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This guide may use some special symbols and fonts to call your attention to important information. The following symbols appear throughout this guide:

[DANGER: The Danger symbol calls your attention to information that, if ignored, can cause physical harm to you.]

[CAUTION: The Caution symbol calls your attention to information that, if ignored, can adversely affect the performance of your Harmonic product, or that can make a procedure needlessly difficult.]

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[NOTE: The Note symbol calls your attention to additional information that you will benefit from heeding. It may be used to call attention to an especially important piece of information you need, or it may provide additional information that applies in only some carefully delineated circumstances.]

[IMPORTANT: The Important symbol calls your attention to information that should stand out when you are reading product details and procedural information.]

[TIP: The Tip symbol calls your attention to parenthetical information that is not necessary for performing a given procedure, but which, if followed, might make the procedure or its subsequent steps easier, smoother, or more efficient.]

In addition to these symbols, this guide may use the following text conventions:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typed Command</td>
<td>Indicates the text that you type in at the keyboard prompt.</td>
</tr>
<tr>
<td>&lt;Ctrl&gt;, &lt;Ctrl&gt;+&lt;Shift&gt;</td>
<td>A key or key sequence to press.</td>
</tr>
<tr>
<td>Links</td>
<td>The <em>italics in blue</em> text to indicate Cross-references, and hyperlinked cross-references in online documents.</td>
</tr>
<tr>
<td>Bold</td>
<td>Indicates a button to click, or a menu item to select.</td>
</tr>
<tr>
<td>ScreenOutput</td>
<td>The text that is displayed on a computer screen.</td>
</tr>
<tr>
<td>Emphasis</td>
<td>The <em>italics</em> text used for emphasis and document references.</td>
</tr>
</tbody>
</table>

[NOTE: You require Adobe Reader or Adobe Acrobat version 6.0 or later to open the PDF files. You can download Adobe Reader free of charge from www.adobe.com.]
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Introduction

Thank you for using Harmonic ProMedia™ Carbon MP on the AWS Marketplace. The boom in video consumption has resulted in an explosion in the number of formats that content creators and distributors must manage. Video may be captured in one format, edited in another, served live in a third, delivered on-demand via the Web and mobile in half a dozen more and then finally archived in yet another. Harmonic’s products provide cost-effective and rapid transcoding across a wide range of applications from small studios to the largest enterprises.

NOTE: Although the new ProMedia Carbon MP name appears on the splash screen, some shortcuts, and in the About dialog, you will still see its previous name, Carbon Coder, referenced throughout the user interface.

About this User Guide

The ProMedia Carbon MP User Guide describes ProMedia Carbon MP products and explains how to use them to manage and deliver appropriate file formats to your consumers.

Related Documentation

<table>
<thead>
<tr>
<th>Document</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmonic Carbon Coder API Guide</td>
<td>This document describes the API for the Harmonic ProMedia Carbon range of products, including ProMedia Carbon MP.</td>
</tr>
</tbody>
</table>

Components

ProMedia™ Carbon MP is a standalone application (engine) that handles transcoding between all major formats, as well as providing a host of additional functions like standards conversion, logo insertion, timecode burn-in, etc. It installs with ProMedia Carbon MP Admin.

For updates on the latest features and documentation please visit www.harmonicinc.com or www.rhozet.com. Harmonic ProMedia™ Carbon MP.
Chapter 1
Using ProMedia Carbon MP

This chapter provides information about using ProMedia Carbon MP as a standalone application (on one computer, with Carbon MP Admin) to convert source files by assigning target formats and filters. The first section, Using the Carbon MP Interface, provides a quick file conversion overview. The second section, Carbon MP Interface Options and Details, provides many of the details and procedures for using Carbon MP’s interface to fine-tune your file transcoding.

Starting Carbon MP

Double-click the ProMedia Carbon MP icon on your desktop.

Using the Carbon MP Interface

Starting Carbon MP opens the home screen, which shows three tabs on the left side of the screen: Source, Target, and Convert. These tabs control basic functions that allow you to add source files, set the target conversion format, modify input and output details, and begin the conversion processes.

NOTE: You can automate multiple file conversions using Carbon MP Admin and Watch Folders. See Using the Carbon MP Admin Interface.
You will notice that the content in the center of the home screen changes depending on the tab you have selected, but generally this area displays the files you are working with. After selecting a particular file, you will see its properties on the right side of the screen. This is the Source Parameters dialog box, and it shows you the details of your original file and allows you to change certain aspects of that file.

And finally, if you need assistance or more information for any feature, there is a help icon on the bottom left that provides general instructions on each area of the product. There is also a Help menu item that has detailed, searchable information.

The basic process for performing a transcode:
1. Select the Source tab to add the file(s) you wish to convert.
2. Select the Target tab to choose which format(s) you want to encode to.
3. Select the Convert tab to encode your file(s) and complete the process.

Adding Source Files

To begin, you will need to add a source file. A source file is the file you want to convert into another format type. You can add one source file for a single file conversion, or you can add multiple source files for easy batch conversions.
1. Select the Source tab.
2. Click Add to choose the file you want to convert. This will bring up the Open File dialog where you can select the file you want to convert.
3. Select a single file, then click Open.

You will now see the selected file in the Source List.
The **Source Parameters** window on the right displays the properties for the source. The Source Parameters window is designed to show you the details of your original file and allow you to change certain aspects of that file. For example, you might want to change the interpreted pixel aspect ratio of the source or choose a different audio source file rather than the one embedded with the source file. If you select any item, you will see a more detailed description in the lower right window pane.

To the left of your source list, you will also see a button for advanced functions, as well as a **Stitch** check box. These functions provide controls that allow you to, for example, select only a segment of your video for transcoding or to "stitch" (combine) a number of input files into a single output file. These functions will be described in detail later in the manual.

You can add multiple source files for easy batch conversions or combine (stitch) multiple files together for one single output file. Stitching allows you to link multiple sources together to create a single seamless result, preventing you from having to combine the sources in an editor. Select the **Stitch** check box to link the multiple sources together to create a single seamless source file. Use the arrow keys to rearrange the order of each source.

**Assigning a Target Format**

The next step is to assign a target format for your files to be converted. You can select a single- or multiple-target formats.

The **Load Target Preset** dialog box has two columns. On the left side are categories of transcoding presets, and on the right are the actual presets. First select a category on the left and then select one of the available presets on the right. A category (like Web) can have several sub-categories (like QuickTime, Windows Media, etc.). Carbon MP ships with over a hundred presets to help you get started. You can modify these presets and create your own. You can also create new categories for storing your own presets.

1. Select the **Target** tab, and then click **Add** to bring up the **Load Target Preset** dialog box.
2. In the **Load Target Preset** window, select a desired category on the left side.
3. Select (+) next to a category (if needed) to display its sub-categories. The right side displays all the available presets for that category. When you have selected a preset, you will see complete details of the format settings in the description pane located in the bottom of the **Load Target Preset** dialog box. You can use SHIFT + SELECT or CTRL + SELECT to select multiple presets within a single category.

4. Click **OK** to add this preset to your Target window.

5. Repeat steps 1-3 to add multiple targets.

After you have added a target format to the Target List, you will see the specific encoding parameters on the right-hand side of the screen. You can modify every parameter, including output file naming, encoding parameters, audio processing, etc. After you have modified encoding parameters, you can save them to disk to be reused in the future by selecting Save Profile. Below the Save Profile button, there is also an Advanced button. This button allows you to access advanced codec encoding parameters, as well as add video and audio filtering to your video encoding.

**Target Parameters**

The **Target Parameters** window displays the properties of the currently selected target in the **Target** tab. All of the resources necessary for managing and modifying your target parameters are available in this window.
The target’s basic parameters appear in the **Target Parameters** section. You can modify any of the parameters that aren’t grayed out. Simply enter values in the fields, or use the drop-down menus to modify the default target parameters.

If you want to save the changes for a custom target, select **Save Profile**. Saved presets are visible in the **Custom** tab in the **Add Target** dialog box.

### Adding Filters

Video and Audio filters can be added to either individual source or target files, depending on your workflow. Video and Audio filters allow you to manipulate the video/audio during the transcode to perform tasks such as logo insertion, audio normalization, and color correction.

1. Select **Advanced** from the **Source** or **Target** screens to see the advanced controls and select the **Video Filter** tab.
2. Click **Add** to add one or more video filters to your target.
3. Selected filters are applied from the list top-down, so the top-most filter in the list is applied first, and the bottom-most filter in the list is applied last.
4. To adjust the order of the filters in the list, select the filter in the list, then select **Up** or **Down** to move it up or down in the list.
5. Once you have added a filter, you can select the filter in the list to view and adjust its properties just below the video preview.
6. Click OK.

Converting your Files

The last stage of the process is to convert (transcode) your files into their new formats. If you have chosen to convert one file into several output files, Carbon MP will do each transcode simultaneously. You can view the output of the transcode during the transcoding process, and you can also play any transcoded file from the Output List on the right-hand side of the screen.

1. Select the Convert tab. The Convert tab will be greyed out until you have chosen a source file and a target format.
2. Click Convert to begin the encoding process.
3. Click Pause to temporarily halt the encoding process.
4. Click Stop to cancel the encoding process.
5. Select the Preview check box to turn on or off the video preview.

**NOTE:** The encoding process is faster when the preview is turned off. As each file is finished, it can be played from within the program (even if other transcoding conversions are still in process).
When the conversion is finished, the message “Conversion Finished” appears in the yellow description box at the bottom of the window.

6. In the **Output List**, select the file you would like to view and then click **Play File**, located on the bottom right of the screen.

**NOTE:** Carbon MP automatically makes the necessary settings to be sure the source format transcodes properly to the target format.

---

## Carbon MP Interface Options and Details

Carbon MP’s home screen tabs, **Source**, **Target**, and **Convert**, provide a host of additional preset, filter, job, capture, and conversion options detailed in the following sections.

### Using the Source Tab

The **Source Tab** lets you add/remove source files, sort them, modify, enhance and repair source video settings prior to the conversion process.

The **Source List** displays all of the source files you are planning to transcode. Use the buttons and options on the left to modify the list.

- **Add.** Click **Add** to add files to the list. You can also add files by dragging and dropping them onto the **Source List**.
- **Remove.** Click **Remove** to remove the currently selected file(s) from the list. You can also delete them using the delete key.
- **Remove All.** Click **Remove All** to remove all of files from the list.
- **Advanced.** Click **Advanced** to open the **Advanced** dialog box that will appear on top of the main Carbon MP window. Double-clicking an item in the **Source List** also opens the Advanced dialog box. To close the Advanced dialog box, click **Close**.
- **Stitch.** Select this check box if you want Carbon MP to connect all the items in the **Source List** into one logical source file. Stitching is useful if you want to connect multiple source segments. Use the arrow keys to reorder the **Source List** before the files are stitched together. By enabling the Stitching feature, you can encode multiple files into a single file.

### Adding Source Files

1. Select the **Source** tab.
2. Click **Add** to choose the file you want to convert.
3. When the **Open File** dialog box opens, select the file you want to convert.
4. Select a single file and click **Open**.

You will now see the selected file in the **Source List**.

### Choosing Source Parameters Settings

The **Source Parameters** window displays the properties of the currently selected source in the **Source tab**. All of the resources necessary for managing and modifying your source parameters are available in this window.

When you add a file to the **Source List**, Carbon MP automatically reads the file properties and analyzes its parameters. You can read more about each parameter by selecting it and referring to the **Description** section located in the bottom right-hand corners of the **Source** or **Target** tab windows.
For example, if you add an interlaced source file to the Source List, the Parameters section tells you if the **Bottom Field** or the **Top Field** appears first in the **Interlacing** field. While Carbon MP does its best to make the correct assessment, it may incorrectly identify the field order. If this happens, you can use the Interlacing drop-down menu to override Carbon MP and choose the correct setting.

The parameters that appear differ depending on the type of file selected. The parameters that you can change also differ depending on the type of file selected.

Select a parameter to view a description of its properties in the **Description** panel at the bottom of the screen.

Advanced Features Window

Carbon MP’s **Advanced** window offers three tabs, **Setup**, **Video Filter**, and **Audio Filter**, to allow you to optimize the source file prior to the encoding process. You can trim the file, add a video filter to clean up the image, or apply an audio filter to enhance the audio quality.

To access the Advanced window from the basic view, do one of the following:

- Click the **Advanced** button (on the left, under the **Remove All** button).
- Double-click the **Source** entry.
- Right-click the **Source** entry and choose **Advanced**.

**Setup**

By selecting the Setup tab, you will be able to trim a segment of your video for transcoding.
To trim a segment of your video, use the Video Scrubber, Play, or Time Controls to choose the desired In and Out points. The In button sets the In Point at the current displayed frame. The Out button sets the Out Point at the current displayed frame.

Trimming a Segment
1. If you are using the video scrubber, move the cursor to the desired In point and select In.
2. Move the cursor to the desired Out point and select Out.
3. The selected video will appear on the video scrubber as a white bar.
4. To play the selected area, select the Play (icon) button.
5. Select Add Current Segment to add the new selection to the list of segments. Or you can select Enter Segment to directly enter an in/out point pair:
   - **Scrubber/Play Controls.** Use the scrubber or play controls to choose your In point and then select In. Then choose your Out point and select Out.
   - **Trimming section**
     - **In.** Sets the In Point at the currently displayed frame. The In Point’s Time and Frame number are listed in their respective boxes.
     - **Out.** Sets the Out Point at the currently displayed frame. The Out Point’s Time and Frame number are listed in their respective boxes.
- **Clip section**

  **Time.** Displays the time for the frame at which the scrubber is stopped. You can also use the arrow buttons to find a specific time at which you want to set the In or Out point, or simply enter a time in the Time field.

  **Frames.** Displays the frame number at which the scrubber is stopped. You can also use the arrow buttons to find a specific frame at which you want to set the In or Out points. You can also simply enter a frame number in the Frame box.

  **Total.** Displays the source file’s total duration after the In and Out Points are set. This value is calculated automatically and cannot be modified by hand. It can only be modified by setting the In and Out points. Duration time is displayed in `hours:minutes:seconds:frames`.

- **Video Filter Tab**

  The Video Filter tab lets you apply filters to your video to help improve the image quality of your source files before they are converted. The filters can be previewed in this tab prior to the conversion process.

1. Select **Advanced** from the Source screen to see the advanced controls and then select the **Video Filter** tab.

2. Click **Add** to add one or more video filters to your source. A brief description of each filter is listed in the **Description** box when the filter is highlighted. You can browse the different filter categories on the left and choose filters from the right. Holding down SHIFT or CTRL
and selecting the desired filters lets you add multiple filters to the Filter list. Remember that you can add filters to both sources and targets, so you should only add a filter at the target to improve it, for example, a brightness filter to correct a dark target.

3. The filter name(s) will appear in the Filter List. To the right you will see a preview of how the filter changes your source file in the Result window.

4. To adjust the filter parameters, use the sliders below the preview pane to your desired specifications.

5. Selected filters are applied from the list top-down, so the top-most filter in the list is applied first, and the bottom-most filter in the list is applied last. To adjust the order of the filters in the list, select the filter in the list then select Up or Down to move it up or down in the list.

Previewing Video Filters

The Original window displays what the original file looks like before filtering. The Result window displays the original file with the filters in the filter list applied.

The Plus button enlarges both preview images and the Minus button makes both preview images smaller. If the preview image is larger than the window, scroll bars appear allowing you to navigate through the entire image. You can also select and drag the image to navigate through the image.

The Fit to Window button resizes the preview images to fit inside the window’s current size. No matter what size the window, this preview mode preserves the aspect ratio assigned to the file. This button is useful if you enlarged or reduced the preview image and want to view the whole image in the window again.

The 1:1 button displays the video at 1-to-1 pixel size. (1 monitor pixel = 1 video pixel)

Use the Scrubber bar to find specific frames in the source video that you want to use so you can see the effect of the filter(s) on the specific frame. You can either select and drag the scrubber or use your keyboard’s arrow keys to step through the video’s individual frames.

Large Preview

Selecting the Large Preview button opens a floating window that allows you to modify the preview size. This helps scrutinize the finer details of your video. You can use the scrubber bar to find specific points in the video and resize the window as needed; it adjusts the size of the previews proportionally. It has the same controls as the Video Filter tab.

Video Filter Presets

This section describes the video filter presets that are supplied with ProMedia Carbon MP.
601 Correction-Expand Color Space. This filter expands the RGB range of the from 16-235 to 0-255. Use this filter to create output for a system that uses the full 0-255 range from input that uses 16-235.

601 Correction-Shrink Color Space. This video filter shrinks the RGB range of the video from 0-255 to 16-235. Use this filter when create output for a system that uses the 16-235 range from input that uses the full 0-255 range.

601 to 709 Color Correction-SD/HD Color Space. This video filter is used to convert video in the SD (601) colorspace to the HD (709) colorspace. Broadcast HD video uses YCbCr colors following Rec. ITU-R BT 709-5 whereas broadcast SD video follows ITU-R BT 601.

709 to 601 Color Correction. The inverse of the above.

Adaptive De-Interlace. Perform custom de-interlacing of interlaced content for progressive targets, either using Adaptive De-Interlace, Interpolate from Dominant Field, or Discard Dominant Field. Use this filter only when you want to change the default de-interlacing behavior.

Bitmap Keying. Superimpose a bitmap logo or graphic on the video. This is often used to watermark video so it can be personalized.

Black/White Correction. This filter lets you adjust and control the levels of black and white pixels in your video. By adjusting the sliders, you can specify at which point a pixel will become black and/or white. The higher the setting, the more nearly black pixels will be converted to true black and vice versa. This works best if you are encoding video for the Web and need to adjust the black and/or white levels of broadcast video so that they are truly black or white. It’s also useful for making white titles on a black background more legible when viewing on a computer monitor.

Blur. This filter blurs the video in a rectangular pattern.

Broadcast Color Safe. Restricts the color range of the video to broadcast-safe values. Some colors that can be displayed on a computer cannot be displayed on television or video output. This filter restricts the colors in the source to only colors that are safe for television and video broadcast.

Caption 608 to 708 Conversion. Converts CEA-608B caption payload in the Carbon pipeline to CEA-708D format. The 708 payload is then available to Exporters and Filters, to be inserted into output files. Note that when this filter is applied, 708 captions will always be overwritten by converted 608 captions, even if the 608 caption payload was empty.

Caption Convert 708 to Ancillary. Converts CEA-708 captions from the transcoder pipeline "708 caption payload" into caption data inside the "Ancillary data payload" compliant with SMPTE-291m. Other filters or exporters can then manipulate or consume the ancillary data.

Caption Convert Ancillary to 708. Converts CEA-708 captions from the transcoder pipeline "Ancillary Data" payload into caption data inside the "708 caption payload". Other filters or exporters can then manipulate or consume the ancillary data.

Caption Inject from .SCC file Caption. Inserts caption data from an SCC closed caption file into target files. This filter should be added on the side (source versus target) that has the same frame rate as used inside the SCC file.

Circular Blur. This filter blurs the video in a circular pattern.

Color Correction. This filter allows you to adjust the brightness, contrast, hue and saturation of your video image.
- **Deblocking Filter.** The deblocking Filter is used to smooth edges in the video, making the compression easier.

- **DVD Subtitle/608 CC1 Imprint.** Imprints either DVD subpicture subtitles, or 608-style captions from the CC1 line of the VBI section of sources that allow and carry content in the VBI.

- **Fade In/Out.** This filter applies a fade in and/or out to your video in order to aid the encoding process. You should use this filter if your source video has a lot of fast motion in the first few frames. The fade-in gives Carbon MP a “running start” so it can encode your video more efficiently.

- **Flexible-to-fixed Frame rate Conversion.** Use this filter to correct jittery frame timestamps while decoding from flexible frame rate source video files.

- **Gamma Correction.** This filter adjusts your video’s gamma settings.

- **Gaussian Blur.** This filter applies a Gaussian blur to the video.

- **Line 21 Extraction and Line 21 Modulator.** Allows the extraction and insertion of 608-style closed captions from- and into- Line 21 of the VBI for sources and targets that have a VBI section. The Line 21 extraction filter now auto scans the VBI lines and places the data correctly into Line 21. The following SD video formats are supported: 720 X 512 for NTSC and 720 X 608 for PAL.

- **Map Alpha to Target Y Channel.** This filter takes the Alpha channel from the source and maps it into the Y channel of the target. All other source channels (R, G, & B) are discarded.

- **Median.** This filter is designed to improve picture quality by removing single-pixel defects without affecting the sharpness. This is similar to a despeckle filter.

- **Motion Compensated Temporal Filter.** Motion Compensated Temporal Filter (MCTF) has the ability to remove noise that may not be visible to the naked eye from input files with noisy video. Removing this noise makes the subsequent encode faster. It also allows the encoder to use a lower bit rate to generate the same quality, or to generate higher quality at the same bit rate.

- **OP42 to OP47.** Inserts OP42 compliant Teletext subtitles as OP47 packages into the SMPTE291m stream

- **OP47 to Teletext.** Copies OP47 packets from ANC space into the Teletext pipeline.

- **Pulldown.** This filter offers conversion without interpolation for progressive-to-interlaced (that is, film-to-video) file conversion. This preserves full spatial image quality and creates target fields that are selected from the nearest temporal source frame. Displaying the resulting file on a progressive display, such as a computer monitor, produces very noticeable interlacing artifacts. However, displaying this on an interlaced display, such as a television, produces very good image quality. This method is generally used when cinematographic footage is encoded to a DVD and played on a TV.

- **Relative Crop.** Allows for percentage-based cropping of sources. It is usually preferred to use the Video Source Properties filter to crop sources, since that crop filter can be applied to targets and can therefore also be used in Watch Folders. Relative Crop may be deprecated in future releases of Carbon MP.

- **Rotate.** This filter provides 90-degree rotation and axis-flipping for the video.

- **Sharpen.** This filter sharpens the video using the “Un-Sharp Mask” technique.

- **STL Caption Burn-In.** Imprints STL subtitles onto the video.

- **Teletext Data Extraction.** Extracts Teletext lines from VBI and makes them available for filter and target plugins. Used in combination with the Teletext Data Modulator filter.
Teletext Data Modulator. Modulates Teletext data onto VBI lines. Used in combination with the Teletext Data Extraction filter.

Teletext Inject from STL file. Imports an STL subtitle file, and converts the contents into a Teletext payload in the Carbon MP pipeline. Several other filters and exporters are able to use or manipulate this Teletext payload or write it to output files.

Teletext Subtitle Captioner. Imprints teletext subtitles onto the video frame.

Temporal Noise Reducer. This filter removes noise by using temporal noise reduction. Temporal noise reduction is effective for removing analog noise.

Timecode Display. Overlays the video with timecode.

Timecode Extraction-VITC. Extracts Vertical Interval Time Code (VITC) from NTSC and PAL input files with Vertical Blanking Interval (VBI) sections and makes the timecode available for other filters and targets.

Timecode Insertion-VITC. Inserts Vertical Interval Time Code (VITC) into NTSC and PAL output files with Vertical Blanking Interval (VBI) sections.

Timecode Processing. Processes and corrects sources with incorrect or undesirable timecode. Processed timecode is available to downstream Filters and Exporters.

VBI Import from SMPTE 436M. Imports SMPTE 436M VBI from an MXF file and adds it to the video. This filter needs to be applied on the source side.

VBI Mapper. This filter maps incoming VBI lines to output lines chosen by the user.


Video Inverse Telecine Filter. Use this filter to apply inverse telecine to sources that have had 2-3 telecine applied.

Video Metadata Inject. The current version of the filter allows the setting of the start timecode of the target file and setting chapter markers. The syntax of the XML input file for this filter is as follows:

```xml
<cnpsXML StartTimeCode="00:00:05;00">
  <Markers>
    <Marker_1 MarkerTime_27MHz.QWD="270000000" MarkerName="Marker1"/>
    <Marker_2 MarkerTime_27MHz.QWD="540000000" MarkerName="Marker2"/>
    <MyMarker MarkerTime_27MHz.QWD="810000000" MarkerName="MyMarker"/>
  </Markers>
</cnpsXML>
```

Video Source Properties. This filter allows you to crop the source file before transcoding it to the target file(s). It can also be used to force the aspect ratio of the source file, and the force the detection and handling of progressive vs. interlaced content. This filter can also be used when creating Watch Folders, which otherwise don’t allow the manipulation of the properties of the source files. In the Carbon MP application, it is possible to use this filter on a source as well as a target.

Video Timecode Inject. Do not use this filter for new workflows. It will be deprecated in a future release. Use the Timecode Processor filter instead.
**XML Titler.** This is an advanced, fully-featured filter that allows for a rich set of features when applying titles to target video files. The XML Titler video filter uses data from an XML file to add titles and images to a video stream. The syntax of the XML input file for this filter is discussed below.

The XML files to use with the XML Titler should look like this:

```xml
<?xml version="1.0"?>
<TitlerData>
<Data StartTime='0.5' EndTime='4.0' Title='First title' CharSize='0.45' PosX='0.5' PosY='0.75' ColorR='220' ColorG='220' ColorB='220' Transparency='0.0' ShadowSize='0.5' />
<Data StartTime='4.5' EndTime='13.5' Title='This is the second title' CharSize='0.25' />
<Data StartTime='16.0' EndTime='21.0' Title='A third title' />
</TitlerData>
```

See [XML Elements and Attributes for Text Titles](#), [XML Elements and Attributes for Image Titles](#), and [XML Titler (Additional Notes)](#) for more information.

**XML Elements and Attributes for Text Titles**

If you selected the **XML Titler** video filter preset, the following XML elements and attributes for Text Titles apply:

- `<?xml version="1.0"?>`. This is the XML file header and must be present.
- `<TitlerData>`. This tag indicates the start of the titler data block. The block must be closed with the `</TitlerData>` entry. XML titler files must contain exactly one titler data block, in which there will be one data entry for each title to display.
- **Data entries.** Each data entry starts with the tag Data and describes one title to be displayed. It may contain several parameters:
  - **Font.** Specify the name of the font, for instance Arial. Only one font may be selected per titler project. If more than one font is present in the titler’s XML data, only the first one will be used. If the specified font is not installed or cannot be loaded, the XML titler will fail (that is, a different font will not be used as a fallback).
  - **FontCharSet.** Specify the character set to use for the font. **Allowed values are:**
    - 0: ANSI
    - 1: BALTIC
    - 2: CHINESEBIG5
    - 3: DEFAULT
    - 4: EASTEUROPE
    - 5: GB2312
    - 6: GREEK
    - 7: HANGUL
    - 8: MAC
    - 9: OEM
    - 10: RUSSIAN
    - 11: SHIFTJIS
    - 12: SYMBOL
13: TURKISH
14: VIETNAMESE
15: JOHAB
16: ARABIC
17: HEBREW
18: THAI

- **StartTime.** The time, in seconds, at which the display of this data entry’s title will start.
- **StartTimecode.** An alternative to StartTime. Instead of using a floating-point value like '5.5' for 5.5 seconds, you can use a time code value ('00:00:05:15').
- **EndTime.** The time, in seconds, at which the display of this data entry’s title will end.
- **EndTimecode.** An alternative to EndTime. Instead of using a floating-point value like '5.5' for 5.5 seconds, you can use a time code value ('00:00:05:15').
- **FadeInTime.** Duration, in seconds, for which the title or image will fade in.
- **FadeOutTime.** Duration, in seconds, for which the title or image will fade out.
- **Italics.** The italic function is used much like `<i>` and `</i>` in HTML. Within the Title string value, use `?ital;` to begin the italics section and `?/ital;` to end the italics.

Sample:

```xml
<?xml version="1.0">
<TitlerData>
<Data Title='ital;This text will be italic /ital;'/>
</TitlerData>
```

- **Line Breaks.** To insert a line break, within the Title string use the two bytes "0D 0A" to mark the end of line, or if editing XML data with Notepad, simply press the Enter key at the desired location of the line break.
- **Title.** The title text to display.
- **CharSize.** Value between 0.0 and 1.0 which controls the size of the characters.
- **PosX.** Value between 0.0 (left of the screen) and 1.0 (right of the screen) used to position the title horizontally.
- **PosY.** Value between 0.0 (top of the screen) and 1.0 (bottom of the screen) used to position the title vertically.
- **ColorR, ColorG, ColorB.** Values between 0.0 and 255.0, which respectively describe the amount of Red, Green and Blue to use for the title's color.
- **Transparency.** Value between 0.0 (fully opaque) and 1.0 (fully transparent), which determines the title's transparency.
- **ShadowSize.** Value between 0.0 (no glow) and 1.0 (strongest glow), which determines the glow, or shadow, around the title used to enhance its readability.
- **HardShadow.** Binary value of 0 or 1. 0: normal shadow 1: shadow with a hard border
- **BkgEnable.** Set value to 1 to enable use of black background behind text area, otherwise set to 0.
- **BkgSemiTransparent.** Set value to 1 to make text background semi-transparent, otherwise set to 0. Only takes effect to BkgEnable to set to 1.
- **BkgExtraWidth.** Specifies how much wider than the text the background should be. This value is relative to the width of the image; so setting it to 0.05 would extend the background by 5% of the image's width.
- **BkgExtraHeight.** Specifies how much taller than the text the background should be. This value is relative to the height of the image; so setting it to 0.05 would extend the background by 5% of the image’s height.

- **RightToLeft.** Set value to 1 for the text to be displayed in right-to-left order, otherwise set to 0.

- **HAlign.** Horizontal alignment of the title.
  - 0: Center
  - 1: Left
  - 2: Right

- **VAlign.** Vertical alignment of the title.
  - 0: Centered around the first line.
  - 1: Centered
  - 2: Top
  - 3: Bottom

### XML Elements and Attributes for Image Titles

If you selected the XML Titler video filter preset, the XML elements and attributes described in this section apply to Image Titles. When using image scripting, most of the XML tags previously defined for text (such as background, color, and position) do not apply to images. Supported image formats are tif, png, tga, and psd.

- `<xml version="1.0">`. This is the XML file header and must be present.
- `<TitlerData>`. This tag indicates the start of the titler data block. The block must be closed with the `</TitlerData>` entry. XML titler files must contain exactly one titler data block, in which there will be one data entry for each title to display.

#### Data Entries

- **StartTime.** The time, in seconds, at which the display of this data entry’s title will start.
- **StartTimecode.** An alternative to StartTime. Instead of using a floating-point value like ‘5.5’ for 5.5 seconds, you can use a time code value (‘00:00:05:15’).
- **EndTime.** The time, in seconds, at which the display of this data entry’s title will end.
- **EndTimecode.** An alternative to EndTime. Instead of using a floating-point value like ‘5.5’ for 5.5 seconds, you can use a time code value (‘00:00:05:15’).
- **Image.** The local path and filename for the image file to be used in the title.

Sample:

```xml
<?xml version="1.0"?>
<TitlerData>
  <Data StartTime='0' EndTime='6.1' Image='E:\alphatest.tif'/>
  <Data StartTime='7' EndTime='26.1' Image='E:\betatest.png'/>
</TitlerData>
```

- **ImageOffsetX.** Image horizontal offset, in pixels. Please note that “0” denotes the far left and increasing values will offset the image to the right.
- **ImageOffsetY.** Image vertical offset, in pixels. Please note that ?0? denotes the top of the image and increasing values will offset the image towards the bottom.
- **ImageScaleX.** Image horizontal scale factor. Eg. 1.0 is actual size, 0.5 is half size, and 2.0 is double original size.
- **ImageScaleY.** Image vertical scale factor. Eg. 1.0 is actual size, 0.5 is half size, and 2.0 is double original size.
- **Transparency.** Value between 0.0 (fully opaque) and 1.0 (fully transparent), which determines the title’s transparency.

**XML Titler (Additional Notes)**

- The first data entry should define all the different parameters.
- If a data entry does not set a parameter, the last value set for this parameter will be used for that data entry. For instance, if you want a transparency value of 0.2, you may put Transparency='0.2' only in the first data entry and that value will be used for all other data entries.
- The title's first line is always centered on the position described by PosX and PosY.
- The data entries must be sorted according to start time in the XML file.
- Unless specified, titles are displayed on a single line. The XML titler will not add a line break if a line is too long. It will be clipped from the left and right. Line break characters must be inserted in the Title in order for a line break to occur.
- Only one font may be used per XML titler filter instance.
- When using StartTime/EndTime for NTSC, in order to identify the start and end time of the titles, make sure to use drop-frame time code. Non-drop-frame time code approximates the real frame rate and will drift away from the actual time by a few frames every minute.
- When using StartTimecode/EndTimecode, both drop-frame and non-drop-frame time codes are supported. Drop-frame is in the format ‘hh:mm:ss:ff’, while non-drop-frame time code’s format is ‘hh:mm:ss;ff’. Notice that seconds and frames are separated by a semi-colon in non-drop-frame time code.
- When using StartTimecode/EndTimecode, the title display timing will not be accurate in the video filter’s preview (Video Filter tab of Advanced > Filter).
- You can use Internet Explorer, or a number of other tools, to verify if your XML file has correct XML syntax. Simply open your file in Internet Explorer; if any errors related to the XML syntax exist, Internet Explorer will display them.
- You can mix image data with regular data, but if a Data entry has an image, then its title will be ignored.
- The images should be the same size as the video you are rendering onto, otherwise they will be copied starting at the top-left corner of the image, with 1:1 pixel mapping.

- **XYZ to RGB Video Filter.** Converts video using the XYZ color model to the RGB color model. The XYZ color space is an international standard developed by the CIE (Commission Internationale de l’Eclairage).

**Saving Custom Video Filter Presets**

A custom preset saves the customized settings of the selected filter. Saving a custom preset is useful if you plan on reapplying the same filter settings in the future. Custom presets are stored with the default presets and can be categorized into folders and subfolders.

1. Select the filter you would like to modify from the Filter list.
2. Modify the filter’s properties according to your specifications.
3. Select **Save Preset.** The Save Video Filter Preset window will appear.
4. At the bottom of the Save Video Filter Preset dialog box, enter a name and a personalized description for the preset that will remind you of your custom settings.
5. After you have saved a customized filter preset, select **Add** and load it the same way you would load a default preset.
6. To remove a customized filter preset, select **Add** to open the Load Video Filter Preset dialog box. Select the filter preset you want to remove and click **Delete Preset.**
NOTE: You cannot delete the default system presets.

Audio Filter Tab

The Audio Filter tab lets you add audio filters to your source file to help improve the audio quality of your target files. These filters can be previewed in this tab and are applied to the source audio before any target audio filters are processed.

1. Click Advanced from the Source dialog box. When you will see the advanced controls, select the Audio Filter tab to add a variety of filters.

2. Click Add to add one or more audio filters to your source. A brief description of each filter is listed in the Description box when the filter is highlighted. You can browse the different filter categories on the left and choose filters from the right. Holding down SHIFT or CTRL and selecting the desired filters lets you add multiple filters to the Filter list. Remember that you can add filters to both sources and targets, so you should only add a filter at the source to improve it, for example, a low pass filter to remove a whine or hiss.

3. Once you have added a filter, you can select the filter in the list to view and adjust its properties.

4. Selected filters are applied from the list top-down, so the top-most filter in the list is applied first, and the bottom-most filter in the list is applied last.

5. To adjust the order of the filters in the list, select the filter in the list then click Up or Down to move it up or down in the list.

Previewing Audio Filters

You can compare and preview the effect of audio filters by selecting Play Original followed by Play Result.
Use the **Position** scrubber bar to select the area of the file you want to preview. Use the **Duration** drop-down menu to select the length of the preview from 2 to 15 seconds.

### Audio Filters

The following audio filters are included:

- **Channel Mixer**: Use this filter to interchange and map audio channels.
- **DVD to PC Converter**: Adjusts volume and dynamic range of DVD audio for PC playback.
- **Dynamic Range Compressor**: Audio Dynamic Range Compression Filter. Use this filter for compressing the dynamic range of audio.
- **Fade In/Out**: The Audio Fade In/Out filter is used to add a fade in and/or fade out to the audio. Use this filter in conjunction with the Video Fade In/Out filter for an audio/video/fade in/out.
- **Lowpass**: The Lowpass filter removes high-frequency signals, such as electrical noise and hiss, from the audio.
- **Normalize**: The Normalize filter raises the audio to maximize volume without clipping. This is a dual-pass filter and will increase your source file’s overall conversion time. This filter is useful when performing a batch conversion or stitching various sources together so all the sources are at the same level.
- **Normalize-TU 1770.** This ITU 1770 Audio Normalization Filter provides very good performance compared to other peak sample meters so it has generally more accuracy than these meters that perform a similar function as the ITU 1770 Filter. It has also been determined that the ITU 1770 algorithm was more effective in determining appropriate levels for non-speech-based material, such as music and soundtrack material than other peak sample filters.

- **Parametric 5.1 to Stereo Converter.** This filter is used instead of the built-in converter, if access to the conversion parameters is needed.

- **Track Offset.** Adjusts the time offset between audio and video tracks.

- **Volume.** Lets you adjust the overall volume of the audio.

**Saving Custom Audio Filter Presets**

A custom preset saves the customized settings of the selected filter. Saving a custom preset is useful if you plan on reapplying the same filter settings in the future. Custom presets are stored with the default presets and can be categorized into folders and subfolders.

1. Select the filter you would like modify from the **Filter** list.
2. Modify the filter’s properties according to your specifications.
3. Click **Save Preset.** The **Save Audio Filter Preset** dialog box will appear.

4. At the bottom of the dialog box, enter the name of the preset and a personalized description that will remind you about your custom settings.

5. After you have saved a customized filter preset, click **Add** and load it the same way you would load a default preset.

6. To remove a customized filter preset, click **Add** to open the **Load Audio Filter Preset** dialog box. Then select the filter preset you want to remove and click **Delete Preset.** You cannot delete the default system presets.
Using the Target Tab

The Target tab lets you assign a “target” format for your source file to be converted to. You can assign multiple targets to a single source file that lets you create different formats of the same source file in one process.

Modifying the Target List

The Target List displays all of the target files you are planning to transcode. Use the buttons and options on the left to modify the list.

- **Add.** Click Add to add target formats to the list.
- **Remove.** Click Remove to remove the currently selected target format(s) from the list. You can also delete them using the delete key.
- **Remove All.** Click Remove All to remove all the targets from the list.
- **Save Profile.** Click Save Profile to save all target outputs in the target list, their customized settings, and their associated filter settings. A profile will typically be used to save a complex task that includes multiple targets and filters. The profile can then easily be re-applied to different sources.
- **Advanced.** Click Advanced to open the Advanced dialog box. This window will appear on top of the main Carbon MP window. Double-clicking an item in the Source List also opens the Advanced window. To close the Advanced dialog box, click Close.
Assigning Targets

After clicking **Add**, you will need to assign a target format.

1. In the **Load Target Preset** dialog box, select a desired category on the left side.
2. Select (+) next to a category if needed) to display its sub-categories. The available presets for that category are displayed on the right.
3. When you have selected a preset, you will see complete details of the format settings in the description pane located in the bottom of the Load Target Preset dialog box.
4. You can use SHIFT+SELECT or CTRL+SELECT to grab multiple presets within a single category.
5. Click **OK** to add this preset to your Target window.

**Preset Target Types**

- **System**: Contains base settings for all the formats Carbon MP produces. These settings are a good starting point for creating a custom setting.
- **Application Specific**: Contains Editing Software, DVD production/authoring, Hardware, and STB profiles.
- **Audio**: Contains PCM and MP3 settings for audio-only output formats. These settings are good for exporting audio for use in other applications and for conforming audio files.
- **CD/DVD**: Contains DivX, Computer, VCD, DVD and SVCD useful for video on CD and DVD media.
- **Distribution Formats**: Contains ATSC and CableLabs profiles.
- **DV**: Contains AVI, QuickTime and Raw DV profiles for different DV standards.
- **Fast DVD VOB**: High speed creation of DVD VOB files for preview purposes.
- **H.264**: Contains a collection of popular formats based on H.264, including Transport Streams. In Carbon MP 3.22, users can override the default VUI color signaling (H.264 Encoder Settings – Advanced > Colour Description). Also, a new and recommended simpler AQM complexity mode is available that produces better results (H.264 Encoder Settings – Advanced > Use Simple Adaptive Quant Strength). Select the check box and set the new mode to a recommended value of 50 (a non-zero value in the range [1 .. 100]).
- **Handheld.** Contains DivX, 3GPP and RealMedia 10 for video files that are compatible with handheld devices, such as PDAs and cell phones.
- **HD.** Contains DivX, MPEG and Windows Media HD settings.
- **Image Sequence.** Exports a series of still images.
- **IPTV Services.** H.264-based presets for acTVila.
- **Mobile.** Collection of presets for 3GPP compliant mobile devices.
- **MXF.** Contains presets for production formats based on MXF.
- **Storage.** Contains AVI, DivX, MPEG, or Windows Media targets for use as archival storage formats.
- **Storyboard.** Presets for storyboards, that is, sequences of poster frames (JPEG).
- **Video Server.** Contains profile categories with broadcast servers from Grass Valley, Leitch / Harris, Omneon, and Quantel.
- **Web.** Contains MPEG, QuickTime, RealMedia, and Windows Media profiles suitable for Web delivery.

### Modifying Target Parameters

The Target Parameters window displays the properties of the currently selected target in the target tab. All of the resources necessary for managing and modifying your target parameters are available in this window.

The target’s basic parameters appear in the **Target Parameters** section. You can modify any of the parameters that aren’t grayed out. Simply enter values in the fields or use the drop-down menus to modify the default target parameters.

If you want to save the changes for a custom target, click **Save Profile.** Saved presets are visible in the **Custom** tab in the **Add Target** dialog box.

### Setup Tab

The Setup tab allows you to modify the parameters for each of the default encoding targets. By using the tree-based option list, you can navigate through the available settings. Select a parameter in the tree to display its parameters on the right of the screen in the Target Parameters section. Properties that have white backgrounds can be modified. Properties that have blue backgrounds are disabled for modification in order to maintain the format’s particular specifications.

A description of the parameter is displayed in the yellow box at the bottom of the screen.
Parameter Definitions Example

Depending on the circumstances of transcode, the parameters settings may not appear in certain targets, may be in different locations or may only appear under certain option choices. Some parameters settings may be disabled when using some target presets.

**Destination**

**Base Name.** Sets the name of the file excluding the extension. A few special substitution strings can be used in the Base Name and Carbon MP will replace them with the values during its processing. Periods are not allowed in the base name.

- `%s` is replaced by the name of the source file (without extension) unless the **Stitch** function is used, in which case %s will be replaced by (Stitched Sources).
- `%n` is replaced by the file-splitting segment number of the output file. If file-splitting is disabled, %n will be 0.
- `%%` is replaced by a percent-sign (%).
- **Path.** Sets the output location for the target file(s). Select **Continue (…)** to set the output folder.
- **File Name.** Displays the output file name or an example, if one of the substitution strings is used.
**Target file splitting**

**Choose Splitting Method.** Selects the automatic file-splitting method. Automatic file-splitting can divide output files into separate files for easier archiving or transport. File-splitting is not related to multiplexing. File-splitting cannot be used with multi-pass encoding. Not all formats support file splitting or all options available for file splitting.

**Interval Time for Splitting (Minutes).** Sets the time interval to split output files at (in minutes). For example, if the interval time is set to 10 minutes, a 35-minute source will be split into 4 output files.

**Select Source Segment.** If **Use Source Segment** is selected, the Target only encodes a segment, specified by start and duration, from the source. This is designed for example for producing trailers.

**Start Time [Seconds].** Specifies how many seconds in the Source Stream the Target shall discard before starting encoding.

**Duration [Seconds].** Specifies how many seconds the Target shall encode from the Source stream.

**Max. File Size for Splitting (MB).** Sets the size to split output files at in megabytes. For example, if the max file size is set to 650 MB and the total output size is 1.5 GB, there will be 3 output files.

**Quality/Size.** Select **Continue Splitting.** Do not automatically split output files.

**Split using Time Interval.** Starts a new output file when the current output’s video length reaches the specified maximum time.

**Split using max. Size.** Starts a new output file when the current output’s file size reaches the specified maximum size.

(... to bring up the **Quality/Size Configuration** dialog box. The Quality/Size Configuration dialog box displays the media requirements for your conversion parameters and can set the bit rate to an appropriate value-based on the number of media you want to output.

For example, if your target media is a single CD-R (650MB) and your current setting will output 800 MB, the Number of media will be 2. You can then adjust the Quality slider until the Number of media reads 1. Alternatively, you can enable the Fill Media if possible option, then set the number of media to 1. Carbon MP will automatically calculate an appropriate bit rate to fit within the media requirements, if possible.

This option is only available under the following circumstances:

- The target supports a user-specified bit rate for encoding
- **Split using max. Size** is enabled
- There is only a single source or the **Stitch** function is enabled.

**Video Basic**

- **Use Video.** Choose how Carbon MP will output video for the target.
  - **Use Always.** A video track is always output. If the source has no video, a black video track is generated.
  - **Use if Exist.** If the source has video, that video will be output. If the source has no video, no video track is generated.
  - **Don’t Use.** A video track is not generated, even if the source contains video.

- **Video Encoder.** Select the video encoder (codec) to be used.

- **Width.** Sets the horizontal size of the video in pixels.
- **Height.** Sets the vertical size of the video in pixels.

- **Video Bitrate (kpbs).** Displays the video data rate in kilobits per second for this Target.

- **Frame rate.** Specifies the frame rate of video. An image becomes smooth, although many bit rates are needed, if a high value is specified.

- **Interlacing.** Determines how video frames are stored in the stream. If the Interlacing mode is set improperly, the video may not play back smoothly.
  - **Non-interlaced (progressive) mode** stores frames instead of fields.
  - **Lower/Bottom Field First mode** stores frames instead of fields.
  - **Upper/Top Field First mode** stores frames as separate fields, with the upper field first.

- **Aspect Ratio.** Specifies the width-to-height ratio of the video frame and its pixels in the file.

- **Video Encoder Option.** Displays the setting dialog of a video codec.

**Video Advanced**

- **Color Format.** Specifies the color format to be used.
- **Use Default Quality.** Uses the codec. default quality value.
- **Use Default Keyframe Interval.** Uses the default keyframe interval.

**Audio Basic**

- **Use Audio.** Selects whether the target will contain an audio track.
  - **Use Always.** The target will always contain an audio track, even if the source does not contain audio.
  - **Use if Exist.** The target will contain an audio track if the source contains audio. If the source does not contain audio, the target will not have an audio track.
  - **Don’t Use.** The target will not have an audio track, even if the source contains audio.

- **Audio Encoder Type.** Specifies DirectShow or Audio Compression Manager (ACM).

- **Format.** Specifies the frequency and sample size of PCM (non-compressed audio).

**Multiplexer**

- **A/V interleaving period.** Specifies the period of each audio/video chunk. The AVI multiplexer interleaves audio chunk with video chunk into one AVI program stream.

- **Index Format.** Determines whether the output file will be compatible or incompatible (AVI 2.0) index format.
  - **Compatible format** is for both Video for Windows and DirectShow applications.
  - **Non-compatible (AVI 2.0 only) format** is compatible with DirectShow applications only.

**Presets and Profiles**

Carbon MP includes over a hundred presets to simplify choosing transcoding settings for your job. There will be times, however, where you will be making changes to the supplied presets for a particular requirement. If you need to reapply the same settings in the future, you can save your own preset. Carbon MP also includes the concept of a profile. Unlike a preset, a profile can include multiple target outputs. For example, you could save a profile called “Web Outputs” that creates five separate output files in different web formats. This profile could then be applied to any source file(s) in the future.
A preset saves the settings for a single codec or filter. Use it to reapply a particular set of parameters for future projects. As an example, you could have a preset called “Windows Media for Streaming” that saves the Windows Media parameters used for streaming output at your company. The **Apply Preset** and **Save Preset** buttons are available in the Advanced section for a particular codec or filter.

A profile saves the settings for all the targets and filters in a particular project. For example, you could save a profile called “Web Outputs” that creates 5 separate output files in different web formats. This profile could include the “Windows Media for Streaming” preset described above. The **Save Profile** button is on the main target tab.

**NOTE:** A preset will not include the target file name and target folder. This is on purpose: a target preset is considered a group of encoding parameters, not file system locations. A profile will save the target file name and target folder.

### Background Transcoding

In addition to its normal conversion processes, Carbon MP also provides job queuing capabilities. Instead of waiting for the Carbon MP application to finish a conversion, you can queue jobs to a background transcoding process that takes over and performs conversion of queued jobs, much like a print spooler handles printing jobs. In this manner, the Carbon MP application serves as a job set-up tool and you can queue multiple jobs with different priorities and continue working with Carbon MP.

The background transcoding process that is installed with Carbon MP is called ‘Nexus’ and is installed as a Windows operating system service. The various job queues that Nexus manages can be viewed by the management application called Carbon MP Admin. Carbon MP Admin is available whenever any version of Carbon MP 3.x is installed. Using Carbon MP Admin, you can see all jobs that have been queued for background transcoding when using Carbon MP, as well as jobs that have been created by Watch Folders. Please see *Using the Carbon MP Admin Interface* for more information.

### Queuing a Job

You have two ways to render a job: click Convert, and you’ll encode the files serially with Carbon MP’s main interface. You can also click Queue to encode the files, which opens the job queuing window.

To queue a job, set up the conversion in the Carbon MP application as you normally would, but instead of selecting the **Convert** tab and starting conversion, select **Queue** below the **Convert** tab.
1. In the **Job Name** field, enter a name for the job. The name will be displayed when the job is viewed in one of the job queues. If logging of jobs is enabled the name will also appear in the log.

2. Enter a description of the job in the **Job Description** field. The description will be displayed when the job is viewed in one of the job queues. If logging is enabled the description will also appear in the log.

3. Choose a **Job Priority** from the drop-down box. The higher the job priority is, the sooner the Queue Manager will start the job. Higher-priority jobs are started before lower-priority jobs. The highest priority is 9, which means the job will be started as soon as any currently jobs are complete, unless there are more priority 9 jobs already waiting.

4. On a multicore system, click the **One Job for Each Target** check box in the middle of the window. This enables Carbon MP to more efficiently assign processor cores to the encoding job.

5. **Virtual Source Name**: Read-only parameter.

6. From the **Target File Name** drop-down menu, select the appropriate action to take if an output file already exists:
   - **Rename if exists**. Rename the output file if a file of the same name already exists.
   - **Overwrite if exists**. Overwrite the output file if a file of the same name already exists.

7. Select the **Execution Machine**, either **Local** or **WFS**.

8. If your version of ProMedia Carbon is part of a rendering farm, click the **Render in Network Grid** check box to send the files to the rendering farm.

9. Enter the **WFS Controller IP Address**.

10. Enter the **WFS Controller Port**.

11. Click **Queue** to add the job to the queue. This sends the encoding jobs to the encoding engine.

12. **Go to Options > Transcoding Settings** to open the Transcoding Settings dialog box.

13. To watch your progress, open the **Carbon MP Admin** application.
Application Options

Transcoding Settings

The Transcoding Settings window allows you to set target folders to save encoded files and specify processing options for the application. Setting these parameters is useful if you are going to be dealing with many source files from a single or similar sources.

The Transcoding Settings window contains the following tabs:

- Processing Options
- Conversion Options
- Default Target Folder
- Capture Options
- Carbon Farm Options

Processing Options Tab

The **Processing Options** tab controls both Frame Rate Conversion, Scaling, and Letterboxing preferences.
Frame Rate Conversion

If your source and your target have different frame rates, there are many different ways to convert the source frame rate to the target frame rate.

- **Always Pick Nearest Frame.** This option creates a target frame by picking the nearest temporal frame from the source stream. This preserves full spatial source image quality. However, depending on the ratio between the source and target frame rates, movement in the video may appear jerky.

- **Always Interpolate.** This option creates a target frame interpolating between the two nearest temporal source frames. This guarantees smooth movement. However, since every target frame is an interpolation between source frame, the spatial quality is degraded and “ghost” images may appear.

- **Automatic Selection.** When the source or target frame rate is below approximately 23 fps, Carbon MP will pick the nearest frame instead of interpolating in order to avoid ghosting. If Carbon MP needs to interpolate frames for doing frame rate conversions, ghosting images might appear. Use the Automatic selection option to avoid ghosting. If ghosting still occurs, then use the Always pick nearest frame option.

- **Enable Source Playback Speed Adjustment.** Carbon MP normally does not alter the playback rate of sources in order to preserve the source’s original speed and visual intent. In other words, objects always move at the same speed through video regardless of the target frame rate and a 10-second source always converts to a 10-second target.

However, in some circumstances, it is advantageous to slightly alter the source playback rate by a very small amount in order to aid conversion. For example, a 29.97fps source can be sped up to 30fps playback for conversion to a 15 fps output, removing the possibility of interpolation artifacts and making the conversion faster.

It is also standard that 24fps film transfers to PAL DVD-Video are not put through frame rate conversions. Instead, the 24fps film content is encoded and authored as if it was 25fps content, resulting in a 4% speed-up. This eliminates any interpolation or pulldown but makes PAL DVDs of film transfers slightly shorter in length.

Check this box to allow Carbon MP to alter the playback speed of sources up to the percentage in the **Max. Adjustment (%)** box.

Chapter Points

Chapter points are metadata information that can be embedded in the source or output file. These chapter points are generally used to allow jumping to different sections within a video.

- **Set Chapter Point at Source Stitch Points.** This option can be used when stitching together multiple files into single output file. Chapter points will be set at each joining point. An example use of this would be merging the multiple chapters of a movie into a single output file.

Time Code

This is used to represent the temporal location of a particular frame of video. The time code may be embedded in the source video or it may be imputed from the video itself. Time code may be discontinuous in a particular piece of video.

- **Use NTSC Drop Frame Time Code.** In the NTSC video world, time code can be represented in two modes, drop frame and non-drop frame. Drop frame time code compensates for the difference between wall clock time and the time code generated by the 29.97 frame rate of NTSC video. Choose this option to make all time code display in drop frame mode.
Scaling and Letterboxing

If your source and your target have different frame sizes, there are two different ways to handle this scenario. For example, you may have a 16:9 source file that needs to be encoded to a target file with a 4:3 aspect ratio frame size. Because of the different frame sizes, you either have to scale and crop your Source file, or add black bars to the video to compensate for the difference.

- **Add Letterbox/Scale & Crop Slider**: Use the slider to adjust the desired percentages or cropping. Select 100% letterbox, by sliding the adjustment bar to all the way to the left will leave the source frame completely visible, with letterbox bars added if necessary. If the slider is at 0% letterbox (100% Scale and Crop), the image will fill the entire space without letterboxing, but the sides will be chopped off. Leaving the letterbox slider in the middle (50%) is a mixture of adding letterbox bars and scaling the file to fit the space. If you know you can afford to cut off a little of the video, then you should have the bar more toward the middle. Experiment with these settings to determine the correct settings for your source files.

- **Allow anamorphic scaling**: This setting allows scaling the pixel aspect ratio non-proportionally (horizontal and vertical scaling are different). Next to this check box is a field called **Max. Aspect Ratio Distortion (%)** for entering the maximum aspect ratio distortion percentage allowed during the anamorphic scaling process.

- **Crop/Adjust when converting between VBI containing formats (480/512, 576/608 Lines)**: This option can be used for certain transcodes between broadcast formats where either the source or target contain Vertical Blanking Interval (VBI) information and the other format does not. With this option checked, Carbon MP will either strip out the extra 32 lines of VBI data when going from a VBI source to a non-VBI target or add 32 lines of blank VBI data when going from a non-VBI source to a VBI target.

- **Crop when scaling D1 to DV (NTSC)**: Enable this option when converting a NTSC D1 (720x486) source to NTSC DV (720x480). Carbon MP will crop 4 lines from the top and 2 lines from the bottom of the source frame during conversion. This results in faster processing and higher quality since scaling is not performed.

- **Enable MPEG-1 compliant scaling**: Carbon MP normally converts full-D1 sources to MPEG-1 SIF using the Scaling and Letterboxing slider setting. However, the MPEG specification states that to convert a full-D1 (720x480) source to MPEG-1 SIF (352x240), crop 8 pixels from the left and right sides of the source to create a 704x480 frame then scale it to 50% for a 352x240 frame. Checking this box forces Carbon MP to use the MPEG-1 specification method.

- **Discard field when scaling height by ½**: When using full-size interlaced source files, this option discards one of the fields if you are scaling the file to half-size. In some cases, this eliminates the need for applying deinterlacing filters to your source file since discarding a field effectively deinterlaces the video.

- **Use NTSC safe colors for letterboxes**: Safe colors refer to those that are inside the safe region for NTSC television video. Title colors that are outside of this range can display badly and “bleed” on NTSC televisions.

- **Active line length 704 pixels**: Select this option to avoid having black bars down each side when equating to the full 4x3 or 16x9 picture.

- **Picture Scale Method**: Different methods can be available for scaling video up and down. There is a trade off between processing speed and video quality, and in general the slower the processing the better the quality. The “Best Quality” setting produces the best quality but is generally not the fastest. The “Legacy” and “Linear Interpolation”
settings are typically the fastest and the produced quality can be considered good. The “Legacy” setting uses the Harmonic proprietary scaling algorithm of Carbon MP versions 3.16 and earlier.

Conversion Options Tab
The Conversion Options tab controls various preview, loading and system preferences.

Preview Options
- **Always Scale/Shrink To Aspect Ratio Correct Full Screen Display.** Enable this option to have Carbon MP always compensate for pixel aspect ratio differences and provide an accurate on-screen display. It is recommended to keep this option enabled.

Preview Devices
- **Use Overlay on Desktop.** Enable this option to use video overlay for preview. Video overlay is faster than standard video and therefore uses less system resources. You should disable this option for remote desktop or if your preview stays blank.

Source Loading Options
- **Apply modified Source options to similar Sources.** Enable this option to use modified source options on subsequent source files. With this option enabled, subsequent sources of similar types will be loaded with the same source parameters as the previous source of the same file type. This is useful for Watch folders because it allows source files to be adjusted automatically without the need for the user to interact with the software. For
example, let's say you have an AVI file that does not have square pixels and you set it so the pixel aspect ratio isn't square (that is, DV NTSC). If **Apply modified Source options to similar Sources** is enabled, the next AVI source file you load will retain the same settings used before, and will load the file with the pixel aspect ratio set to DV NTSC, instead of the default setting.

- **Force Internal DirectShow MPEG Decoder.** This forces Carbon MP to use the built-in decoder, even when using DirectShow graphs.
- **MPEG Timestamp Mode.** Sets the default timing mode for MPEG Transport Streams, where the timing mode defines how in and out points and audio / video synchronization are handled.
- **Default Subtitle Language.** Select what subtitle language should be pre-selected when loading a VOB.

### System

- **Temp. Dir.** Some conversions need to save temporary files. Select **Browse** to choose a location for your temporary directory.
- **Cache Dir.** Carbon MP retains some information in order to speed certain types of conversions. Select **Browse** to select the location to use for Carbon MP’s cache files.

### Default Target Folder Tab

The **Default Target Folder** tab allows you to specify where you transcoded files should be stored.

![Transcoding Settings](image-url)
Global Default Target Folder

- **Global Default Target Folder.** This option sets the output location for all formats and targets. Select **Browse** to select the folder you want to use.

- If you want the global settings to apply to all target folders, select **Always use the Global Default Folder for all Targets.** Checking this option disables and overrides any local settings you may specify in the next section.

Local Default Target Folder

- **Local Default Target Folder.** Sets the output location for specific target presets. The local defaults override the global defaults. This is helpful for separating files that go to different projects or can be used to separate different target formats from each other.

To set the Local Default Target folder:
1. Uncheck **Always use the Global Default Folder for all Targets.**
2. Select the desired target from the list by selecting it.
3. Select **Use Local Default Folder** for the selected target option.
4. Select **Browse** to choose the folder to use.
5. Select **Apply** or **OK**.

Capture Options Tab

The **Capture Options** tab allows you to specify video and audio capture settings. A DirectShow compliant hardware capture device must be installed in your computer.
Capture Settings

- **System.** While capturing video, Carbon MP attempts to transcode directly from the input video into the target formats. If the performance of the system is not fast enough to enable immediate encoding, Carbon MP will generate an intermediate file on disk and then transcode asynchronously from this temporary file into the target formats. If your encode stops during capture or has dropped frames, select a lower system speed. This will force Carbon MP to generate the temporary file.

- **TC Offset.** Time Code offset is used when there is a difference between the time code displayed by the tape deck and the display in Carbon MP.

- **Reduce preview refresh.** Previewing video during capture uses CPU cycles that could be used for transcoding. Selecting this option will reduce the rate of frames displayed and will increase the processing power available for encoding. On faster machines this option is not necessary.

- **Stop Capturing on Frame Drop.** If your machine is not fast enough to perform encoding during the capture, it may drop some video frames. Select this option to stop the capture process if there is a frame dropped.

- **Use Source HD Buffer.** Some encoding functions, such as frame rate conversions, are computationally intensive. Carbon MP has the ability to perform partial transcodes and then write temporary data to the hard drive to ensure that there are no dropped frames during the transcode. Writing this temporary data will slow down the encoding process, but guarantees successful capture. You may select from one of three options: **Never,** **Automatic,** and **Always.** The Never option will never write intermediate data to the hard drive, the Always options always will, and the Automatic will write data depending on the target parameters. You can tune the settings depending on your system performance.

**Application Settings**

The Application Settings window lets you enable or disable application-specific behaviors. To open the Application Settings, choose **Options > Application Settings.**
Settings

- **Window Animation.** This toggles whether or not the windows slide into place when they open or close.
- **Show “Save Project” Dialog on exit.** This toggles whether or not Carbon MP prompts you to save your projects when you exit the application.
- **Disable Sound on “Conversion finished”.** This option disables the exuberant “Done” sound that plays when Carbon MP finishes a foreground conversion.
- **Show Advanced options in basic view.** This option includes all advanced options within the basic view. When the advanced options are included in the basic view, the advanced view is only necessary for source trimming and adding filters to sources and targets.
- **Show “Custom Folder Browse Dialog” for Target Path.** Enabling this will make Carbon use the standard Windows Explorer type browse window for selecting the target path rather than the default, less elaborate browse window.

Confirmation

- **Disable confirmation when removing Filter.** This option disables the prompt that appears when you remove a filter(s) from targets or sources.
- **Disable confirmation when removing Source.** This option disables the prompt that appears when you remove a source file(s) from the Source List.
- **Disable confirmation when removing Target.** This option disables the prompt that appears when you remove a target(s) from the Target List.

Changing the Default MPEG Export File Extension

You can change the export extension on any MPEG file through the MPEG Exporter. This can be changed to meet extension requirements of specialized systems. To change the extensions, add the MPEG exporter as a Target. Depending on the Stream Type, you can choose the extension of the Elementary, Program, or Transport streams.

The following instructions explain how to change the default output file extension for MPEG files. For example, by default Carbon MP uses the file extension .m2t for all MPEG-2 transport streams. If your situation calls for an MPEG-2 transport stream with the file extension of .mpg, you can use the following instructions so that all MPEG-2 transport streams created by Carbon MP will use the .mpg extension.

1. Run `regedit`.

![Run dialog](image.png)

2. Browse to HKEY_LOCAL_MACHINE\Software\Rhozet\Carbon Coder\{A7264AEF-FF57-42E0-BBAD-CCF546CD515F}.

3. Make a new subkey in this folder and name it `file_ext`.

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ProMedia Carbon MP, Release 3.22
4. Right-click the new key and select **New > String Value**.
5. Rename the new string to one of the following formats. You can add an individual key for each of the format types listed, but we recommend changing only those that you have to.

**Table 1–1: String Value Formats**

<table>
<thead>
<tr>
<th>String Name</th>
<th>File Type Changed</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPEG1_MUX</td>
<td>Mpeg-1 System Stream</td>
</tr>
<tr>
<td>MPEG1_ELM_VIDEO</td>
<td>Mpeg-1 Elementary Stream—Video Portion</td>
</tr>
<tr>
<td>MPEG1_ELM_AUDIO</td>
<td>Mpeg-1 Elementary Stream—Audio Portion</td>
</tr>
<tr>
<td>MPEG2_MUX</td>
<td>Mpeg-2 Program Stream</td>
</tr>
<tr>
<td>MPEG2_ELM_VIDEO</td>
<td>Mpeg-2 Elementary Stream—Video Portion</td>
</tr>
<tr>
<td>MPEG2_ELM_AUDIO</td>
<td>Mpeg-2 Elementary Stream—Mpeg-2 Audio</td>
</tr>
<tr>
<td>WAVE</td>
<td>Mpeg-2 Elementary Stream—PCM Audio</td>
</tr>
<tr>
<td>MPEG2_TS</td>
<td>Mpeg-2 Transport Stream</td>
</tr>
</tbody>
</table>

6. Change the value of the new string to the file extension you would like the stream type to have (for example, mpg).
7. Close regedit.
8. Restart Carbon MP.
Chapter 2  
Using ProMedia Carbon MP Admin

This chapter’s first section provides an overview of Carbon MP Admin and describes using Carbon MP Admin to set up Watch Folders, view jobs’ status, create presets, and configure transcoding parameters of local and remote systems. The second section, Carbon MP Admin Interface Options and Details, provides a detailed description of Carbon MP Admin’s many menu options to customize and manage conversion settings.

NOTE: Use Carbon MP Admin to automate multiple file conversions through Watch Folders.

Using the Carbon MP Admin Interface

Carbon MP Admin does not work by itself, but is used to configure and control Carbon MP. Carbon MP Admin includes all the features (and more) of the Carbon MP web-based user interface, which is still available. You can access Carbon MP Admin from the desktop or from the web-based user interface.

Carbon MP Admin can be used to:

- Set up Watch Folders, automated processes that transcode any source file dropped or copied into the folder.
- View transcoding jobs and their status. This includes jobs that are currently running, jobs that have been previously run and are now finished, and jobs that are waiting (queued-up) to be run.
- Create new presets and manage existing ones. Presets describe the kinds of output files you need to create, and are a convenient way to recreate the same kinds of files over and over, instead of having to enter the parameters again. For example, such as codec (Flash, H.264, etc.), file type (FLV, MP4), frame size (320x240 pixels), bit rate (300 Kbits/second), and frame rate (25 frames/second) every time you want to create a new output file.
- When applicable, view transcoding jobs and configure transcoding parameters of remote systems.

The following sections describe how to use Carbon MP Admin’s basic features to create Watch Folders, and how to customize presets to match your specific requirements. For a detailed description of Carbon MP Admin’s menu options, see Carbon MP Admin Interface Options and Details.

Setting Up a Watch Folder

1. Double-click the Carbon MP Admin application short cut on the desktop. The opening screen appears, showing the Active Jobs, Queued Jobs, Completed Jobs, Failed Jobs, and Watch Folders tabs.
2. Select the Watch Folders tab.
3. On the **Watch Folders** tab, select **Add Watch** to define a new Watch Folder on the **Watch Folder Setup** dialog.

4. On the **Watch Folder Setup** dialog, type a Watch Folder name and select **Browse** to specify where to save the Watch Folder, then click **OK**. Alternatively, click **Browse** (directly to the right of the Watch Folder field) to select an existing Watch Folder to drag (or copy) source files to, then click **OK**.
5. To add presets, on the left side of the screen, under **Target Files**, select **Add**. This changes the selections on the right side of the screen.

6. To add a preset, find the **Preset** field, then select **Browse below and to the right of the Preset field**. This opens the **Select Preset** dialog.
7. For our example, on the left, in the tree-list of preset categories, select **Web > MP4 (H.264)** category. This selection displays the MP4 H.264 factory default presets made available during installation.

8. On the right, select **MP4 448kbps 320x240 4x3 29.97fps**, then select **View Preset**. You can see that the MP4 H.264 preset creates .mp4 target (output) files 320 pixels wide by 240 pixels high, with a frame rate of 30 frames per second. The target file is created from the source file by transcoding from the source format to the format (codec) specified in the preset.

9. Select **Cancel**, then select **Select Preset** to add the preset to your Watch Folder.
10. To select the folder to which the H.264 .mp4 files will be written, on the Carbon Watch Folder Setup dialog, to the right of the Target Folder field, select Browse.

11. When the folder selection dialog box opens, navigate to the target output folder and select OK. Once you have selected your output folder, you are now finished with this target.

12. Select Save Watch to add the H.264 target to the Watch Folder. Notice in the Watch Folders properties list on the left side of the screen that a new target has been added to the Watch Folder. For this example, although we could add more targets to this Watch Folder, we will only add the H.264 target.

13. Now open the input and output folders you specified (in the examples above, the input folder where you drop the source files is c:\Temp\WatchSource, and the output folder for the H.264 target file is c:\Temp\WatchTarget).

14. Drop a video file into the Watch Folder (the input folder). Instead of dropping the file itself, you can also create a shortcut to the file by right-clicking and dragging the file, then releasing the right mouse button when the file is over the Watch Folder.

15. Select Create Shortcuts Here to create a shortcut to the input file inside the Watch Folder.

To see the progress as the source file is transcoded into the target H.264 .mp4 file, go back to the Carbon MP Admin application and select the Active Jobs tab. You should now see a display like the following screenshot, in this example 47% of the input file has been transcoded.
Chapter 2 Using ProMedia Carbon MP Admin

Using the Carbon MP Admin Interface

After a while, the progress bar will reach 100%, indicating that the job has finished transcoding, and you will see the status change to “Completed”. You should now be able to find the new file with the .mp4 file extension in the output folder (c:\Temp\WatchTarget in our example).

Feel free to explore a little more on your own and create another few Watch Folders, using different presets.

The handling of presets is discussed in detail in the following section, Creating New Presets; we suggest you review it after you feel comfortable creating Watch Folders and transcoding files by yourself.

NOTE: If you create a Watch Folder that reads source files or writes target files to a network drive, you cannot use mapped drives such as M:\NetworkWatchInput, you must use UNC paths such as \SERVERNAME\SharedFolder\NetworkWatchInput. If you do not do this, Carbon MP and Carbon MP Admin will not be able to read the files or write the files, since it does not understand or have access to mapped drives, only UNC paths.

Creating New Presets

Carbon MP includes hundreds of presets to simplify choosing settings for your transcoding jobs. There will be times; however, where you will be making changes to the supplied presets for a particular requirement. If you need to reapply the same settings in the future, you can save your own preset that restores all the codec parameters you configured.

A preset saves the settings for a single codec. Use it to reapply a particular set of parameters for future projects. As an example, you could have a preset called “QuickTime MP4 with H.264 for Streaming” that saves the H.264 and QuickTime parameters used for streaming output from your web server. Each time you have a new source file that needs to be transcoded for streaming, you can apply this saved preset instead of having to re-enter all of the settings again, such as frame size, frame rate, file wrapper (.mp4), and many more.

If you completed the earlier section, Setting Up a Watch Folder, you already used the “H.264 (.mp4) 320x240 30fps” preset. This preset describes how to create a QuickTime file with the .mp4 extension, which contains video information encoded according to the H.264 specification. The video created using this preset will be 320 pixels (width) and 240 pixels (height), with 30 frames of video displayed every second.

We’re going to use that preset to create a new customized preset, one that makes video with frames that are 400 by 300 pixels instead of 320x240. We’re only going to change the frame size, and no other parameters, but the principle of creating new presets remains the same, no matter how few or how many parameters you change.

1. Make sure that Carbon MP Admin has been opened and select the Preset Editor option from the Tools menu.
2. When the Preset Editor dialog box opens, on the left side you can see the list of preset categories. When you save a new preset, you can choose a category to save it under so it’s easier to find in the future, and you can group it with other, similar presets.

When you select a category (in this example the “H.264” top level category and the “Web” sub-category), the list of presets stored under that category appears. In this example, the two presets that are installed with Carbon MP are displayed. We’re going to take one of those presets and modify it to create our own, new customized preset.

3. Select the **H.264 (.mp4) 320x240 30fps** preset and double-click the **Preset**.

When the preset parameter list appears, all the parameters that can be changed for this codec are listed on the left in a tree listing, the description of the parameters and the current value for the parameter in this preset is shown on the right.

4. In the tree in the left panel, scroll the list until you see **H.264 Encoder Settings-Basic** category. Select the **Profile** parameter that appears under this list.

5. In the **Destination** panel on the right, scroll down to the **Width** parameter, and change it to 400. Change the **Height** parameter to 300, and select **Save As**.
6. When the preset **Save As** dialog box appears, enter a name for the preset and a custom description. The description is a useful place to make note of any specifics about the preset, such as the intended use of the output target files.

You can also select the category under which the preset will be saved from the tree on the left. It’s a good idea to group new presets together in the category that already has similar presets, although you can create new categories and sub-categories if you want.

7. When you’re done with the name and the description, select **OK**.

Carbon MP Admin now validates the parameters in the preset, and adds it to the list of existing presets. You might have to wait a while for the preset to be validated. The preset editor screen now appears again, and the preset you just created is shown in the “H.264/Web” category.

You can now use your new preset when you create a Watch Folder. There are many more parameters you can change, and there are many existing presets you can customize, so feel free to experiment. The default set of presets that is installed when Carbon MP is installed can’t be accidentally deleted using the Carbon MP Admin user interface, so feel free to experiment.

**Carbon MP Admin Interface Options and Details**

Each time you start Carbon MP Admin you will begin at the home screen.

The home screen contains a number of different areas that all display information about the current state of Carbon MP. First, there is the menu bar, then a number of areas that supply general information about the Carbon MP transcoder, then the **Job** and **Watch Folder** tabs, then the area that displays Job and Watch Folder lists, then the Job/Watch detail and preview areas, and finally the status bar at the bottom.
The rest of this section describes each area in general terms. Where there is more detailed information available, sections later on in this document provide it.

**Menu Bar**

The Carbon MP Admin menu bar provides the File, View, Tools, and Help options described in the following sections.

**File**

The only option in the File menu is Exit, this will end the Carbon MP Admin program.

**View**

- **Refresh**. Re-display the jobs or Watch Folders in the current tab.

- **Preview Style**. Change whether a preview is shown in the preview window in the bottom right of the Carbon MP Admin (‘Single Preview’), or for every currently transcoding job in the **Active Jobs** tab (‘Preview in List’), or not at all (‘No Preview’). If **Single Preview** is selected, the preview window is only visible when the **Active Jobs** tab has been selected. If **Preview in List** or **No Preview** is selected, the preview window disappears from the bottom right of the Carbon MP Admin window. If **Preview in List** is selected, every active job that is visible in the **Active Jobs** tab will show a small preview of the current output file.

**Tools**

- **Preset Settings**. Manage existing presets, and create new ones. See *Creating New Presets* for some information to get you familiar with the creation of presets.
Kernel Settings. Edit less-frequently used configuration parameters for Carbon MP. See Kernel Settings Configuration for more information.

Status Bar

The following sections describe the status area displayed directly under Carbon MP Admin Menu bar.

Application Status

Describes the machine for which Carbon MP Admin is displaying the status.

Connected to. The name of the selected machine (or IP address if the name cannot be found). The IP address “127.0.0.1” is reserved for the local machine, that is, the machine that Carbon MP Admin is currently running on.

Version. The version of Carbon MP that is running on the selected machine.

Job Status

Lists the total number of jobs in each job category.

- **Active.** The number of transcoding jobs that are currently in the process of being transcoded.
- **Queued.** The number of transcoding jobs that have been requested to transcode, but that are waiting for a transcoding “slot” to free up. A machine running Carbon MP can be configured to have a user-specified number of Transcoding Slots, which indicates how many transcoding jobs that machine can execute simultaneously. If a machine has three transcoding slots and is already executing three transcoding jobs, that machine cannot accept any new jobs until one of the three jobs completes or fails. Once that happens, a transcoding slot becomes available, and one of the jobs in the Queued status now becomes Active.
- **Completed.** The number of transcoding jobs that have been transcoded successfully.
- **Failed.** The number of transcoding jobs that have encountered an error somewhere during transcoding.
- **Total Jobs.** The number of all jobs in the four preceding categories combined.

Watch Status

This area lists the numbers of Watch Folders and their state of activity.

- **Total Watches.** The total number of Watch Folders that have been configured on this machine.
- **Active.** The number of Watch Folders that have been marked as Active. When a source file is dropped into the input folder of a Watch Folder marked as “Active”, it will be transcoded according to the Watch Folder settings.
- **Inactive.** The number of Watch Folders that have not been marked as “Active”. When a source file is dropped into the input folder of a Watch Folder not marked as “Active”, it will be ignored, it will not be queued, and no transcoding will take place.

Job and Watch Folder Tabs

Active Jobs

Selecting this tab will display a list of transcoding jobs that are currently in the process of being transcoded. Right-clicking a job in this tab will display the following options:
- **Stop.** Terminate transcoding, and move the jobs to the “Failed Jobs” tab. From there it can be re-submitted for transcoding at a later time if desired.
- **Remove.** Terminate transcoding and remove the transcoding job from this tab.
- **Select All.** Selects all jobs and runs the selected option.

### Queued Jobs

Selecting this tab will display a list of transcoding jobs that have been requested to transcode, but that are waiting for a transcoding “slot” to free up. A machine running Carbon MP can be configured to have a user-specified number of Transcoding Slots, which indicates how many transcoding jobs that machine can execute simultaneously. If a machine has three transcoding slots and is already executing three transcoding jobs, that machine cannot accept any new jobs until one of the three jobs completes or fails. When a job is completed or fails, a transcoding slot becomes available, and one of the jobs in the Queued status now becomes Active and is moved to the Active Jobs tab. Right-clicking a job in this tab will display the following options:

- **Remove.** Terminate transcoding and remove the transcoding job from this tab.
- **Re-queue.** Resubmit this transcoding job and move it to the Queued Jobs tab.
- **Start Now.** Immediately moves the job to the Active Jobs tab and starts transcoding it, regardless of the number of transcoding jobs already in progress and the maximum number of Transcoding Slots configured for this machine.
- **Set Priority.** Set a priority for this job, between 1 (lowest) and 10 (highest). The highest priority jobs will be transcoded next once a transcoding slot is freed up. Selecting **Start Now** immediately moves the job to the Active Jobs tab and starts transcoding it, regardless of the number of transcoding jobs already in progress and the maximum number of Transcoding Slots configured for this machine.
- **Select All.** Selects all jobs and runs the selected option.

### Completed Jobs

Selecting this tab will display a list of transcoding jobs that have been transcoded successfully. Right-clicking a job in this tab will display the following options:

- **Remove.** Terminate transcoding and remove the transcoding job from this tab.
- **Re-queue.** Resubmit this transcoding job and move it to the Queued Jobs tab.
- **Same Priority.** Set a priority for this job, between 1 (lowest) and 10 (highest). The highest priority jobs will be transcoded next once a transcoding slot is freed up. Selecting **Start Now** immediately moves the job to the Active Jobs tab and starts transcoding it, regardless of the number of transcoding jobs already in progress and the maximum number of Transcoding Slots configured for this machine.
- **Select All.** Selects all jobs and runs the selected option.

### Failed Jobs

Selecting this tab will display a list of transcoding jobs that have encountered an error somewhere during transcoding. Right-clicking a job in this tab will display the following options:

- **Remove.** Terminate transcoding and remove the transcoding job from this tab.
- **Re-queue.** Resubmit this transcoding job and move it to the Queued Jobs tab.
- **Same Priority.** Set a priority for this job, between 1 (lowest) and 10 (highest). The highest priority jobs will be transcoded next once a transcoding slot is freed up. Selecting **Start Now** immediately moves the job to the Active Jobs tab and starts transcoding it, regardless of the number of transcoding jobs already in progress and the maximum number of Transcoding Slots configured for this machine. This does set a priority for the job, but doesn’t have any effect if the job is in the Failed Jobs tab until and unless the job is re-queued.

- **Select All.** Selects all jobs and runs the selected option.

**Watch Folders**

Selecting this tab will display a list of Watch Folders that have been created on this machine. To the left of every Watch Folder is a check box in the ‘Active’ column. For more information, see the ‘Active’ paragraph in section *Job and Watch Folder Lists* a little later on in this manual.

Selecting this tab also displays the **Delete Watch**, **Edit Watch**, and **Add Watch buttons** at the bottom of the tab. The **Delete Watch** and **Edit Watch** options only become enabled when you select a Watch Folder from the list, otherwise these two buttons stay greyed-out.

- **Delete Watch.** Removes an existing Watch Folder and it’s files. This is not the same as making a Watch Folder active or inactive by checking or un-checking the ‘Active’ check box, but rather removes the Watch Folder permanently. If you want the Watch Folder back some time in the future, you will have to completely recreate it. Be careful with this option, once a Watch Folder is deleted it cannot be undeleted, only recreated.

- **Edit Watch.** Change the parameters of an existing Watch Folder. See *Setting Up a Watch Folder* for information to get you familiar with the creation of Watch Folders, and see *Watch Folder Management* for detailed information.
Add Watch – Create and configure a new Watch Folder. See Setting Up a Watch Folder for information to get you familiar with the creation of Watch Folders, and section Watch Folder Management for detailed information.

Right-clicking a Watch Folder in this tab will display the following options:

- Edit. Edit this Watch Folder.
- Delete. Remove this Watch Folder.
- Clone. Make a copy of this Watch Folder, but give it a different name.
- Go To Folder. Open the Watch Folder on your desktop.

Job and Watch Folder Lists

Selecting one of the job or Watch Folder tabs will display a list of jobs or Watch Folders.

Job lists

In the Active Jobs, Queued Jobs, Completed Jobs, and Failed Jobs tabs, details about the jobs in the various job states are displayed.

Table 2–1: Job Lists

<table>
<thead>
<tr>
<th>Tab</th>
<th>Name</th>
<th>(Prev)</th>
<th>Desc</th>
<th>Prior</th>
<th>Prog</th>
<th>Progress Bars</th>
<th>Status</th>
<th>Check-in Time</th>
<th>Machine</th>
<th>Warn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Jobs</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
</tr>
<tr>
<td>Queued Jobs</td>
<td>y</td>
<td>n</td>
<td>y</td>
<td>y</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>y</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>Completed Jobs</td>
<td>y</td>
<td>n</td>
<td>y</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>y</td>
<td>y</td>
<td>n</td>
</tr>
<tr>
<td>Failed Jobs</td>
<td>y</td>
<td>n</td>
<td>y</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>y</td>
<td>y</td>
<td>n</td>
</tr>
</tbody>
</table>

- Name. The name assigned to the job. Jobs created by dropping source files in Watch Folders will usually have a name of the form “Job (date time)”. A more custom name can be specified when submitting a job using the API.

- Description. A description of the job. Jobs created by dropping source files in Watch Folders will usually have a description of the form “Source path_to_source_file”. A more custom description can be specified when submitting a job using the API.

- Priority. For queued and active jobs, this lists the job priority, from lowest (1) to highest (10). A job that has been forced to transcode immediately without needing to be queued first (also referred to as “Start Now” or “Render Now”) will be listed with priority 255.

- Progress. Percentage of completion of the transcoding job.

- Progress Bar. Percentage of completion of the transcoding job, expressed as a progress bar.

- Status. Active jobs can be Starting, Started, Error, or Completed. If the job fails with the Error status, it will be moved to the Failed Jobs tab, so the status may not be visible for long. When the job is completed it will be moved to the Completed Jobs tab so the status may not be visible for long.

- Check In Time. The time when the Watch Folder queued the job.
- **Machine.** For active, completed, or failed jobs, on which machine the job was executed.
- **Warnings.** For active or failed jobs, any warnings or errors that were generated during the execution of the job.

**Watch Folder lists**

- **Active.** Whether the Watch Folder will act on source files dropped into the input folder. When a source file is dropped into the input folder of a Watch Folder marked as “Active”, it will be transcoded according to the Watch Folder settings. If this box is unchecked, then source files dropped into the input folder this Watch Folder will be ignored, will not be queued, and no transcoding will take place.
- **Name.** The user-specified name that was given to the Watch Folder when it was created.
- **Folder.** The input folder of the Watch Folder. When a source file is dropped into this folder, it will be transcoded according to the Watch Folder settings.
- **Priority.** Jobs created will by this Watch Folder will have this job priority by default.
- **# of Targets.** Number of different output files that will be created for each source file dropped into the input folder.
- **# of Retrievals.** Number of network shared storage locations or FTP servers this Watch Folder scans for source files.

**Job and Watch Folder Details**

When a job or a Watch Folder is selected in one of the tabs, the details of that job or Watch Folder become visible in the Details area.

**Job Details**

Selecting a job in one of the job tabs, displays the details pertaining to that job, depending on the status of the job (that is, what tab it’s listed in). Jobs don’t all have the same details to display. The table below lists details that apply to jobs in selected tabs.

**Table 2–2: Job Lists Details**

<table>
<thead>
<tr>
<th>Tab</th>
<th>Source File</th>
<th>Target File</th>
<th>Target Preset</th>
<th>Checked In</th>
<th>Started</th>
<th>Complete d</th>
<th>Duration</th>
<th>Job GUID</th>
<th>Touched Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Jobs</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
</tr>
<tr>
<td>Queued Jobs</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>n</td>
<td>(y if jobs were re-queued)</td>
<td>y</td>
<td>y</td>
<td>n</td>
</tr>
<tr>
<td>Completed Jobs</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>(y if jobs were re-queued)</td>
<td>y</td>
<td>y</td>
<td>y</td>
</tr>
<tr>
<td>Failed Jobs</td>
<td>y</td>
<td>n</td>
<td>y</td>
<td>y</td>
<td>n</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>n</td>
</tr>
</tbody>
</table>
Source File. The source file that was dropped into the Watch Folder's input folder. This can be the actual source file, or the shortcut to the source file.

Target Preset. The preset used to create an output file. This may appear multiple times, once for each output file the Watch Folder creates.

Target File. The folder to which an output file is written. This may appear multiple times, once for each output file the Watch Folder creates.

Checked In. The time that the transcoding job was queued.

Started. The time that the job actually started transcoding.

Completed. For completed or re-queued jobs, the time that the job finished transcoding.

Duration. The time it took to transcode the job.

Target 0 File. The output folder, preset name, and filename ('%s' represents the source file name) for the first target.

Target 1 File. The output folder, preset name, and filename ('%s' represents the source file name) for the next target. There may be many more 'Target X File' details, depending on how many targets this Watch Folder is configured to create from every source file.

Job GUID. The Globally Unique Identifier of the job. This can be used in API jobs to identify jobs uniquely for logging, accounting, or performance measurement purposes.

Watch Details

Selecting a Watch Folder in the Watch Folders tabs displays the details pertaining to that Watch Folder.

Watched Folder. The input folder for the Watch Folder. Files dropped into this folder are automatically transcoded.

Watch Status. The current activity of the Watch Folder process.

Retrieval 1 Status. This detail is visible when a Remote Retrieval such as a network share or FTP is being checked for the arrival of new source files.

Target 0 File. The output folder, preset name, and filename ('%s' represents the source file name) for the first target.

Target 1 File. The output folder, preset name, and filename ('%s' represents the source file name) for the next target. There may be many more 'Target X File' details, depending on how many targets this Watch Folder is configured to create from every source file.
Preview

This window is only visible when the **Active Jobs** tab has been selected. It can show a preview of the output file as it is being transcoded. Note that, whereas the actual effect on the transcoding job you are previewing is low (even large and fast previews won’t really slow down the actual transcoding job), there is overhead on the Carbon MP Admin application, and on the Carbon MP system when using it. For some extremely large previews, hundreds of kilobytes need to be transferred and displayed, so use this feature wisely.

- **Preview off.** No preview is shown.
- **Thumbnail Preview-slow.** A small fixed-size preview is displayed, the preview is updated slowly.
- **Thumbnail Preview-fast.** A small fixed-size preview is displayed, the preview is updated quickly.
- **Full Size Preview-slow.** A scalable preview is displayed. It can be scaled by dragging the edges of the preview window or dragging the edges or corners of the Carbon MP Admin window itself. The preview updates slowly.
- **Full Size Preview-fast.** A scalable preview is displayed. It can be scaled by dragging the edges of the preview window or dragging the edges or corners of the Carbon MP Admin window itself. The preview updates quickly.

Status Bar

The Status Bar area displays when Carbon MP Admin can communicate properly with the Nexus background transcoding service. It needs to be able to perform certain tasks, such as manage and create presets. If Carbon MP Admin is able to connect to Nexus, it will display the message “Connected.”

If Carbon MP Admin cannot connect to Nexus for any reason, it will display the message “Not Connected.” When this happens, it is often a problem with the USB key, perhaps it is not inserted properly or the temporary/evaluation license has expired. Try removing and re-inserting the USB key, and restart the machine to see if that makes the problem go away. If not, you may need to contact Support for more help.

One other thing to watch out for in this context is the behavior when the machine has just started, or when Nexus has just been restarted. Every time Nexus starts, it verifies all the presets on the machine and builds a list of the ones that have been correctly verified. It takes a while for Nexus to do this, so you may see the **Building Preset** dialog box below while Carbon MP Admin waits for Nexus to finish. This should never take more than 2 or 3 minutes unless you have a huge list of custom presets. If this dialog never seems to finish, you may have a problem and should restart the machine to see if that fixes the problem.

Preset Management

Carbon includes hundreds of presets to simplify choosing settings for your transcoding jobs. There will be times, however, where you will be making changes to the supplied presets for a particular requirement. If you need to reapply the same settings, like codec parameters and target file handling options, in the future, you can save your own preset that restores all the codec parameters you configured.

A preset saves the settings for a single codec. Use it to reapply a particular set of parameters for future projects. As an example, you could have a preset called “QuickTime MP4 with H.264 for Streaming” that saves the H.264 and QuickTime parameters used for streaming output from your web server. Each time you have a new source file that needs to be transcoded for streaming, you can apply this saved preset instead of having to re-enter all the setting such as frame size, frame rate, file wrapper (.mp4) and many more.
This section will discuss the details of preset creation and management, and present you with all the available options.

To help explain how presets work in Carbon MP, you need to know about the three different types of presets, explained as follows in System Presets.

**System Presets**

System presets are displayed when the System category is selected in the list of categories on the left side of the window. System Presets are the basic building blocks of every other type of preset. Both the Factory Default Presets and the User Presets are created by taking one of the System Presets, modifying it, and saving it under a different name and a different category. These presets can never be modified, renamed, or deleted since they are not really separate preset files but are built into and are part of Carbon MP.

**Factory Default Presets**

These are specializations and customizations of the System Presets, either according to industry standards (for example, “CableLabs HD 1080i 18.1 Mbps”) or according to Harmonic recommendations (for example, “3GPP2 H.264 320x240 128Kbps 15fps AAC-LC”). The Factory Default Presets are created by Harmonic and are automatically installed when a Carbon MP product is installed. They are installed under many different category names. They cannot be deleted or modified by the end user when using the Carbon MP User Interface or Carbon MP Admin. In custom installations where these presets are not used for Watch Folders or API jobs, they can be removed from the file system from the folder where they are installed by default (usually in the folder named C:\Program Files (x86)\Common Files\Rhozet\Carbon Coder\System Presets, this name is slightly confusing in this context but is maintained for backwards compatibility with earlier Carbon versions). This is best done only under controlled circumstances and in consultation with Harmonic Support.

**User Presets**

These are presets created by the end user, either by modifying a System Preset or a Factory Default Preset. These can be deleted and renamed at will, and can be stored under any category, those created by the end user, in any of the Factory Default Preset categories, or even in the System category. It may sometimes be difficult to tell User Presets from System Presets and Factory Default Presets, but selecting a User Preset will show the Remove button, whereas System Presets and Factory Default Presets can’t be removed using Carbon MP Admin. User Presets are usually stored in the C:\Program Data\Rhozet\Carbon Coder\User Presets folder on Windows Server 2008. There is an equivalent folder on Windows Vista, but that name can vary per installation so you may need to search for the folder name “User Presets” to see where Vista placed it.

**Preset Editor Window**

When you are in the main Carbon MP Admin window and you select the Preset Editor option from the Tools menu, the Preset Editor dialog box opens. From this window, you can manage, create, copy, and delete presets. Do not save User Presets in the System category, but instead, create a separate folder.
Category List

On the left side you can see the list of preset categories. When you save a new preset, you can choose a category to save it under, so that it’s easier to find in the future, and you can group it with other, similar presets. Categories can be stored in a hierarchy, so you can have a top level category called ‘Flash’ and then create two sub-categories under that called ‘Flash 8—Streaming’ and ‘Flash 8—Download’ that contain presets to create Flash-8 output files optimized for streaming and downloading, respectively.

Preset List

When you select a category, the top right shows the list of presets stored under the selected category.

Preset List buttons

The four buttons in the Preset Editor window that pertain to managing individual presets provide the following functions:

- **Refresh.** Sometimes changes that have been made to presets aren't immediately displayed, select this button to refresh the display and display the changes.
- **Copy.** Copy the selected preset, naming it “Copy of NAME”. This is very useful when creating a lot of presets that differ in only one or two parameters, you can create the first preset and then copy it multiple times, modifying the copies quickly for those few parameters that are different.
- **Delete.** If a User Preset is selected, this button will be enabled and allow you to permanently delete the selected preset. If you want the preset back some time in the future, you will have to completely recreate it. Be careful with this option, once a preset is deleted it cannot be undeleted, only recreated.
- **Edit Preset.** Allows the editing of an existing User Preset, or allows you to open a System Preset or Factory Default Preset, edit it, and save the result as a new User Preset. If you edit a System Preset or a Factory Default Preset, and you change any parameters, then
you cannot save the preset with the same name as the original, since you cannot change or overwrite System Presets or Factory Default Presets. You can, however, save the modified preset under a different name, which will create a new User Preset. See Editing Individual Preset Parameters for details on editing presets and changing settings.

**Preset Description**

When you select an individual preset you can see the preset details, including the description, at the bottom right of the window. If you have selected a User Preset, you can change the Name of the preset, the Category under which the preset is saved, and the Description of the preset.

The Globally Unique Identifier (GUID) of the preset is useful when creating API jobs.

**Preset Description Buttons**

The two buttons in the Preset Editor that pertain to the editing of preset details provide the following functions:

- **Save.** If you make any changes to the Name, Category, or Description of a preset, select Save to accept the changes. Your changes may not always be reflected immediately, you may have to select Refresh and wait while Carbon MP Admin and the Nexus background service exchange details about the updated preset.

- **Cancel.** Reject the changes you’ve made in the Name, Category, or Description fields.

**Editing Individual Preset Parameters**

When you have selected an individual preset of any type and selected Edit Preset, the Preset Setup dialog box will open.

All the parameters that can be changed for this preset are listed on the left in a hierarchical tree listing, and on the right in a list. You can either navigate the tree and select a parameter, or you can scroll down the list to find the same parameter, there is no difference between the two displays in terms of functionality.
The parameters can include codec settings (such as bit rate), file handling settings (such as how to name target files), and other settings (such as whether to split a target file into segments).

The current value of the parameter in this preset is shown on the right side of this list. When you select an individual parameter, explanatory text for that specific parameter will appear in the preset help text area below the list to assist you in choosing an appropriate value for the parameter.

Note that the type and number of parameters you can change depends on the codec, device, and file format selected. For example, the preset selected in the H.264 System Preset has almost 60 available parameters. There may be many other presets that do not offer the same variety and choice of parameters, such as the Factory Default preset in the second image, which offers only 18 parameters.

In many cases, the specific codec only supports a few parameters. In the case of presets that target specific hardware, such as video playout servers or handheld devices, there may be limitations on frame size, bit rate, etc.

Managing and Backing Up Preset Files

As discussed earlier (User Presets), User Presets are usually stored in the C:\Program Data\Rhozet\Carbon Coder\User Presets folder on Windows Server 2008. There is an equivalent folder on Windows Vista, but that name can vary per installation so you may need to search for the folder name “User Presets” to see where Vista placed it.

Preset files in that folder are XML files, with names like “fdst_H_264 (_mp4) 400x300 30fps.cpf”. The latter part of the file name will reflect the name you gave to the preset, with some characters replaced by underscore characters (for example, “H.264 (.mp4)” becomes “H_264 (_mp4)”).

Preset files can be backed up by copying all files with the “.cpf” file extension to a backup folder.

Watch Folder Management

A Watch Folder is defined as a folder on a Windows system that automatically converts source video files that have been dropped into it, to different types of video output files. Any video source files written or dropped into this “Input” folder are converted (transcoded) to the one or more types of output files. The format of the output files is specified by the end user when the Watch Folder is created.

How Watch Folders Work

A Watch Folder consists of three parts:

- A folder on a Windows system that is designated as the Watch Folder Input Folder when the Watch Folder is created.

- A Windows operating system service installed when Carbon MP is installed (“Nexus”) that continually monitors the Watch Folder’s Input Folder for new files.

- The output file formats and other settings and configuration information entered by the user when the Watch Folder is created.
Input folder for Watch Folders

When a Watch Folder is created, one of the things the user must do is designate an Input Folder. This is a normal folder on a Windows system, and once the Watch Folder has been created and is active, this folder will be monitored for the presence of new files. When a new file is created in this folder, the Windows operating system and the component of Carbon MP called the “Nexus” background service will work together to transcode this source file. Carbon MP will transcode the source file into the various output file formats also specified at the time the Watch Folder is created.

The Nexus Background Service

When Carbon MP is installed on a Windows system, a part of Carbon MP called “Nexus” is installed as a Windows service. The Nexus background service runs continuously and handles API jobs, maintains the various queues of transcoding jobs, and also monitors Watch Folders.

When a file is created inside a Watch Folder’s input folder, the Nexus Service is notified by the Windows operating system that a new file has been detected. Nexus checks to make sure that the format of that source file is supported by Carbon MP, and then creates one or more new Windows Processes that handle the actual transcoding of the source file into one or more different output files.

NOTE: When using the Windows Task Manager application, the Nexus process can be found by looking for a process named “PNXSERVR.exe”. The processes that create and transcode are named “PNXKERNL.exe.”

Watch Folder configuration

Creating a Watch Folder requires the user to specify which kinds of output files should be created once a source file has been found in the input folder. This can include the kinds of file formats the output files should have, the compression type or encoder (sometimes known as “codec”) to use, how large the frame should be, how many frames per second the output file should display, etc.

There are also many options for where and how to deliver the output files, as well as options for what kinds of other actions to take when output files are ready.

Step-by-step instructions for creating a Watch Folder have been given in the Carbon MP Admin interface section of this document, in the Setting Up a Watch Folder section. The next section, Watch Folder Setup Properties, will discuss all of the individual settings that can be applied to a Watch Folder, and show how to configure complex Watch Folders.

Watch Folder Setup Properties

When either the Add Watch or Edit Watch button is selected on the Watch Folders tab, the Watch Folder Setup dialog box appears. The sections below describe the general parameters that can be entered or modified for Watch Folders.

Name

This is the name of the Watch Folder, which helps you manage your Watch Folders. As an example, you could use the names of projects or customers as the names of your Watch Folders.
Watch Folder

This is the location of the Watch Folder. You can choose any local or remote folder location. If choosing a remote location, make sure that the Nexus process has the required permissions to access that remote location.

If Target File Exists

This allows you to either overwrite an existing file or to rename to a new file name if one already exists with your target name.

Job Priority

Since you can have many Watch Folders operating at the same time, you can set the priority of each. As an example, you may have a news folder that is set to a higher priority than an archive task. A priority 8 job will be executed before a priority 3 job if they both arrive at the same time.

Leading/Trailing Clips

If you would like to have a video “stitched” to the beginning or end of each file that is transcoded, then you would select that option in video these settings. The leading and trailing clips do not have to match the source or target settings—they will be automatically converted to the appropriate target format. Leading and trailing clips are often used for automatic advertising insertion.

Watch Folder Setup Advanced Settings

If the Watch Folder contains sub folders, checking this option will look in those sub folders for source files and transcode them the same way as source files in the Watch Folder itself.

Watch Sub Folders

For example, if the Watch Folder “c:\MyWatchInput\” contains a sub folder “\FromEditor2\”, then any source files dropped into the “c:\MyWatchInput\FromEditor2\” folder will be processed just like source files dropped into the “c:\MyWatchInput\” folder.

If this option is unchecked, then the source files dropped into the “c:\MyWatchInput\FromEditor2\” folder will never be processed nor removed, but just remain in that folder until manually removed.

Append Source Sub Folder to Target Path

This option is only meaningful if ‘Watch Sub Folders’ is checked. If this option is checked, and the Watch Folder contains sub folders, then target files created from source files dropped into a sub folder will be created in an identically-named sub folder inside the target folder.

For example, if the Watch Folder “c:\MyWatchInput\” contains a sub folder “\FromEditor2\”, and the target folder is “c:\MyWatchOutput\”, then any source files dropped into the “c:\MyWatchInput\FromEditor2\” folder will be processed and create target files in a new folder “c:\MyWatchOutput\FromEditor2\”. If this option is unchecked, and the ‘Watch Sub Folders’ option is checked, then the source files dropped into the “c:\MyWatchInput\FromEditor2\” folder will be processed and create target files in the “c:\MyWatchOutput\” folder.

If this option is unchecked, then the source files dropped into the “c:\MyWatchInput\FromEditor2\” folder will never be processed nor removed, but just remain in that folder until manually removed.
Create One Job for Each Target

If a Watch Folder is configured to create multiple target files from each source file, then checking this option will create a separate transcoding job for every target file.

For example, if a Watch Folder is configured to create an H.264 target and an MXF output, then two transcoding jobs will be visible in the Active Jobs tab every time a source file is dropped into the Watch Folder.

If this option is unchecked, then one job will be created, and that one job will create both target files. This can be faster because the source file only needs to be transcoded once, but the job will take more memory, and may sometimes exceed the memory limitations of the operating system and thus actually slowing down the job. In addition, if it takes much less time to create one target than the other, then the processor will not be used optimally while Carbon MP is working to finish the slower target.

Delete Local Source After Conversion

If this option is checked, any local source files dropped into the Watch Folder will be deleted after they have been successfully transcoded. They will not be deleted if the transcoding failed and generated an error.

Delete Source File Shortcut Links to

If this option is checked, any shortcuts to the deleted source file are also deleted.

Accept Folders as Assets

This feature will allow you to use Carbon MP to automate other, third-party processes using notifiers (see Creating Source Notifiers). If this option is checked, and a folder is dropped into the Watch Folder, then Carbon MP will not attempt to transcode the contents of the folder, but will pass the folder name to any notifiers attached to the Watch Folder.

For example, this function could be used to pass the name of the folder that contains transcoded target files to a Command Line notifier (see Command Line Notifier). The command line can then launch a third-party process that encrypts or adds DRM to all the files in the folder.

If this option is unchecked, and a folder is dropped into the Watch Folder, Carbon MP will attempt to transcode source files contained in the folder only if the Watch Sub Folders option is checked (see Watch Sub Folders).

Retrieve Sources to Agent Machines

This option is not applicable for this product.

Enable Segmented Grid Transcoding

For Carbon MP systems, checking this will allow source files to be split into segments and have each segment be processed by a different Carbon Agent machine. The Maximum Segments value determines into how many segments the source file can be split, don’t make this too high for smaller source files, since the overhead of splitting the source file and stitching the target segments back together may negate the segmenting advantage.

NOTE: Even if this option is checked, it will only work for some types of target files and under some circumstances.
Audio and Video Source Filters

Audio and video filters can be applied to a source file before it is transcoded into the various target file formats. See the lists below for the available audio and video filters. These filters can be found under the Source Folders category in the tree on the left.

If a filter is added as a source filter, then all output will have that effect applied. For example, if a crop is applied to the source via the Relative Crop filter, then all targets will have the same cropping applied. If you wanted to crop only one of your targets, then you would apply the Relative Crop filter as a target filter.

If you would like to use settings, other than the default for each filter, then you need to edit the preset and save a new preset with its own name. You can create your own categories for presets. After choosing a new preset, you will need to select “Update” to update your Watch Folder with the new settings.

Audio Filters

- Channel Mixer
- DVD to PC Converter
- Dynamic Range Compressor
- Fade In/Out
- Lowpass
- Normalize
- Normalize—ITU 1770
- Parametric 5.1 to Stereo Converter
- Track Offset
- Volume

Video Filters

- 601 Correction—Expand Color Space
- 601 Correction—Shrink Color Space
- 601 to 709 Color Correction
- 709 to 601 Color Correction
- Adaptive De-Interlace
- Bitmap Keying
- Black/White Correction
- Blur
- Broadcast Color Safe
- Caption 608 to 708 conversion
- Caption convert 708 to Ancillary
- Caption convert Ancillary to 708
- Caption Inject From .SCC File
- Circular Blur
- Color Correction
Creating Source Notifiers

A Source Notifier lets you know when a source file starts or finishes transcoding, or if an error occurs during transcoding.
Source Notifiers cause Carbon MP to execute a notification (send an email message, post a Web Service URL, or execute a Windows command line) whenever a job event (job starts, job finishes, or job encounters an error) occurs.

**String Replacement Tokens**

You can use the following string replacement tokens in notifications:

- `%jobguid%`. Unique GUID for this task
- `%jobname%`. Unique name for this task
- `%source%`. Full source path and name
- `%destinationname%`. Result destination file name (only valid in completion notifications)
- `%errormessage%`. Error message (only valid in error notifications)

**Email Notifier**

An Email Notifier can be used to send emails on job start, completion, or error. You can use string replacement tokens in your email subject and body.

- **Recipient**: To whom the email should be sent, this is a normal email address.
- **Subject**: Subject line of the email.
- **Body**: Body text of the email.

Example: The file `%source%` has generated error message `%errormessage%`

**Web Notifier**

A Web Service Notifier can be used to trigger external web services on job start, completion, or error. You can use string replacement tokens in your web service call.

- **Web Service URL**: The URL to execute when the job event (start, finish, or error) occurs.

Example: `http://myserver.com/script.aspx?Source=%source%`

**Command Line Notifier**

- **Command Line**: Command to execute.
- **External process shown as new job**: Check this option to show the command line as a separate job in the Carbon MP Admin job queue.

Example: `c:\myprog.exe %source%`

**On Start**

Send a notification when a job is started.

**On Completion**

Send a notification when a job is finished.

**On Error**

Send a notification when a job encounters an error.
Remote File Retrieval

A Watch Folder can actively look for files to transcode on remote storage systems or FTP locations. When a file is detected at this remote location, it will be moved to the local Watch Folder and then transcoded. This is called a “remote retrieval”. A remote retrieval is used when the Watch Folder can't transcode directly from the desired location, such as with an FTP site or shared storage that has a different password than the local system.

File Retrieve: Remote Connection

- **Remote Path (UNC)**. The folder on the remote storage where Carbon MP will look for new files to copy to the local Watch Folder for transcoding. You MUST use a UNC path, you cannot use a mapped drive since Windows processes like the Carbon MP background process Nexus are unable to access mapped drives.

- **User (optional)**. If you need to log in to the remote storage to access the source files, enter the name here.

- **Password (optional)**. If you need to log in to the remote storage to access the source files, enter the password here.

File Retrieve: Retrieval Settings

- **Wildcard**. File mask to retrieve. Files that do not match the wildcard will not be retrieved.

- **Watch Interval (sec.)**. Interval in seconds between checking the remote location for new files.

- **Minimum File Size (KB)**. Minimum file size in Kilo-bytes. Files smaller than this will not be retrieved.

- **Delete Source Upon Completion**. Whether to delete the file from the remote location once it has been retrieved.

- **Watch Sub Folders**. If the Watch Folder contains sub folders, checking this option will look in those sub folders for source files and transcode them the same way as source files in the Watch Folder itself.

- **Propagate Sub Folders**. This option is only meaningful if ‘Watch Sub Folders’ is checked. If this option is checked, and the Watch Folder contains subfolders, then target files created from source files dropped into a subfolder will be created in an identically named subfolder inside the target folder.

- **Retrieve Sources to Agent**. Only useful in a Carbon MP transcoding network. Checking this option will cause Carbon machines to retrieve the source file directly, without Carbon MP having to retrieve the file first and then pass it to Carbon Agent. This can significantly improve transcoding and file transfer speeds.

FTP Retrieve: Server Connection

- **Current Server**. Server name to connect to.

- **Server Status**. Display whether Carbon MP Admin is currently connected to the FTP server.

- **Current Folder**. The folder on the FTP server that is currently being browsed. Choose Select to browse into this folder.

FTP Retrieve: Retrieval Settings

- **Selected Folder**. The folder on the FTP to retrieve files from.

- **Wildcard**. File mask to retrieve. Files that do not match the wildcard will not be retrieved.
- **Watch Interval (sec.).** Interval in seconds between checking the remote location for new files.
- **Minimum File Size (KB).** Minimum file size in kilobytes. Files smaller than this will not be retrieved.
- **Delete Source Upon Completion.** Whether to delete the file from the remote location once it has been retrieved.
- **Watch Sub Folders.** If the Watch Folder contains subfolders, checking this option will look in those subfolders for source files and transcode them the same way as source files in the Watch Folder itself.
- **Propagate Sub Folders.** This option is only meaningful if Watch Sub Folders is checked. If this option is checked, and the Watch Folder contains subfolders, then target files created from source files dropped into a subfolder will be created in an identically named subfolder inside the target folder.
- **Retrieve Sources to Agent.** Only useful in a Carbon MP transcoding network. Checking this option will cause Carbon Agent machines to retrieve the source file directly, without Carbon MP having to retrieve the file first and then pass it to Carbon Agent. This can significantly improve transcoding and file transfer speeds.

### Target File

- **Preset Category.** Presets are divided into categories for easier selection.
- **Select Preset.** Select the preset to use for this target.
- **Target Folder.** The folder to write the target file to.
- **Target File Name.** The name to give the target file. Make sure to always at least include %s which represents the source file name.
- **Delete Local Target File after Delivery.** Whether to delete the file from the local Target Folder once the file has been delivered using either the File Delivery or FTP delivery.

### Target File: Filters

See [Audio Filters](#) and [Video Filters](#) for a list of filters that can be applied to audio and video source files.

### Target File: Notifiers

When notifiers are added to a Watch Folder, those notifiers will be activated either the moment a source file is dropped in the Watch Folder, or when any one of the targets creates an error, or when all the targets from the Watch Folder have been created. Just like it is possible to add notifiers to the Watch Folder, it is also possible to add notifiers to individual targets. This way, the notifiers will be activated when the individual target is started, creates an error, or is finished.

See [Creating Source Notifiers](#) for more information on the kinds of notifiers that can be attached to this specific target.

### Target File: Delivery—File Delivery

- **Delivery Path (UNC).** The folder on the remote storage where this target files will be written. You MUST use a UNC path, you cannot use a mapped drive since Windows processes like the background transcoding process Nexus are unable to access mapped drives.
- **User (optional)**. If you need to log in to the remote storage to access the target folder, enter the name here.

- **Password (optional)**. If you need to log in to the remote storage to access the target folder, enter the password here.

**Target File: Delivery—FTP Delivery**

- **Current Server**. Server name to connect to.

- **Server Status**. Display whether Carbon MP Admin is currently connected to the FTP server.

- **Current Folder**. The folder on the FTP server that is currently being browsed. Select it to browse into this folder.

- **Selected Folder**. The folder on the FTP to write target files to.

**Kernel Settings Configuration**

The **Tools > Kernel Settings** menu in Carbon MP Admin is where less-frequently used configuration parameters for Carbon MP can be found. A number of these parameters can be used to fine-tune and debug Carbon MP machines or Carbon MP systems.

Some parameters can be changed and activated immediately (such as the **Transcoding Slots** parameter). For others, once the parameter has been changed, the Carbon MP Nexus Service needs to be restarted before the change is applied. These parameters have an asterisk (*) appended to them. Help text at the bottom of the dialog box may mention “Requires machine restart.”
### Configuration Parameter Categories

#### Table 2–3: Rendering Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transcoding Slots</td>
<td>Set the number of simultaneous transcodes this machine will perform. A good rule of thumb is to set this to half the number of processor cores on the machine. Setting this to 0 disables transcoding on this machine.</td>
</tr>
<tr>
<td>Machine Priority</td>
<td>Jobs will be assigned first to those machines in a transcoding network that have the highest priority (10), lower priorities later.</td>
</tr>
</tbody>
</table>

#### Table 2–4: Network Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use DNS to lookup machine names</td>
<td>Enable this to have IP addresses resolved to machine names using DNS, for the UI and log files. Disable it when there is no DNS server on the network or to improve performance.</td>
</tr>
<tr>
<td>Bind to IP Address*</td>
<td>Force Carbon MP to communicate only using a specific IP address, specified as xxx.xxx.xxx.xxx. Leave this blank except on multi-homed systems. Requires machine restart.</td>
</tr>
<tr>
<td>FTP Max Upload Sessions</td>
<td>Set the maximum number of simultaneous post-transcoding FTP uploads (deliveries) this machine will perform.</td>
</tr>
<tr>
<td>FTP Max Download Sessions</td>
<td>Set the maximum number of simultaneous pre-transcoding FTP downloads (retrievals) this machine will perform.</td>
</tr>
<tr>
<td>Maximum FTP Send Bandwidth (kbps)</td>
<td>Set this value to limit the total bandwidth in Kilo bits per second that all concurrent FTP sessions can use when sending output files that have been transcoded. Leave this value set to zero (0) to allow unlimited bandwidth use during sending. Note that unlimited bandwidth use may slow down the system to the point where no other network communications are possible, and may stall or crash system processes.</td>
</tr>
<tr>
<td>Maximum FTP Receive Bandwidth (kbps)</td>
<td>Set this value to limit the total bandwidth in Kilo bits per second that all concurrent FTP sessions can use when retrieving input files that will be transcoded. Leave this value set to zero (0) to allow unlimited bandwidth use during sending. Note that unlimited bandwidth use may slow down the system to the point where no other network communications are possible, and may stall or crash system processes.</td>
</tr>
<tr>
<td>Local Rendering only</td>
<td>Set this to '1' (default is 'local and remote' = '0') to do transcoding only on the local machine, instead of also accepting transcoding jobs from other Carbon MP machines.</td>
</tr>
<tr>
<td>Maximum Disk Space For Job Processing</td>
<td>The minimum disk space (in MegaBytes) required on the local machine for an FTP retrieval to commence.</td>
</tr>
</tbody>
</table>
### Table 2–5: Job Queue Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max completed jobs</td>
<td>Number of completed jobs kept in the queue if Manage-Job-Queue is enabled.</td>
</tr>
<tr>
<td>Max failed jobs</td>
<td>Number of failed jobs kept in the queue if Manage-Job-Queue is enabled.</td>
</tr>
<tr>
<td>Retry Delay for failed Jobs</td>
<td>Number of seconds to wait before a failed job is automatically resubmitted to the queue. Setting this to zero (default) never automatically resubmits a failed job.</td>
</tr>
</tbody>
</table>

### Table 2–6: Email Server Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMTP Server</td>
<td>Specify the SMTP Server to use for outgoing emails.</td>
</tr>
<tr>
<td>SMTP User</td>
<td>Specify the SMTP User account for outgoing emails.</td>
</tr>
<tr>
<td>SMTP Password</td>
<td>Specify the password for the SMTP User account specified above.</td>
</tr>
<tr>
<td>SMTP Sender</td>
<td>Specify the email address of the sender for outgoing emails.</td>
</tr>
</tbody>
</table>

### Table 2–7: Machine Render Properties Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Tags</td>
<td>Enter a list of strings separated by semi-colons (‘;’). Each string (tag) can be chosen by the end user and is used to designate this machine as possessing a specific property. When creating a Watch Folder (or submitting a transcoding job using the API), it is possible to add a tag to that Watch Folder. This signifies that jobs created by that Watch Folder will also have that tag, and be executed only on machines that have the same tag listed in this field. This is useful if there are many Carbon MP machines in a transcoding network, but only a few have a special codec or piece of hardware installed (often for licensing- or budgetary reasons). If, for example, there are 10 machines on a transcoding network, all with 2 processor cores and 2GB of memory, except for 2 of those machines that have 8 cores and 8GB of memory each, the tag HI_PERFORMANCE could be entered in this field on those two machines. If a Watch Folder has that same tag, source files dropped in that Watch Folder will then be sent only to those fast machines, and in theory will be processed much faster than other jobs. Note that jobs that do not have a tag can be executed on any machine, it is only jobs with tags that are sent to specific machines.</td>
</tr>
</tbody>
</table>
Table 2–7: Machine Render Properties Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-load Kernel in Memory</td>
<td>Set this to '0' (default is 'pre-load' = '1') to load the transcoding kernel only when transcoding jobs start. Enabling pre-load reduces the start-up delay of transcoding jobs, and reduces free memory by around 80MB.</td>
</tr>
<tr>
<td>Kernel Preset Enumeration</td>
<td>Set this to '0' (default is 'enumerate' = '1') when configuring the system for exclusive API use and new presets will not need to be created. WARNING: Disable this only for purely API-based use of Carbon MP. When disabled, no user interface interaction with presets is possible.</td>
</tr>
</tbody>
</table>

Table 2–8: Watch Settings Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watch Folder Retry Time (ms)</td>
<td>When a source file is dropped into a Watch Folder, this setting determines how many milliseconds to wait before checking if the source file size is changing (for example, because the file is still being written by the OS or an FTP upload). If the file size has changed between checks, will check again, and continue doing so until the file size is the same for two consecutive checks. If this is set to zero, Carbon MP may immediately begin transcoding source files when dropped in a Watch Folder, regardless of whether they are finished being written. This can cause the transcode operation to fail.</td>
</tr>
<tr>
<td>Minimum Source File Size (bytes)</td>
<td>When a source file is dropped into a Watch Folder, it will be transcoded if it is this size in bytes or larger. Smaller files will be ignored, this can be useful for video source files that come with unneeded metadata files, for example.</td>
</tr>
<tr>
<td>Ignore FS Modifier</td>
<td>Set this to '1' (default is 'do not ignore' = '0') to ignore File System messages from the Windows OS. Some playout server file system drivers or network storage drivers may not completely or correctly implement those messages, so setting this field may resolve issues with jobs staying in the Preparing stage for a long time (tens of minutes). Setting this field disables Carbon MP’s normal detailed file status analysis, so should therefore be used with caution.</td>
</tr>
<tr>
<td>Don't Resolve to UNC</td>
<td>Carbon MP normally automatically converts a directory name such as c:\Input on the machine STORAGE01 into the UNC path \STORAGE1\C$\Input, so that other machines can access the same file when needed (for example, when decoding a source file). Set this field to disable that mechanism, and leave directory names as they are. This can be necessary in the case of a SAN for example, where every machine on the transcoding network has a SAN driver with the drive letter X: installed for example. In this case, all file names such as X:\DropHere\Sourcefile.mpg will be passed verbatim to other machines. Use this with caution; if not all machines have this drive letter and the drive letter does not point to the exact same network storage for all machines, subtle and difficult to diagnose errors may occur.</td>
</tr>
</tbody>
</table>
### Table 2–9: Storage Locations Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Submission Path*</td>
<td>DirectDrop exporters write media to this directory. This location must be accessible throughout your network, must allow fast writing and must have plenty of free space available. Requires machine restart.</td>
</tr>
<tr>
<td>Reference Files Data Storage*</td>
<td>The location for the data portion of submitted reference files. Requires machine restart.</td>
</tr>
</tbody>
</table>

### Table 2–10: Farm DIRECTDROP Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscribed Farm Manager</td>
<td>Enter a server name or IP address. Carbon MP will assume this machine exists and use it for DirectDrops etc.</td>
</tr>
</tbody>
</table>

### Table 2–11: XML Job Submission Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>XML Watch Folder*</td>
<td>It is possible to execute API jobs by dropping XML files in the directory entered in this field. Requires machine restart. (See the Harmonic Carbon API Manual for XML file specifications; installation installs everything necessary to use the API.)</td>
</tr>
</tbody>
</table>

### Table 2–12: Logging Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Jobs to Event Log</td>
<td>Setting this will log Jobs into the Windows Applications Event Log.</td>
</tr>
<tr>
<td>Write Engine Log File</td>
<td>Setting this causes Carbon MP to write a general log file, which contains general information for each transcoding job executed.</td>
</tr>
<tr>
<td>Log File Path*</td>
<td>The general log file is written to this directory. Requires machine restart.</td>
</tr>
<tr>
<td>Log File Retention (days)</td>
<td>A new log file is created at midnight every day. This field determined how many days back to keep the old log files, for example, setting this to 5 leaves today's file and the files from the preceding 4 days intact but removes log files any older than that. Setting this field to zero (default) leaves all log files in place an never removes any.</td>
</tr>
</tbody>
</table>
Table 2–13: Logging – XML File Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write XML Log File to File Share*</td>
<td>Setting this causes Carbon MP to write a general log file in XML format. Requires machine restart.</td>
</tr>
<tr>
<td>File Path for XML Files*</td>
<td>The general XML-format log file is written to this directory. Requires machine restart.</td>
</tr>
</tbody>
</table>

Table 2–14: Status – XML File (FTP) Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write XML Log File to FTP Server*</td>
<td>Setting this causes Carbon MP to write a general log file in XML format to an FTP server. Requires machine restart.</td>
</tr>
<tr>
<td>FTP Site*</td>
<td>Enter IP address or server name. Requires machine restart.</td>
</tr>
<tr>
<td>FTP Port*</td>
<td>Enter Port# to use. Requires machine restart.</td>
</tr>
<tr>
<td>FTP User*</td>
<td>Enter User Name. Requires machine restart.</td>
</tr>
<tr>
<td>FTP Password*</td>
<td>Enter Password. Requires machine restart.</td>
</tr>
<tr>
<td>Remote Path*</td>
<td>Enter Remote Path. Requires machine restart.</td>
</tr>
</tbody>
</table>

Table 2–15: Status Timeouts Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeout Preparing Status (s)</td>
<td>Number of seconds a transcoding job allowed to be in the Preparing status before it times out and is considered as having failed.</td>
</tr>
<tr>
<td>Timeout Preparing Status - Agent (s)</td>
<td>Number of seconds a transcoding job allowed to be in the Preparing status before it times out and is considered as having failed. This field applies to Carbon MP machines only, very long timeouts must be tolerated for these machines because very large source files could still be in the process of being written.</td>
</tr>
<tr>
<td>Timeout Starting Status (s)</td>
<td>Number of seconds a transcoding job allowed to be in the Starting, Paused, or Reading status before it times out and is considered as having failed.</td>
</tr>
<tr>
<td>Timeout Stopping Status (s)</td>
<td>Number of seconds a transcoding job allowed to be in the Stopping status before it times out and is considered as having failed. Note that Stopping can take a relatively long time some exporters index files, re-multiplex, etc. during the Stopping phase. A very high value is recommended, at least twice the time it would take to read/write the typical output files to/from disk.</td>
</tr>
</tbody>
</table>
Table 2–15: Status Timeouts Category continued

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeout Started Status (s)</td>
<td>Number of seconds a transcoding job allowed to be in the Started status before it times out and is considered as having failed. This is the longest total time a job is considered valid without having received status updates.</td>
</tr>
<tr>
<td>Transcoding Inactivity (s)</td>
<td>Number of seconds a job is allowed to have no transcoding progress before it times out and is considered as having failed. Note that the default is 30 minutes, this should be changed without careful consideration. Many output formats have processes that do not involve any transcoding progress at all, such as de-multiplexing source files or writing temporary output files, and those jobs would fail if this timeout limit is set too low.</td>
</tr>
<tr>
<td>Pipeline Inactivity (s)</td>
<td>Number of seconds the transcoding pipeline will wait (for example, to receive newly decoded video samples) before it times out and the job is considered as having failed.</td>
</tr>
</tbody>
</table>

Table 2–16: User Interface Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternate H.264 Encoder</td>
<td>If alternate, third part H.264 encoders (not installed with this transcoder) are installed on this system, enable this to expose a text field in the H.264 target that allows you to set parameters specific to the selected H.264 encoder. Those parameters are encoder-specific and the encoder may not be passed all the parameters set in this transcoder’s user interface or presets.</td>
</tr>
<tr>
<td>Use COM Messaging*</td>
<td>If the service user is a dedicated user and the desktop user is different from the service user, updating the GUI with status changes may fail. Use a special communication through a COM interface by enabling this option. Requires machine restart.</td>
</tr>
</tbody>
</table>

Table 2–17: Debug – Network – Autodetect Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broadcast Server IP</td>
<td>Disable this to prevent Carbon Agent and Carbon MP machines from finding this Carbon MP machine. The Server will still see the Agents.</td>
</tr>
<tr>
<td>Broadcast Agent IP</td>
<td>Disable this to prevent Carbon MP machines from finding this Carbon Agent machine. The Agent will still see the Server.</td>
</tr>
<tr>
<td>Broadcast Client IP</td>
<td>Disable this to prevent Carbon MP machines from finding this Carbon MP machine. The Coder will still see the Server.</td>
</tr>
</tbody>
</table>
### Table 2–18: Debug - Network - Ports Category

<table>
<thead>
<tr>
<th>Port</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nexus Service Port*</td>
<td>Main listening port of the Nexus background transcoding service for all external connections. Requires machine restart.</td>
</tr>
<tr>
<td>Nexus Admin Port*</td>
<td>Internal Nexus to Nexus and component communication port. Requires machine restart.</td>
</tr>
</tbody>
</table>

### Table 2–19: Debug - Logging Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Watches</td>
<td>Setting this causes Carbon MP to write a Watch Folder log file, which contains processing information about source files dropped in Watch Folders and jobs created by Watch Folders. NOTE: Use only for debugging and support.</td>
</tr>
<tr>
<td>Log Remote Retrieval Watches</td>
<td>Enable this to write a remote retrieval watch log file containing processing information about FTP and LAN retrievals attached to the Watch Folders. NOTE: Use only for debugging and support.</td>
</tr>
</tbody>
</table>
Appendix A

Troubleshooting ProMedia Carbon MP Products

This chapter provides suggested actions that users can take should commonly reported issues occur, and ways to contact Harmonic support:

- **Solving Unexpected Problems**
  - Includes steps you can take if Carbon MP found issues arise.

- **Error Numbers and Descriptions**
  - Includes error descriptions to solve issues quickly.

- **Common Video Encoding Problems**
  - Includes common video encoding problems and how you can avoid or fix them.

- **Contacting the Carbon MP Web Forum Support**
  - Contact information, including Harmonic’s web address, mailing address, and support phone numbers.

### Solving Unexpected Problems

**Carbon MP Products are not Working as Expected**

If Carbon MP does not work as expected, please check the following points:

- **DirectX and QuickTime**. Verify that DirectX and QuickTime are installed.

- **Firewalls**. Please ensure that the firewalls are disabled on the involved machines. If a firewall is required to run, please open the ports 21, 80, 1101, 1102, 1103 and 1104. You may find that under some circumstances even opening ports will not make Windows Firewall work correctly. In this case try disabling it entirely.

- **Event Viewer**. When the Harmonic background transcoding services start, potential problems will be logged as events, which can be viewed using the Windows Event Viewer (Start > Control Panel > Administrative Tools > Event Viewer).

### Windows Firewall Consideration

By default, Windows Firewall will block the ports that Carbon MP requires to communicate. In order for Carbon MP to be able to properly communicate across the network, either Windows Firewall needs to be disabled or configured to allow traffic on those ports. If your Carbon MP installation is using the default ports for communication, then you need to make sure that the Nexus Service has access to both ports 1101 and 1111. If you’ve customized the ports over which Carbon MP communicates, then those new port numbers would be assigned to Nexus in the firewall configuration instead of ports 1101 and 1111.

### Data Execution Prevention

When running Harmonic products on Windows Server 2003, errors may appear when trying to launch applications. One symptom is the Harmonic application stalling on the message “Loading ‘Sharpen’ filter”.

To solve this requires changing the Windows Data Execution Prevention (DEP) default setting. See the steps below how to set the DEP option.
1. Go to **Start > Run** and enter sysdm.cpl. Select OK to open your System Properties dialog box.

2. Select the **Advanced** tab.

3. In the **Performance** section select **Settings**.
4. Select the **Data Execution Prevention** tab.
5. Select **Turn on DEP for essential Windows programs and services only.**

6. Select **OK.**

### Error Numbers and Descriptions

**Table A–1: Error Numbers and Description**

<table>
<thead>
<tr>
<th>Error Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>x00000001</td>
<td>&quot;This operation is not supported in this version. [CR:0x00000001]&quot;</td>
</tr>
<tr>
<td>x00000002</td>
<td>&quot;An unknown error occurred. [CR:0x00000002]&quot;</td>
</tr>
<tr>
<td>x00000003</td>
<td>&quot;A version conflict occurred. [CR:0x00000003]&quot;</td>
</tr>
<tr>
<td>x00010F06</td>
<td>&quot;The Transcoder cannot import this file format. [CR:0x00010F06]&quot;</td>
</tr>
<tr>
<td>x00010F0A</td>
<td>&quot;Destination Parameter problem occurred. [CR:0x00010F0A]&quot;</td>
</tr>
<tr>
<td>x00010F0C</td>
<td>&quot;Destination Interleaving violation [CR:0x00010F0C]&quot;</td>
</tr>
<tr>
<td>x00010F0E</td>
<td>&quot;Generic Target Error occurred. [CR:0x00010F0E]&quot;</td>
</tr>
<tr>
<td>x00010F0F</td>
<td>&quot;Copy Protection Device not found [CR:0x00010F0F]&quot;</td>
</tr>
<tr>
<td>x00010F10</td>
<td>&quot;Generic Error in Plugin. [CR:0x00010F10]&quot;</td>
</tr>
<tr>
<td>x00010F11</td>
<td>&quot;Your destination location has no free hard drive space available. The conversion was stopped. [CR:0x00010F11]&quot;</td>
</tr>
<tr>
<td>x00010F12</td>
<td>&quot;Could not write to your destination location [CR:0x00010F12]&quot;</td>
</tr>
</tbody>
</table>
### Table A–1: Error Numbers and Description continued

<table>
<thead>
<tr>
<th>Error Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>x00010F15</td>
<td>&quot;File size limit reached. Your OS does not allow to write files larger than 4GB. The conversion was stopped. [CR:0x00010F15]&quot;</td>
</tr>
<tr>
<td>x00010F16</td>
<td>&quot;File system limit reached. Your File system does not allow to write files larger than 4GB. The conversion was stopped. [CR:0x00010F16]&quot;</td>
</tr>
<tr>
<td>x00010F17</td>
<td>&quot;File size limit reached. The conversion was stopped. [CR:0x00010F17]&quot;</td>
</tr>
<tr>
<td>x00010F18</td>
<td>&quot;Not enough memory available for the current operation [CR:0x00010F18]&quot;</td>
</tr>
<tr>
<td>x00010F19</td>
<td>&quot;The Conversion was aborted. [CR:0x00010F19]&quot;</td>
</tr>
<tr>
<td>x00010F1A</td>
<td>&quot;Your Transcoder Installation is damaged. Please run Setup again. [CR:0x00010F1A]&quot;</td>
</tr>
<tr>
<td>x00010F1B</td>
<td>&quot;Internal Application Error: {NOTIMPLEMENTED}. [CR:0x00010F1B]&quot;</td>
</tr>
<tr>
<td>x00010F1C</td>
<td>&quot;The file name you specified is invalid. [CR:0x00010F1C]&quot;</td>
</tr>
<tr>
<td>x00010F1D</td>
<td>&quot;The Target File was not written correctly. It might contain errors. [CR:0x00010F1D]&quot;</td>
</tr>
<tr>
<td>x00010F1E</td>
<td>&quot;Your source video has an odd size. The Transcoder can only import sources with an even size. [CR:0x00010F1E]&quot;</td>
</tr>
<tr>
<td>x00010F20</td>
<td>&quot;DirectX 9 or higher needs to be installed on your computer. The Transcoder cannot start. [CR:0x00010F20]&quot;</td>
</tr>
<tr>
<td>x00010F21</td>
<td>&quot;QuickTime 6 or higher needs to be installed on your computer. The Transcoder cannot start. [CR:0x00010F21]&quot;</td>
</tr>
<tr>
<td>x00010F22</td>
<td>&quot;This product requires EDIUS to be activated or in the trial period. Please activate EDIUS and try again. [CR:0x00010F22]&quot;</td>
</tr>
<tr>
<td>x00010F23</td>
<td>&quot;This product requires trial or activated version of EDIUS HDV. Please install and activate EDIUS HDV and try again. [CR:0x00010F23]&quot;</td>
</tr>
<tr>
<td>x00010F24</td>
<td>&quot;Cannot add another module of this type (limit of simultaneous usage exceeded). [CR:0x00010F24]&quot;</td>
</tr>
<tr>
<td>x00010F25</td>
<td>&quot;Invalid parameters [CR:0x00010F25]&quot;</td>
</tr>
<tr>
<td>x00010F26</td>
<td>&quot;There is an error happened when create/open or process memory map file [CR:0x00010F26]&quot;</td>
</tr>
<tr>
<td>x00010F27</td>
<td>&quot;There is an error happened when create/open /set/reset event [CR:0x00010F27]&quot;</td>
</tr>
<tr>
<td>x00010F28</td>
<td>&quot;Specified target filename is invalid. This can happen if you try to write to a read-only media or the target file already exists and is in use. [CR:0x00010F28]&quot;</td>
</tr>
<tr>
<td>x00010F29</td>
<td>&quot;The Transcoder detected stalling in the conversion. Possibly your source is no longer accessible. Select Stop to cancel your conversion [CR:0x00010F29]&quot;</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Error Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>x00010F2E</td>
<td>&quot;Non-recoverable Frame Drop occurred during Capturing [CR:x00010F2E]&quot;</td>
</tr>
<tr>
<td>x00010F2F</td>
<td>&quot;The job cannot be rendered - please try again later (global resource currently not available). [CR:x00010F2F]&quot;</td>
</tr>
<tr>
<td>x00020001</td>
<td>&quot;Plugin not found. ICR:x00020001&quot; &quot;Your source file name is invalid ICR:x00020002&quot;</td>
</tr>
<tr>
<td>x00020003</td>
<td>&quot;Audio/Video formats incompatible. [CR:x00020003]&quot;</td>
</tr>
<tr>
<td>x00020004</td>
<td>&quot;Your system is low on memory. [CR:x00020004]&quot;</td>
</tr>
<tr>
<td>x00020005</td>
<td>&quot;Conversion cancelled. [CR:x00020005]&quot;</td>
</tr>
<tr>
<td>x00020006</td>
<td>&quot;This preset is referring to an exporter which is not installed on your system. [CR:x00020006]&quot;</td>
</tr>
<tr>
<td>x00020007</td>
<td>&quot;This preset is invalid. [CR:x00020007]&quot;</td>
</tr>
<tr>
<td>x00020008</td>
<td>&quot;The settings of this preset are invalid. [CR:x00020008]&quot;</td>
</tr>
<tr>
<td>x00020009</td>
<td>&quot;Please select a target first. [CR:x00020009]&quot;</td>
</tr>
<tr>
<td>x0002000A</td>
<td>&quot;The Transcoder cannot import this file. Either the file format is not supported or the file is damaged. [CR:x0002000A]&quot;</td>
</tr>
<tr>
<td>x0002000B</td>
<td>&quot;The Transcoder cannot load the required plugin for this action. [CR:x0002000B]&quot;</td>
</tr>
<tr>
<td>x0002000C</td>
<td>&quot;Copy-Protection Device not found. [CR:x0002000C]&quot;</td>
</tr>
<tr>
<td>x0002000D</td>
<td>&quot;A Preset with the given name already exists. Please choose another name. [CR:x0002000D]&quot;</td>
</tr>
<tr>
<td>x0002000E</td>
<td>&quot;The preset name you entered is not a valid file name. Either it is too long or contains invalid characters. Please choose another name. [CR:x0002000E]&quot;</td>
</tr>
<tr>
<td>x0002000F</td>
<td>&quot;Couldn't change the category for the presets - possibly the presets are write protected or system presets. [CR:x0002000F]&quot;</td>
</tr>
<tr>
<td>x00020010</td>
<td>&quot;Couldn't change the category for the some presets - possibly the presets are write protected or system presets. New Category was created but old category was kept. [CR:x00020010]&quot;</td>
</tr>
<tr>
<td>x00020011</td>
<td>&quot;The project file is invalid. [CR:x00020011]&quot;</td>
</tr>
<tr>
<td>x00020012</td>
<td>&quot;One or multiple sources/targets could not be restored [CR:x00020012]&quot;</td>
</tr>
<tr>
<td>x00020013</td>
<td>&quot;One or multiple sources from the project file could not be loaded. [CR:x00020013]&quot;</td>
</tr>
<tr>
<td>x00020014</td>
<td>&quot;One or multiple targets could not be restored from the project file. [CR:x00020014]&quot;</td>
</tr>
</tbody>
</table>
Each error description returned by Carbon MP will now end with the string "[CR:0x????????]" containing 8 hexadecimal characters. This will be visible to manual operators in the Carbon MP Admin as well as in errors returned when using the API.
The first 3 hex digits identify the Carbon MP module (0x000????? - 0xFFF?????), these could be importers, exporters, filters, etc. The last 5 hex digits identify the error (therefore both 0x00F00001 and 0x00C00001 could be generated for example).

**Identical Error Numbers**

Identical error numbers with different error descriptions may occur, for example, the string could be "Can't write to d:\" or "can't write to e:\" with the same error number representing "can't write to [letter]:\".

Identical error descriptions with different error numbers may occur, for example, both the MXF and GXF source import modules may generate a "can't access Metadata" error description but since they have different module numbers the error numbers will be different.

There is a common number space (0x000?????), designed for generic errors, which can appear when it is not possible to identify the module in which the error occurred.

**Common Video Encoding Problems**

This section illustrates some common video encoding problems and how you can fix or avoid them.

**Video is Blocky or Appears to Break Up**

The video image appears to break up into different moving blocks. Parts of previous video may appear in different locations. Notice in the example that elements of the correct video seem to be mixed with the older video. After some time, the image may recompose itself, producing a correct image.

**Possible Causes**

- **DVD media reading problem.** If you are seeing this type of problem after authoring a DVD and playing it back on a set-top DVD player, it could simply be a difficulty reading the DVD-recordable media. Try the same disc in a computer-based DVD player. If it plays in the computer without problems, try a different set-top player or a different brand or type of DVD-recordable disc. Many set-top players cannot reliably play all DVD-recordable discs.

- **Use of seek or trick-play in the player.** If you were playing the file and playback was okay until you used the player’s fast-forward, rewind or scrubber to reposition the playback location, then it’s probably not a problem at all. Depending on the format and player, the video may take until the next keyframe to start displaying properly. Try letting the file play through from start to end without interrupting it to verify. If the video displays correctly in a straight-through playback, then the output file is fine.

- **Video bit rate too low or not enough keyframes.** If the break-up only appears after scene changes, then the video bit rate is too low to handle the large change in the video. Increase the video bit rate to allow faster recomposition. Alternatively, if the target format
supports keyframing, decrease the keyframe interval, thus increasing the number of keyframes. Keyframes provide a full video frame so large changes can be tracked and better compensated for.

- **Video bit rate too high.** When using a hardware decoder, such as for MPEG playback, in some cases a video bit rate that is too high can cause the image to break up. If the video bit rate is at or near the maximum setting, try reducing it a bit. If it plays on a software-based player but not on a hardware-based player, this may also be because the bit rate is too high.

**Video Appears Fuzzy or Blurry**

The video appears fuzzy or blurry. When played zoomed, it appears blocky, almost like viewing something through a frosted glass window.

**Possible Causes**

- **DV playback not set to full quality.** If the problem occurs only with Microsoft DV AVI files, the problem may be due to the Digital Video decode setting being set to Low. When set to Low, DV files are decoded in low resolution, regardless of what the resolution of the actual file is.

  To fix this problem in Windows Media Player:
  
  - Open Windows Media Player, and look for the **Options** selection in the menu (usually under **Tools**).
  - Look for a setting called Digital Video that has a slider with **Small** at one end and **Large** at the other. In Windows Media Player 9, this is found by selecting **Advanced** in the **Performance**.
  - Set the slider to **Large**.
  - Close all open programs including **Windows Media Player**, then open the file for playback again. The file should now play in full resolution.

- **Video resolution too low.** When stretched to the original size, a low-resolution image will appear blocky. If you want or need to view the image at the same size as the original, you should increase the video frame size. In order to preserve quality and avoid similar effects due to too low a bit rate, the bit rate should be increased when increasing the video resolution.

- **Video bit rate too low.** Depending on the encoding format, a video bit rate that is too low can also produce blocky video as shown above. Increase the video bit rate to see if this is the case. If increasing the bit rate does not help, the video frame size needs to be increased.

**Video Has Halos or Blocks Near Objects**

The video appears to have halos around the edges of objects and/or block-like noise around near objects. There does not seem to be a loss of resolution, just loss of sharpness and some changes to colors.
Possible Causes

- **Video bit rate too low.** This type of effect is usually caused by setting the video bit rate too low. Increase the video bit rate to get a better result. If increasing the video bit rate produces too large a file, keep the video bit rate the same, but decrease the video frame size. When the choice is available, choosing Optimize for Quality instead of Optimize for Speed should also help.

Video Appears to Jitter

Movement in the video seems to jitter up and down. Moving objects may seem to take two steps forward then one step back.

Possible Causes

- **Single-field detail in interlaced output.** If the video appears to have vertical jitter or flashing horizontal edges, the source image may have single-field detail. This usually occurs with still images used for video. Carbon MP normally makes the appropriate adjustments to avoid this situation, but if you still have trouble, try applying an anti-flicker or deinterlace filter to your source before bringing it to Carbon MP.

- **Improper source interlacing field order.** For interlaced sources, the interlacing mode may not be set correctly. Verify that the proper interlacing field order is set in the Advanced Source Configuration.

- **Improper target interlacing field order.** For interlaced output, the target field order may be incorrect for the playback device. Check the requirements of the intended playback device to determine the proper interlacing setting.

Video Movement Appears Jumpy

Movement in the video does not appear smooth—it seems to jump instead of move in a fluid fashion. Objects in motion seem to jump or “flash” to the next position like a strobe effect.

Possible Causes

- **Video frame rate too low.** If the video frame rate is too low, motion in the video will not appear smooth. Increasing the frame rate will help to improve the fluidity of motion but will also make the file size larger. Generally speaking, a frame rate below 15fps will result in unsatisfactory playback.
- **Streaming connection speed too slow.** Users viewing a streaming file that was made for a faster connection speed may see this type of “snapshots in time” effect. The user needs a faster connection to the streaming server, a progressive download file should be used instead.

- **Playback machine too slow.** Some formats play with different frame rates depending on the speed of the viewer’s machine. Try playback on a faster computer to see if it plays better.

### Audio and Video Are Out of Sync

Audio and video do not play in synchronization with each other. For example, a person talking may show their lips moving, but their speech may not be audible until a second or two later.

#### Possible Causes

- **Use of seek or trick-play in the player.** If you were playing the file and playback was in-sync until you used the player’s fast-forward, rewind or scrubber to reposition the playback location, then it’s probably not a problem at all. Depending on the format and player, audio/video synchronization cannot be guaranteed after repositioning the playback point. Try letting the file play through from start to end without interrupting it to verify. If synchronization is maintained in a “straight-through” playback, then the problem is trick-play and not the output file.

- **Video and audio playing from different devices.** If you are playing the video on one device and using a different device for audio, synchronization is not guaranteed. For example, DV files playing audio from the PC but using a connected DV camera or converter for video output will be unsynchronized. This is because there is a slight delay between the DV camera or converter between getting the DV data from the PC and outputting the decoded analog video. Thus, in this situation audio will appear to come slightly before the video.

- **Set-top DVD audio decoder problems.** If you’re seeing the problem using a set-top DVD player for playback, it could be a problem with the player itself. Some set-top DVD players have problems with audio synchronization, especially when the audio is AC3 format. Try a commercially-produced DVD in the player and see if it has the same problem. Also try playing your DVD with a software-based DVD player.

- **DVD authoring error.** If your problem exists with an authored DVD, it could be a problem with the DVD authoring. Substandard DVD authoring can also cause audio/video sync problems. Try reauthoring the DVD with a different DVD authoring application.

### Video Shows Strange Patterns or Blocks

The video shows strange patterns or blocks of different data.

#### Possible Cause
Appendix A Troubleshooting ProMedia Carbon MP Products

Common Video Encoding Problems

- **Corrupt video file.** The data of the video file is probably corrupt. Check to see that the source file does not show the same problem, as any problems in the source will be faithfully reproduced in the output. If the problem only occurs in the output, try writing the file to a different drive or directory, or try a different compression format.

**Video Appears Stretched or Squashed**

The video appears to be stretched in one direction. Circles now appear as ovals and people are taller or wider than they should be.

![Image Showing Stretched or Squashed Video](image.jpg)

**Possible Causes**

- **Widescreen MPEG-2 output.** If your output is widescreen MPEG-2, then this is not a problem. Some MPEG-2 playback software does not properly size the video playback according to the aspect ratio set in the MPEG-2 file. Thus, widescreen MPEG-2 files play back squashed. Authoring a widescreen DVD using this file and playing that DVD on a DVD player will produce a correct widescreen result.

- **Player does not compensate for pixel and frame aspect ratio.** Some media players do not compensate for video with non-square pixels and thus do not display video in the proper aspect ratio. This is not a problem with the encoding or Carbon MP; it is a problem with the player. Try to find a player that properly compensates for non-square pixel playback.

- **Incorrect source aspect ratio setting.** Check the aspect ratio setting in your source file. If it is set incorrectly, Carbon MP will interpret the shape of the video image incorrectly and therefore process it incorrectly. Carbon MP never does anything to stretch or squash the image; widescreen sources converted to standard screen size will be scaled to fit into the standard width, a process known as letterboxing, as shown in the image below.

![Image Showing Letterboxing](image.jpg)

**Cannot Load Encoded MPEG Files into DVD Authoring Software**

Your DVD authoring software does not accept the MPEG files you made with Carbon MP.

**Possible Causes**

- **File naming problem.** Some DVD authoring applications do not recognize the standard .m2p file extension for MPEG-2 program streams. Instead, they want files named .mp2 or .mpg instead. Try renaming the output file from .m2p to .mp2 or .mpg and try again.
- **Incorrect MPEG-2 file type.** Not all DVD authoring applications support MPEG-2 elementary streams (.m2v files and associated audio files) and MPEG-2 program streams (.m2p files), some will only accept one or the other. Check your DVD authoring software’s documentation to see which type it supports and verify that you are creating the correct type with Carbon MP.

- **Software does not accept MPEG files.** Some DVD authoring applications do not accept MPEG files as sources. If this is the case, you will need to use Carbon MP to output a different file type (usually VOB) that the authoring application will accept or use a different authoring application. Consult your authoring software’s documentation to find out what file types it accepts.

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**Contacting the Carbon MP Web Forum Support**

Refer to the Harmonic Transcoding Forum at [http://transcoding.communities.harmonicinc.com](http://transcoding.communities.harmonicinc.com). Here you can get support, share your knowledge, and provide feedback.