressor User Manual*. Be sure to consult this late-breaking news page as soon as you install or upgrade Compressor.

*   *Compressor Support web page:* Compressor has its own tech support page at http://www.apple.com/support/compressor and a related discussion page at http://discussions.info.apple.com/compressor.

*   *AppleCare Knowledge Base:* AppleCare Support maintains a database of common support issues that is updated and expanded to include new issues as they arise. This is an excellent, free resource for Compressor users. To access the AppleCare Knowledge Base, go to the AppleCare support page at http://www.apple.com/support.

*   *AppleCare Support:* There are a variety of support options available to Final Cut Pro customers. For more information, see the *Apple Professional Software Service & Support Guide* that came with your documentation.

Calling AppleCare Support

Included in your Compressor package is documentation about the support options available from Apple. Several levels of support are available, depending on your needs.

Whatever your issue, it's a good idea to have the following information immediately available. The more of this information you have ready to give to the support agents, the faster they will be able to address your issue.

- The registration number that came with Compressor. This number is different from the software serial number that is used to activate your copy of Compressor.
- Which version of Mac OS X you have installed. This information is available by choosing About This Mac from the Apple menu.
- The version of Compressor you have installed, including updates if applicable. The version number can be viewed by choosing Compressor > About Compressor.
- The model of computer you are using.
- How much RAM is installed in your computer, and how much is available to Compressor. You can find out how much RAM is installed by choosing About This Mac from the Apple menu in the Finder.
- What other third-party hardware is connected to or installed in the computer, and who are the manufacturers. Include hard disks, video cards, and so on.
- Any third-party plug-ins or other software installed along with Compressor.

Creating a Support Profile

In addition to accessing the *Compressor User Manual*, the Help menu also contains an item for creating a support profile. There are certain support situations in which AppleCare may require information about both your computer and how this particular application is configured. Choosing Help > Create Support Profile creates a file that contains the necessary information and can be emailed to AppleCare. You would not normally use this feature unless directed to by an AppleCare representative.

AppleCare Support can be reached online at http://www.apple.com/support/compressor

Useful AppleScripts to Use With Compressor

You can find more information about writing AppleScripts to use with Compressor at the following Apple website: http://www.apple.com/applescript

Command-Line Usage

Using the Command Line

If you are accustomed to doing your work from Terminal shells, and need or prefer to run Compressor from the command line with minimal use of application interfaces, this appendix is for you.

The appendix includes the following topics:

- "Shell Commands for Configuring Service Nodes and Cluster Controllers" (next)
- Shell Commands for Submitting Compressor Jobs (p. 246)
- Shell Commands for Monitoring Batches (p. 248)

Shell Commands for Configuring Service Nodes and Cluster Controllers

As an alternative to using the Apple Qmaster pane in System Preferences, you can use the command *qmasterprefs,* with command-line options for enabling and disabling service node and cluster controlling services.

In the command-line descriptions below, angle brackets < > indicate a mandatory argument in a command and brackets [ ] indicate an optional argument.

Synopsis

Below is a synopsis of the command for enabling and disabling cluster controlling services on a computer. The *qmasterprefs* command is located in /usr/sbin.

qmasterprefs -cluster <on | off> [*-timeout* <minutes>] [*-servername* <name>] [*-list*] [*-help*]

Below is a synopsis of the command for enabling and disabling service node processing on a computer.

qmasterprefs -service "Unix Processing" <on | off> [*-instances* <n>] [*-timeout* <minutes>] [*-servername* <name>] [*-list*] [*-help*]

Command options

This table provides information about each of the enabling and disabling service-node and cluster-controlling services on a computer.

Preference command option	Description
[-*cluster*] <on | off>	Turns cluster-controlling services on or off.
	[timeout min] [servername name] [quickcluster on | off] [unmanagedservices on | off] [unmanagedmulticapturethreshold sec] [networkinterface allinterfaces | <bsd name>]
[-*service Rendering*] <on | off>	Turns UNIX Rendering services on or off.
	[timeout min] [instances n] [autorestart on | off] [unmanaged on | off]
[-*list*]	Lists the current *qmasterprefs* settings.
[-*help*]	Displays information about supported options for *qmasterprefs*.
[-*restart*]	Restarts Apple Qmaster services.
[-*service name options*]	Sets service options.

Shell Commands for Submitting Compressor Jobs

You can run the Compressor application from the command line using the *Compressor* command, with a number of command-line options for submitting jobs.

In the command-line descriptions below, angle brackets < > indicate a mandatory argument in a command and brackets [ ] indicate an optional argument.

Synopsis

Below is a synopsis of the command for submitting a job to a cluster. The Compressor command is located in /Applications/Compressor.app/Contents/MacOS.

Compressor [-*clustername* <name>] [-*clusterid* <user name:password@IP address:port number>][-*command* <command type> -*options* <XML command> [-*wd* <working directory>] [-*timeout* <seconds>] [-*show*] [-*batchname* <name>] [-*help*]

Once the job is submitted successfully, this command displays the batch ID (identifier) and job ID (identifier) in the shell, and you can monitor the progess of a batch in the Batch Monitor.

Command options

This table provides information about each of the command options for submitting jobs.

Submission command option	Description
[-*clustername* <name>]	Use to specify the name of the cluster to which you want to send the job. Using the cluster name, Compressor looks for the cluster on the network in order to use it.
[-*batchname* <name>]	Use to specify a name for the batch so that you can easily recognize it in the Batch Monitor.
[-*clusterid* <user name:password@IP address:port number>]	Optionally, you can use -*clusterid* to enter the cluster ID and port number instead of using -*clustername*. (When you enter the cluster ID and port, less time is required to find the cluster on the network.) Or, if you used -*clustername* and the cluster requires a password, use -*clusterid* to specify the user name and password. (You need to include the IP address: port number as well whenever you use -*clusterid*.) *Tip:* Use *Compressor -show* to see a cluster's IP address and port number.
[-*priority* <value>]	Specifies the priority level for a job.
[-*jobpath* <url>]	Specifies the location of the source file.
[-*settingpath* <url>]	Specifies the location of the settings for the job.
[-*destinationpath* <url>]	Specifies the destination file URL for the job.
[-*info* <xml>]	Gives detailed information for a batch or a job.
[-*timeout* <seconds>]	Use to specify the number of seconds before Compressor can quit when looking for a cluster. The default value is 0, which puts no limit on the timeout and allows Compressor to browse the network for as long as it needs to find the cluster.
[-*show*]	Shows the ID information for the cluster specified with -*clustername* or -*clusterid*, or for all clusters if no cluster is specified.
[-*help*]	Displays information regarding the required parameters for the *Compressor* command.

Example of Compressor Command XML
The code below is an example of XML code for submitting a Compressor command. Notice that because it needs to be entered as one command line, every character after -options that isn't alphanumeric must be preceded with a backslash (\).

./Compressor -clusterid tcp://127.0.0.1:51737 -batchname myBatch -jobpath /Volumes/ Source/ShortClips/NTSC24p.mov -settingpath /Users/stomper10/Library/Application\ Support/Compressor/PhotoJPEG.setting -destinationpath /Users/machinename/ Movies/myDestinationFilename.mov.

This command has the following elements:
- Cluster address is tcp://127.0.0.1:51737.
- Batchname is myBatch.
- Job path is /Volumes/Source/ShortClips/NTSC24p.mov.
- Setting path is /Users/stomper10/Library/Application\ Support/Compressor/ PhotoJPEG.setting.
- Destination path is /Users/machinename/Movies

Shell Commands for Monitoring Batches

You can use the Batch Monitor command, *Batch\ Monitor,* with a number of command-line options for monitoring jobs.

In the command-line descriptions below, angle brackets < > indicate a mandatory argument in a command and brackets [ ] indicate an optional argument.

Synopsis
Below is a synopsis of the command for monitoring batches. The *Batch\ Monitor* command is located in /Applications/Utilities/Batch Monitor.app/Contents/MacOS.

Batch\ Monitor [-*clustername* <name>] [-*clusterid* <user name:password@IP address:port number>] [-*jobid* <identifier> -*batchid* <identifier>] [-*timeout* <seconds>] [-*query* <seconds>] [-*help*]

To cancel a job or batch:
- *Batch\ Monitor* [-*clustername* <name>] [-*clusterid* <IP address> <port number> <user name> <password>] -*kill* -*jobid* <identifier> -*batchid* <identifier>

Command options

This table provides information about each of the command options for monitoring batches.

Monitoring command option	Description
[-*clustername* <name>]	Use to specify the name of the cluster to which the job was sent.
[-*clusterid* <user name:password@IP address:port number>]	Optionally, you can use -*clusterid* to enter the cluster ID and port number instead of using -*clustername.*
	Or, if you used -*clustername* and the cluster requires a password, use -*clusterid* to specify the user name and password. (You need to include the IP address: port number as well whenever you use -*clusterid.*)
	Tip: Use *Apple\ Qmaster -show* or *Compressor -show* to see a cluster's IP address and port number.
[-*jobid* <identifier> -*batchid* <identifier>]	Use to specify the job you want to monitor.
	When you use the -*jobid* option, you must also specify the -*batchid,* in the form of the name that was given to the batch when it was submitted. (The batchid and jobid are displayed after a batch is submitted.)
	If you do not use the -*jobid* option, all the jobs submitted to the specified cluster are listed.
[-*timeout* <seconds>]	Use to specify the number of seconds before Batch Monitor can quit when looking for a cluster. The default value is 0, which puts no limit on the timeout and allows Batch Monitor to browse the network for as long as it needs to find the cluster.
[-*query* <seconds>]	Use to specify how frequently, in seconds, the job status should be updated.
[-*kill* -*jobid* <identifier> -*batchid* <identifier>]	Cancels the specified job or batch.
[-*help*]	Displays information about supported options for *Batch \ Monitor.*

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