



Carbon 3.16 Release Notes

v1.0

Table of Contents

INTRODUCTION	4
DETAILED LISTS OF FEATURES, BUG FIXES, & TICKETS	5
CARBON SOFTWARE VERSIONS	5
NEW SYSTEM SPECIFICATIONS AND REQUIREMENTS	6
SYSTEM REQUIREMENTS	6
MINIMUM SYSTEM	6
RECOMMENDED SYSTEM	6
NEW FEATURES – OVERVIEW	7
NEW WORKFLOW EXAMPLES	9
F-12127: SMOOTH STREAMING EXPORTER WITH MULTIPLE AUDIO STREAMS	10
F-12133: V-CHIP INFORMATION INSERTION.....	11
F-12135: DOLBY-E ENCODER AUDIO FILTER (THIS MUST BE PURCHASED SEPARATELY).....	12
F-12136: LATM/LOAS AUDIO SUPPORT FOR THE MPEG IMPORTER.....	13
F-12137: LATM/LOAS AUDIO SUPPORT FOR THE MPEG-2 EXPORTER.....	14
F-12201: TIMECODE EXTRACTION FROM GXF STRIPED TIME CODE TRACKS.....	15
F-12202: RETURN TIMECODE FROM JOBEVALUATE FOR PRORES SOURCES	16
F-12471: LATM/LOAS AUDIO SUPPORT FOR THE H.264 IMPORTER	17
F-12472: LATM/LOAS AUDIO SUPPORT FOR THE H.264 EXPORTER	18
F-12500: AUDIO CHANNEL MIXER ALLOW MIXING OF UP TO 32 CHANNELS	19
F-12810: SUPPORT WRITING OF CEA-708D CAPTIONS FOR THE OMNEON EXPORTER.....	20
F-12828: SUPPORT FOR AVC-INTRA ENCODING IN THE OMNEON EXPORTER	21
F-12835: INSERTING AFD INTO H.264 EXPORTER ELEMENTARY VIDEO STREAMS	22
F-12841: VIDEO FILTER TO MAP COMPRESSED OR PARTIAL VBI TO FULL VBI LINES	23
F-12941: ALLOW THE MXF OP1B IMPORTER TO SUPPORT JPEG2000 CONTENT	24
F-13013: EXPAND THE H.264 IMPORTER TO READ CEA-708 CAPTIONED STREAMS	25
F-13084: HTTP LIVE STREAMING EXPORTER.....	26
F-13101: TIMECODE PROCESSING FILTER	27
F-13687: ALLOW THE H.264 EXPORTER TO CREATE MULTIPLE AUDIO STREAMS	28
F-13723: AVID MXF EXPORTER TO AMT SDK UPDATED TO V1.5.2	29
F-13835: EXTENDED THE API MULTIPLEXER WITH OPTIONS FOR TEXT JUSTIFICATION.....	30
F-13966: ENHANCED THE H.264 IMPORTER TO ALLOW MULTIPLE AUDIO PROGRAMS	31
F-14268: READ ATSC A/53 CAPTIONS FROM QUICKTIME OMNEON FILES	32
F-14269: MXF IMPORTER TO READ CEA-708 CAPTION FILES WITH MPEG VIDEO.....	33
F-14336: AS02 EXPORTER TO WRITE ATSC A/53 CC AND SMPTE 328M TIMECODE	34
F-13013: H.264 EXPORTER TO WRITE CEA-708 CLOSED CAPTIONING DATA	35
F-14787: API MULTIPLEXER WITH ADDED CONTROLS FOR ADVANCED VIDEO OPTIONS	36
ALLOW API TO EXTRACT DVB SUBTITLES FROM A MPEG TRANSPORT STREAM	37
UPDATE SMPTE302M IMPORTER TO SUPPORT 32-CHANNEL SOURCE FILES.....	38
KNOWN ISSUES - OVERVIEW	39
BUG FIXES AND IMPROVEMENTS	44
MISCELLANEOUS	44
ADMIN APPLICATION.....	44
API	44

BACKGROUND SERVICES & WATCH FOLDERS	45
EXPORTER – AVID AMT MXF	45
EXPORTER – DOLBY DIGITAL/ DOLBY DIGITAL PLUS.....	45
EXPORTER – GXF	45
EXPORTER - H.264	45
EXPORTER – HTTP LIVE STREAMING.....	46
EXPORTER – LXF-NEXIO	47
EXPORTER – MPEG	47
EXPORTER – MXF.....	48
EXPORTER – NTT-AT H.264.....	48
EXPORTER – OMNEON	48
EXPORTER – P2 (PANASONIC)	49
EXPORTER – POSTER FRAME.....	49
EXPORTER – QUICKTIME.....	49
EXPORTER – SMOOTH STREAMING	49
EXPORTER – XDCAM	49
EXPORTER – YUV	50
AUDIO FILTER – CHANNEL MIXER.....	50
AUDIO FILTER – DOLBY-E ENCODER	50
VIDEO FILTER – BITMAP KEYING.....	50
VIDEO FILTER – DE-INTERLACER.....	50
VIDEO FILTER – STL CAPTION BURN-IN.....	50
VIDEO FILTER – TEMPORAL NOISE REDUCER	51
VIDEO FILTER – TIMECODE PROCESSING	51
VIDEO FILTER – VBI LINE MAPPER	51
VIDEO FILTER – V-CHIP	51
VIDEO FILTER – VIDEO CLOSED CAPTION INJECT	51
VIDEO FILTER – VIDEO MULTI.....	52
VIDEO FILTER – VIDEO SOURCE PROPERTIES	52
VIDEO FILTER – VIDEO TIMECODE INJECT	52
FTP.....	52
IMPORTER – DPX	52
IMPORTER – E-AC3	52
IMPORTER – GXF	52
IMPORTER – H.264	53
IMPORTER – H.264 (CLOCK AWARE).....	53
IMPORTER – IMAGE SEQUENCE.....	53
IMPORTER – MEDIASTREAM.....	53
IMPORTER – MP4	53
IMPORTER – MPEG.....	53
IMPORTER – MXF	53
IMPORTER – OMNEON	54
IMPORTER – QUICKTIME.....	54
IMPORTER – SMPTE 302M	55
IMPORTER – WINDOWS MEDIA	55
METADATA, CAPTIONS, TIMECODE.....	55
RPI – RHOZET PLUG-IN INTERFACE & SDK	55

Introduction

Carbon 3.16 is an upgrade to Carbon 3.15 and 3.15.1, and can be installed on systems that have those previous versions installed. It contains many new features in addition to a substantial number of bug fixes and improvements to stability. Please pay close attention to the known issues, as they may affect your particular transcoding environment or workflow.

This Carbon release has focused on supporting multiple audio streams, for a variety of exporters. Please have a look at the New Features section for details on the many caption-related improvements, as well as the sample workflows which the new features enable. We recommend you read at least this introduction and overview section, and you can search the detailed sections for issues with Importer or Exporters that are important to your specific workflow if necessary.

Detailed Lists of Features, Bug Fixes, & Tickets

The last three sections of this document describe the details of new features & improvements, bug fixes, and open/known issues. Since three different systems are used to record features, track support requests, and manage bug fixes and known issues, each with their own separate numbering system, each item is listed with a number and a prefix that indicates the type of issue. New features are prefaced with an "F", support tickets with a "T", and bug fixes, improvements & known issues with a "B". If you want to check if your specific support issue has been fixed just search this document for "T-12345" for example.

Carbon Software Versions

Application	Version Number
Carbon Coder	3.16.00.24320
Carbon Server	3.16.00.24320
Carbon Agent	3.16.00.24320

New System Specifications and Requirements

System Requirements

- Microsoft Windows 32- or 64-bit operating system from the following list (64-bit Windows operating system recommended for multi-layer video exporters) (Windows Server 2008 R2 64-bit recommended for Carbon Server).
 - Workstation OS versions:
 - Windows XP SP3
 - Windows Vista SP2
 - Windows 7
 - Server OS versions:
 - Windows Server 2003 R2 SP1 or R2 SP2
 - Windows Server 2008 SP2
 - Windows Server 2008 R2 (64-bit version recommended for Carbon Server)
- Please note that the old Carbon Server Web Interface does not work on any Windows Server 2008 or Windows 7 systems. The Web Interface has been deprecated and is no longer being updated.
- QuickTime v7.6.6 is the newest version of QuickTime that has been tested to work correctly with Carbon. Please upgrade to QuickTime 7.6.6 if you were using an earlier version, do not use any other version, as it may not work correctly (QuickTime 7.6.4 problems with Windows Server versions for example).
- USB 1.1 or 2.0 port for USB Hardware Key
- 500 MB free hard disk space

Minimum System

- Intel Pentium 4 or AMD Athlon
- 2 GHz CPU or faster
- 2 GB RAM (4GB RAM for HD encoding)
- Windows XP SP3

Recommended System

- Dual Intel Xeon E54xx series processors
- 3.0 – 3.4 GHz processor clock
- 8 or 16GB RAM
- Windows Server 2008 SP2 64-bit
- RAID hard drive system

New Features – Overview

Carbon 3.16 introduces a host of new features to the Carbon transcoding engine to enhance Carbon's format support, improve speed and quality of transcoding, all while improving reliability and scalability.

Please also see the "New Features in Carbon" document for more details of the features listed below.

- Allow creation of multiple audio output streams in the Smooth Streaming exporter. Each output stream can be tagged with an audio language descriptor.
- A new Video Filter that allows for insertion of V-Chip XDS information into the Carbon pipeline in the caption/708 payload. Other filters such as the Line 21 Modulator video filter can use the data from the caption/708 payload and insert it into line 21 of the VBI of output files.
- A new Audio Filter that allows Dolby-E encoding for any Carbon Coder Exporter supporting an Uncompressed or PCM audio format.
- Added support for the creation of MPEG-2 Transport Stream Video with MPEG-2 AAC-LC LATM/LOAS or MPEG-4 AAC-LC LATM/LOAS audio for the MPEG-2 exporter.
- Added support for the import of MPEG-2 Transport Streams with MPEG-2 AAC-LC LATM/LOAS or MPEG-4 AAC-LC LATM/LOAS audio streams from MPEG-2 video.
- Added support for extracting striped timecode tracks from GXF files.
- Extended the API functionality to return StartTimecode of ProRes sources in the reply from a JobEvaluate API call.
- Added support for the creation of MPEG-2 Transport Stream Video with MPEG-2 AAC-LC LATM/LOAS or MPEG-4 AAC-LC LATM/LOAS audio for the H.264 exporter.
- Added support for the import of MPEG-2 Transport Streams with MPEG-2 AAC-LC LATM/LOAS or MPEG-4 AAC-LC LATM/LOAS audio streams from H.264 video.
- Extended the GUI of the Channel Mixer audio filter to support up to 32 input audio channels and allow the mapping on up to 32 output audio channels.
- Support writing of CEA-708D captions for the Omneon exporter.
- Added Support For AVC-Intra encoding in the Omneon Exporter
- Added support for inserting Active Format Descriptor into H.264 elementary video streams per ATSC A/72 Part 1, section 6.4.
- Added a Video Filter to map any input VBI that contains less than the standard 32 lines, from 1 up to the normal 32 lines, to a full 32 lines of VBI.
- Enhanced the existing MXF OP1B importer to support J2K content.
- Expanded the H.264 Importer to read captions from MPEG Transport Streams per CEA-708 standard.
- Added the Http Live Streaming exporter, which lets you send audio and video over HTTP from an ordinary web server for playback on iPhone, iPad, iPod touch and desktop computers.
- Added a Timecode Processing filter. This filter can correct, clean up, or synchronize the timecode payload with time sources other than the source file.
- Enhanced the H.264 exporter to allow the creation of multiple audio programs for Transport Streams and System Streams.

- Updated the Avid MXF Exporter to AMT SDK V1.5.2, which added new Avid formats, frame rates, bit rates, etc.
- Extended the API multiplexer with the control option for text justification background options on STL subtitle files.
- Enhanced the H.264 importer to allow multiple audio programs on Transport Streams and System Streams.
- Added the ability to Read ATSC A/53 compliant caption data from QuickTime-wrapped Omneon input files with MPEG essence.
- Added support for reading CEA-708 caption data from MXF input files with MPEG video essence.
- Updated the AS02 exporter with the ability to read ATSC A/53 captions and SMPTE 328M timecode.
- Added support to the H.264 exporter with the ability to include CEA-708 closed captioning data.
- Extended the API multiplexer with control options for advanced video options.
- Updated the SMPTE302 importer to support 32-Channel source files.

New Workflow Examples

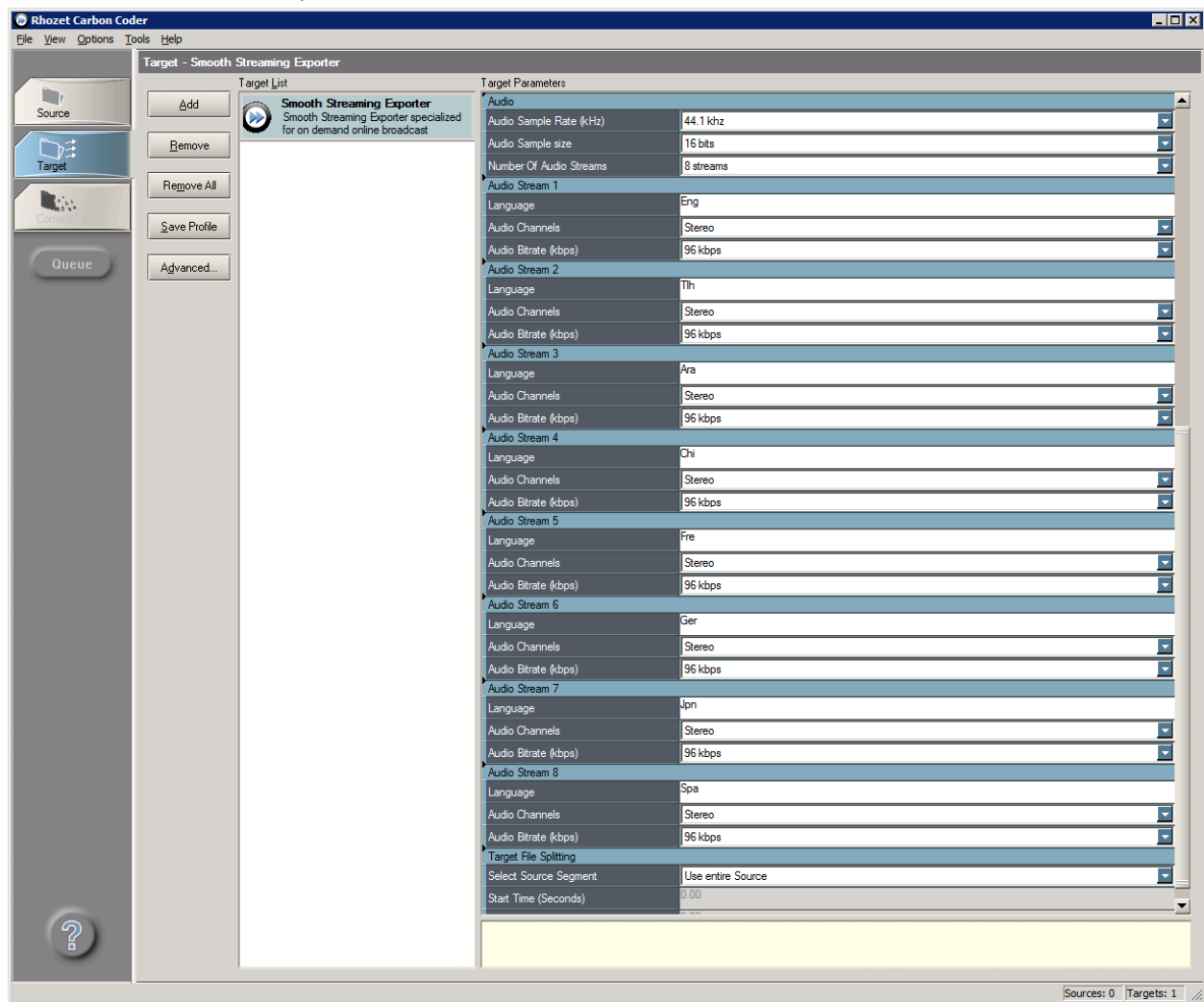
The new features in Carbon 3.16 allows for multiple audio streams on some exporters. Some encoders were updated to support CEA-708 caption data. Some examples are given below.

F-12127: Smooth Streaming Exporter with Multiple Audio Streams

We have added the ability to include up to 16 stereo streams in the Smooth Streaming Exporter. Each output stream can be tagged with an audio language descriptor. All output streams will have the same parameters such as sample size, bit rate, etc.

When you select the number of streams in the "Number of Audio Streams" field, you will find the parameters for configuring the language using the 3-letter ISO 639-2 language descriptor code listed in here: http://www.loc.gov/standards/iso639-2/php/English_list.php.

A screen shot of the multiple streams is here:



F-12133: V-Chip Information Insertion

This is a new Video Filter that allows for insertion of V-Chip XDS information into the Carbon pipeline, into the caption/708 payload. Other filters such as the Line 21 Modulator video filter can use the data from the caption/708 payload and insert it into line 21 of the VBI of output files.

This filter can be applied to sources or targets. When applied to sources, the injected information becomes available to all filters and targets which use the data in the caption/708 payload.

Using the filter by itself has no effect, since it only inserts data into a payload in the pipeline. To get the data out of the pipeline and insert it into an output file other filters which access the pipeline payload(s) must be applied.

The filter allows for the selection of one of a number of mutually exclusive content advisory systems:

- MPA
- U.S. TV Parental Guidelines
- MPA (Legacy)
- Canadian English Language Rating
- Canadian French Language Rating

Each content advisory system offers several ratings, one of which can be inserted by this filter. The list of the rating based on the Content Advisory System is:

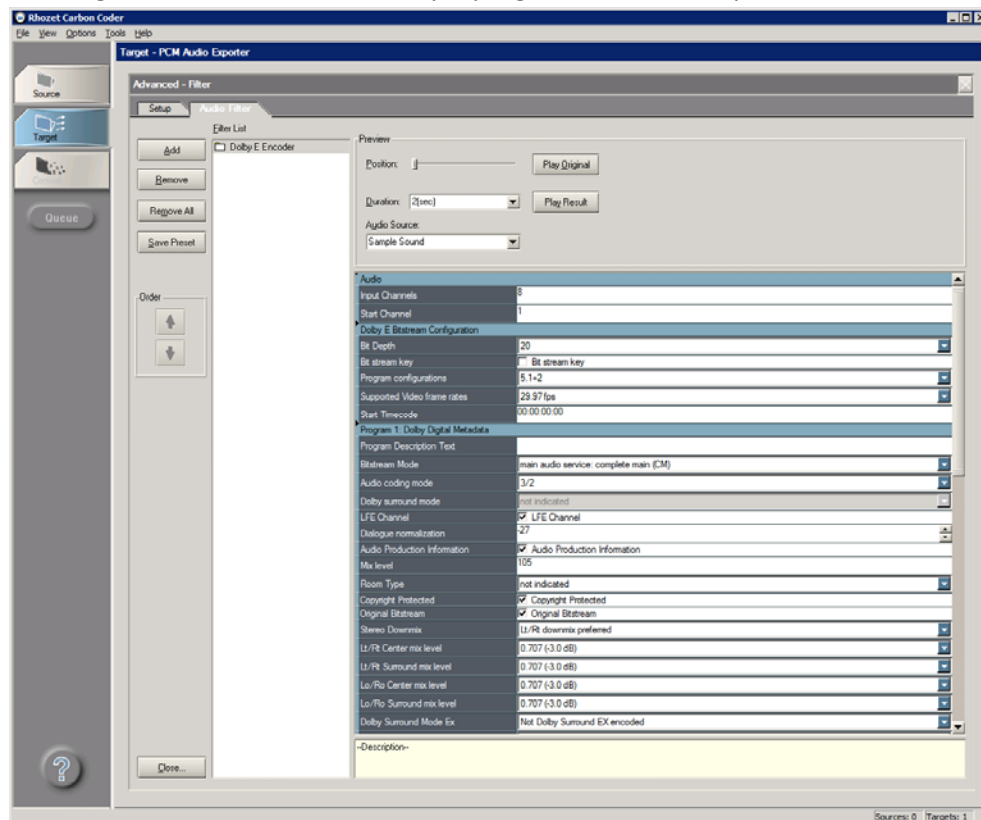
<i>MPA</i>	<i>U.S. TV Parental Guidelines</i>	<i>MPA (Legacy)</i>	<i>Canadian English</i>	<i>Canadian French</i>
N/A	None(0)	N/A	E	E
G	TV-Y	G	C	G
PG	TV-Y7	PG	C8+	8 ans+
PG-13	TV-Y7 (Fantasy Violence)	PG-13	G	13 ans+
R	TV-G	R	PG	16 ans+
NC-17	TV-PG	NC-17	14+	18 ans+
X	TV-14	X	18+	
Not Rated	TV-MA None(7)	Not Rated		

F-12135: Dolby-E Encoder Audio Filter (This must be purchased separately).

This Dolby-E Encoder is implemented as an Audio Filter that must be added to the target. This audio filter takes 8 channels of audio from the Source, and emits 2 channels of Dolby-E encoded "PCM-like" audio to the target.

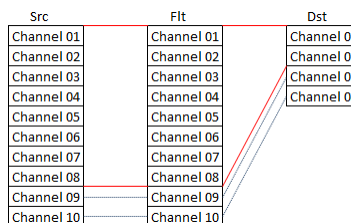
For sources that have more than 8 channels of audio, allows picking of which audio channel should be the first channel that will be consumed by the encoder. The following 7 will then automatically be mapped and consumed by the encoder.

It also allows configuration of channels in Dolby-E programs. This is the preview of the interface:



The Input Channels field tells the Dolby-e filter the number of audio channels available in the source file. The Start Channel field informs the filter where to begin the mapping of the 8-channels to the target.

For example, if the source has 10 channels, and we set the Start Channel to 1 on a 4-channel target, it will be mapped as follows so that the first 2 channels on the target will contain the 8 source channels and the rest of the channels are passed thru.



F-12136: LATM/LOAS Audio Support for the MPEG Importer

The current MPEG importer only supports AAC audio streams multiplexed in the ADTS audio transport type, with stream type 0x0F.

The MPEG-2 importer has been enhanced to support MPEG-2 AAC LATM/LOAS or MPEG-4 AAC LATM/LOAS audio transport type with stream type 0x11.

When a MPEG-2 file with MPEG-2 AAC LATM/LOAS or MPEG-4 AAC LATM/LOAS audio is loaded in the source, the "Stream Type" field will recognize these audio types and list it as:

"AAC Audio Stream with LATM/LOAS transport syntax"

F-12137: LATM/LOAS Audio Support for the MPEG-2 Exporter

When creating MPEG-2 transport streams, all AAC audio streams are currently multiplexed in the ADTS audio transport type, with stream type 0x0F.

We have enhanced the MPEG-2 exporter to allow for the creation of MPEG-2 Transport Stream Video with MPEG2 AAC LATM/LOAS or MPEG4 AAC LATM/LOAS audio as stream type 0x11.

When you choose MPEG2 AAC or MPEG4 AAC, the default Audio Transport Type is "ADTS". In order to get LATM/LOAS, you must select it in the "Audio Stream Type" field.

F-12201: Timecode Extraction from GXF striped time code tracks

In the GXF format, there are three types of Timecode Tracks

- 1) TC_525,
- 2) TC_625,
- 3) TC_HD

In each of the above case, the Timecode Tracks can sub-classified as:

Striped - In striped timecode, timecode track is described in the map packet, and the auxiliary information gives the starting time code value. There is no actual time code packets in the media file. The Player application is supposed to use the start timecode value and should generate subsequent timecode value. As of 3.15.0, this is currently supported in carbon.

Unstriped - In unstriped timecode, timecode track is described in the map packet and the auxiliary information indicates that subsequent timecode packets are available in the media file. The Player application is supposed to use the timecode packet for the timecode values.

Carbon 3.15 only supported:

- 1) Start Time Code for Striped TC
- 2) Frame Time Code for Striped TC only if the Video Track frame rate is 29.97fps or 25fps

In Carbon 3.16, we have added support for the following:

- 1) Start Time Code for Striped TC
- 2) Frame Time Code for striped TC for 23.97fps, 24fps, 25fps, 29.97fps, 30fps, 50fps, 59.94fps, 60fps
- 3) Support Start Time Code for unstriped TC
- 4) Frame Time Code for unstriped TC for 23.97fps, 24fps, 25fps, 29.97fps, 30fps, 50fps, 59.94fps, 60fps

Job Evaluate will report the first value from the time code media packet as the starting value. In case of Mark In, Mark Out created by 3rd party GXF application, The Mark In value will be respected and start time code value will be modified accordingly during Job Evaluate call. Please do not confuse this will In/Out points set with carbon.

During transcode, the time code media packets will be used as "frame" timecode in the carbon pipeline. In case of Mark In, Mark Out created by 3rd party GXF application, The Mark In/Mark out value will be respected and frame time code will be modified accordingly. In case In/Out points are set with carbon UI, the frame time codes will also be modified accordingly.

F-12202: Return TimeCode from JobEvaluate for ProRes sources

This feature is to extend the API functionality to return StartTimeCode of ProRes sources in the reply from JobEvaluate API call.

The Api call is simple. Simply execute the following JobEvaluate call and look at the reply from Carbon.

```
<?xml version="1.0" encoding="utf-8"?>
<cnpsXML CarbonAPIVer="1.2" TaskType="JobEvaluate">
  <Sources>
    <Module_0 Filename="C:\24fpsProResTestR.mov" />
  </Sources>
  <Destinations />
</cnpsXML>
```

StartTime code should be present in the reply from the API job.

```
<?xml version="1.0" encoding="utf-8"?>
<Reply Success="TRUE">
  <JobEvaluateResult>
    <Sources>
      <Module_0 Inpoint.QWD="-1" Outpoint.QWD="-1" Duration.QWD="5283765000"
        MultiSource.DWD="1" OriginalModuleIndex.DWD="0" >
        <ModuleData>
          <StreamTypeTable StreamSelector_0.DWD="0" StreamType_0.DWD="0" StreamPtr_0.DWD="0"
            StreamSelector_1.DWD="2" StreamType_1.DWD="0" StreamPtr_1.DWD="0" />
          <SourceModules>
            <MultiSrcModule_0 MultiSource.DWD="0" Filename="C:\24fpsProResTestR.mov" >
              <ModuleData VideoCombinedMode_7.DWD="0" VideoTrackMode_7.DWD="0"
                OpenGopOption.DWD="1" FrameMode_7.DWD="0"
                AspectRatio.BIN="AQAAAAEAAAA=" PixelAspect_X.DWD="1"
                PixelAspect_Y.DWD="1" OutputColorSpace_7.DWD="0"
                UseGridDecoding_7.DWD="0" SpecifyNrOfProcess_7.DWD="16"
                UseFixedFrameRate_7.DWD="1" FileContainGammaInfo_7.DWD="0"
                UseGamma_7.DWD="0" SpecifyGamma_7.DBL="2.200000"
                AudioCombinedMode_7.DWD="1" AudioTrackMode_7.DWD="2097152" />
            </MultiSrcModule_0>
          </SourceModules>
        </ModuleData>
        <PublicDescription RZMETA_StartTimeCode="00:58:00:10" Duration.QWD="5283765000" >
          <Video Size_X.DWD="1920" Size_Y.DWD="1080" FrameDuration.QWD="1126125"
            Codec="Apple ProRes 422 (HQ)" Interlacing="Progressive"
            Video_Aspect_X.DWD="16" Video_Aspect_Y.DWD="9" />
          <Audio SampleRate.DWD="48000" SampleSize.DWD="32" Channels.DWD="4"
            Codec="16-bit Little Endian + 16-bit Little Endian + 16-bit Little End" />
        </PublicDescription>
      </Module_0>
    </Sources>
  </JobEvaluateResult>
</Reply>
```


F-12471: LATM/LOAS Audio Support for the H.264 Importer

The current H.264 importer only supports AAC audio streams multiplexed in the ADTS audio transport type, with stream type 0x0F.

The H.264 importer has been enhanced to support MPEG-2 AAC-LC LATM/LOAS or MPEG-4 AAC-LC LATM/LOAS audio transport type with stream type 0x11.

When a H.264 file with MPEG-2 AAC-LC LATM/LOAS or MPEG-4 AAC-LC LATM/LOAS audio is loaded in the source, the "Stream Type" field will recognize these audio types and list it as:

"AAC with LATM/LOAS transport syntax"

F-12472: LATM/LOAS Audio Support for the H.264 Exporter

When creating MPEG-2 transport streams, all AAC audio streams are currently multiplexed in the ADTS audio transport type, with stream type 0x0F.

We have enhanced the H.264 exporter to allow for the creation of MPEG-2 Transport Stream Video with MPEG2 AAC-LC LATM/LOAS or MPEG4 AAC-LC LATM/LOAS or MPEG-4 HE-AAC version 1 audio as stream type 0x11.

When you choose MPEG2 AAC-LC or MPEG4 AAC-LC or MPEG-4 HE-AAC version 1 , the default Audio Transport Type is "ADTS". In order to get LATM/LOAS, you must select it in the "Audio Stream Type" field.

F-12500: Audio Channel Mixer Allow Mixing of Up To 32 Channels

In previous versions of Carbon, the Channel Mixer filter supported up to 16 channels. Newer workflow requires the support of up to 32-channels. To support the mixing of 32 audio channels for both input and output, we have added some enhancements to the current Audio Mixer filter.

These enhancements include:

An extension of the GUI of the existing Channel Mixer audio filter.

The filter can be applied to sources or targets.

Up to 32 input audio channels can be mixed into up to 32 audio channels.

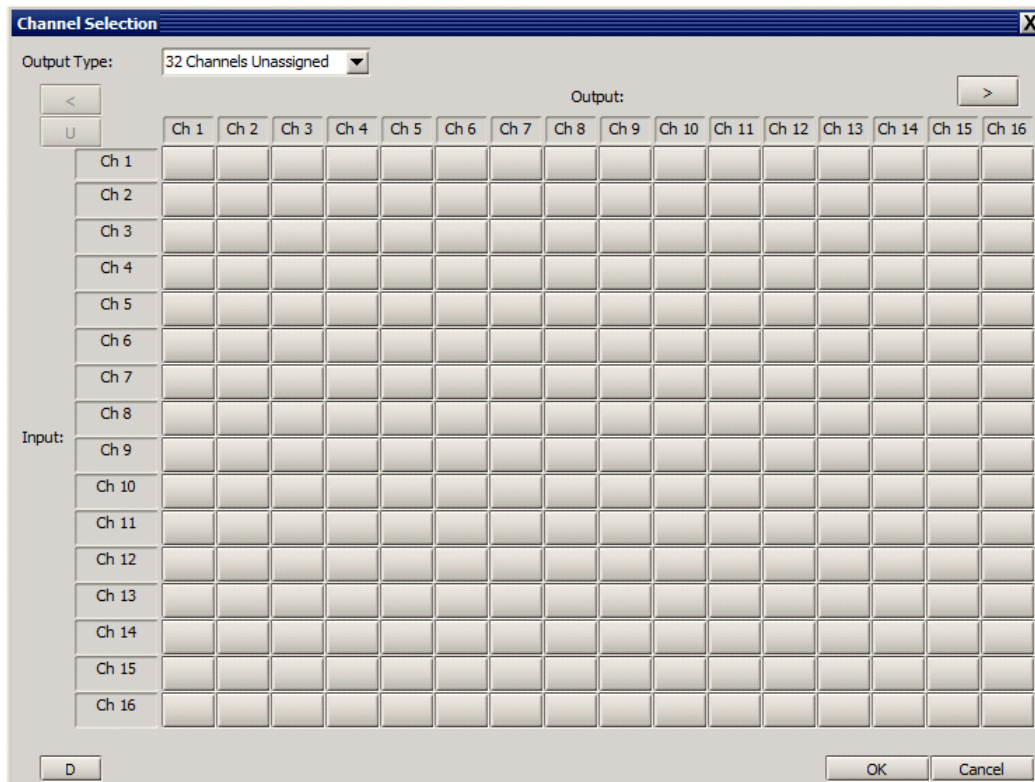
Added buttons to move a 16x16 "window" of channels over the total maximum 32x32 space of channels, in four quadrants.

In the Channel Mixer Matrix dialog, the Output Type list will have the following entries:

- Mono
- Stereo
- 5.1
- 7.1
- 2 Unassigned
- ..
- 32 Unassigned

The ">" and "<" buttons will direct you to the Left and Right Quadrants.

The "U" and "D" buttons will direct you to the Upper and Lower Quadrants.



F-12810: Support writing of CEA-708D captions for the Omneon exporter

The Omneon exporter has been updated to support writing CEA-708 captions from the transcoder pipeline caption payload for the following outputs:

Wrappers: QuickTime 6, QuickTime 7, MXF

Encoders: MPEG-2 IBP and MPEG-2 I-Frame

Frame rates: 23.976, 29.97 and 59.94

No user interface has been changed. In all scenarios the captions should be inserted automatically.

F-12828: Support For AVC-Intra encoding in the Omneon Exporter

The Omneon Exporter has been extended to offer the ability to create MXF files with AVC-Intra encoded video at 50 or 100 Mbps data rates.

The formats available will be:

AVC-Intra 50Mbps 720p 50fps (actual resolution is 960x720)

AVC-Intra 50Mbps 720p 59.94fps (actual resolution is 960x720)

AVC-Intra 50Mbps 1080i 25fps (actual resolution is 1440x1080)

AVC-Intra 50Mbps 1080i 29.97fps (actual resolution is 1440x1080)

AVC-Intra 100Mbps 720p 50fps (1280x720)

AVC-Intra 100Mbps 720p 59.94fps (1280x720)

AVC-Intra 100Mbps 1080i 25fps (1920x1080)

AVC-Intra 100Mbps 1080i 29.97fps (1920x1080)

Note that even though the exporter could create 1080p files, the Spectrum does not currently support those so we are not offering them in the Carbon Omneon Exporter.

When the Omneon Wrapper Type parameter is set to "MXF", the Compression parameter offers a new option, AVC-Intra. When this is selected, the new AVC-Intra formats are selectable in the Video Standard drop down list parameter.

Parameters such as Aspect Ratio, Color Sampling, and Video Bitrate cannot be set manually but are dependent on Compression & Video Standard selections. These should be filled in with the correct value (for example "50000" if AVC-Intra 50 is chosen) but grayed out so the user knows these parameters cannot be set manually.

F-12835: Inserting AFD into H.264 Exporter Elementary Video Streams

Active Format Descriptor is used by downstream devices and systems to properly display and process video when display aspect ratio and video aspect ratio are different.

Functionality

Insert AFD into H.264 elementary video streams per ATSC A/72 Part 1, section 6.4.

Allows the user to enable or disable output of AFD.

Offer multiple output options for AFD, configurable by the user.

The exact meaning of option 10 varies depending on the actual size of the frame:

For 4:3 frames, the meaning is "16:9 (center)".

For 16:9 frames the meaning is "16:9 (with complete 16:9 image protected)".

Interface

A drop down to select Don't Use, or one of the following AFD output options:

0 - Undefined

Valid for 4:3 coded frames:

2 - Box 16:9 (top)

3 - Box 14:9 (top)

4 - Box > 16:9 (center)

8 - Full frame

10 - 16:9 (center)

11 - 14:9 (center)

13 - 4:3 (shoot and protect 14:9 center)

14 - 16:9 (shoot and protect 14:9 center)

15 - 16:9 (shoot and protect 4:3 center)

Valid for 16:9 coded frames:

4 - Box > 16:9 (center)

8 - Full frame

9 - 4:3 (center)

10 - 16:9 (all protected)

11 - 14:9 (center)

13 - 4:3 (shoot and protect 14:9 center)

14 - 16:9 (shoot and protect 14:9 center)

15 - 16:9 (shoot and protect 4:3 center)

F-12841: Video Filter to Map Compressed or Partial VBI to Full VBI Lines

Some systems create output files with VBI that contains less than the standard 32 lines. For example, Avid systems can create QuickTime IMX 720x486 output files with only 6 lines of VBI. Carbon will be able to read those files, and convert the "compressed VBI" into a full 32 lines of VBI that can be carried as a transcoder pipeline payload. This can then be used by other filters and exporters for example when reading time code (VITC), NTSC closed captions (line 21 CC), and Teletext data (page 888 for captions for example).

Functionality

Supports mapping any VBI input lines to any VBI output lines.

Handles Top Field First (TFF) and Bottom Field First (BFF) video files.

Input VBI can have between and 1 and 32 lines.

Output VBI must have 32 lines.

Supports NTSC and PAL sources and targets.

Supports entering relative input line numbers.

Supports entering output line numbers as:

Relative numbers (relative to the internal video buffer) : 0-31

Absolute numbers

for the first field (TFF - Top Field & BFF - Bottom Field): 7-22

for the second field:

for NTSC:

* TFF - Bottom Field: 270-285

* BFF - Top Field: 269-284

for PAL:

* TFF - Bottom Field: 320-335

* BFF - Top Field: 319-334

* Will generate an error if VBI lines are specified that are not applicable to the type of the output file (i.e. NTSC line numbers specified for PAL output and vice versa).

Interface

Line Pairs to Map: This field allows you to enter the line number to map. Up to 32 input:output VBI line number pairs. The first number in the pair refers to the input VBI line, follow that number with a colon (:), then the second number refers to the output VBI line. Separate multiple pairs with commas.

A checkbox that determines whether output VBI line numbers are relative or absolute.

A checkbox to number the first detected input VBI line as zero, or as its actual line number.

F-12941: Allow the MXF OP1B Importer to Support JPEG2000 Content

We are enhancing our existing MXF OP1B importer to support JPEG2000 content.

There is no change in the UI. Please remember that this importer does not support any seeking capabilities.

F-13013: Expand the H.264 Importer to Read CEA-708 Captioned Streams

We have expanded the H.264 Importer to read captions from MPEG Transport Streams per CEA-708. The importer already supports reading CEA-608 captions and inserting them in the 608/708 caption payload in the CarbonCoder payload, and this feature will add support for reading the DTV ("native 708") captions and inserting them into the same payload.

There are no changes in the UI. If source contains CEA-708 CC data, the source filter will automatically pass it to the kernel.

F-13084: Http Live streaming Exporter

The HTTP Live Streaming exporter will allow user to create an asset of alternate streams designed to support iPhone/iTouch/iPad or any computer with QuickTime X or later installed. The exporter creates an output into a series of short Transport Stream media files. These files are placed on a web server. The exporter also creates and maintains an index file containing a list of the media files. The URL of the index file is published on the web server. Client software reads the index, then requests the listed media files in order and displays them without any pauses or gaps between segments. Playback requires iPhone OS 3.0 or later on devices running iPhone OS. The technology supports both Cellular and Wi-Fi network; however setting up encoder has no special requirements for this support. It is the way user creates alternate streams, e.g. for cellular-capable clients an audio stream at 64 kbps or less for slower connections is good enough to deliver audio. For higher available bandwidth (Wi-Fi networks), user can create alternate streams with different video encoding parameter.

The exporter creates the Playlist file (.m3u8) and the MPEG-2 transport streams (.ts) which can be placed on the ordinary Web Server. The iPhone/iPad device can point to the playlist file to play the content.

Depending on the number of layers, user can configure each video layer for Bit Rate, Frame Width, Frame Height and Frame Rate. However, according to Apple's suggestion, audio encoding parameters are same for all video layers. ("Note that the client may choose to change to an alternate stream at any time, such as when a mobile device enters or leaves a WiFi hotspot. All alternates should use identical audio to allow smooth transitions among streams.")

F-13101: Timecode Processing Filter

A new Video Filter that allows for the manipulation of the timecode payload in the transcoder pipeline. Other filters such as the Timecode Display filter or the Timecode Insertion - VITC can use the data from the timecode and insert it into output files. The filter can be applied to sources or targets. When applied to sources, the injected information becomes available to all filters and targets which use the data in the timecode. Importers read timecode from source files and insert it into the transcoder pipeline timecode payload. The filter modifies the timecode payload, Exporters that support reading the timecode payload will therefore have access to the timecode after it has been modified by the filter.

The filter can be set to multiple modes of processing:

- * Copy the timecode from the source to the timecode payload without changing it. This mode is useful in conjunction with some of the other timecode processing options in this filter.
- * Remove timecode from the destination file. Use this to clear the timecode payload.
- * Timecode linearization. Whenever a non-linear change in timecode (any timecode change except for a single frame count increment between two video frames) is detected in source files, the output timecode will instead continue to increment frame by frame from the last timecode value before the discontinuity.
- * Linearization - drops only. Whenever input timecode doesn't increase between two video frames the output timecode will instead continue to increment frame by frame from the last timecode value before the discontinuity.
- * Increase Hour to remove drops. The filter detects whenever timecode doesn't increase between two video frames. The timecode of the first frame after the discontinuity is then stripped of its Hour value. A new Hour value is inserted, so that the resultant timecode is larger than the timecode of the last frame before the discontinuity). The Minutes, Seconds, and Frames values of the new timecode are not changed.

Take the example where the source file timecode starts at 02:00:00:00, increases frame by frame to 02:34:55:12, and then drops to 00:30:10:00 to continue frame by frame again 00:31:14:29 at the last frame of the file. The timecode inserted into the payload will start at 02:00:00:00, increase to 02:34:55:12, jump to 03:30:10:00, and finish at 03:31:14:29. This mode is useful for example when dealing with source files that have multiple caption files associated with them, where in the example above only the hour value of the second caption file would have to be edited.

- * Since sources can have multiple simultaneously occurring types of timecode, this filter offers the ability to select which type of timecode to process.

- * It is possible to define an offset to add to or subtract from the incoming timecode.

- * The ability to convert incoming NTSC drop-frame time code to non-drop-frame timecode, and vice versa.

F-13687: Allow the H.264 Exporter to Create Multiple Audio Streams

Allows multiple audio programs for Transport Streams and System Streams, many new workflows especially outside of the US require the creation of output files with more than one audio program.

Functionality:

H.264 Exporter will offer the ability to create multiple audio programs such that:

Each audio program in a Transport Stream must have a unique PID.

Audio programs can be assigned ISO 639 Alpha-3 language descriptors.

Because of pipeline architecture limitations, all audio programs must have the same:

Sample rate (different sample rates are available depending on the audio encoder chosen)

Sample width (some such as PCM offer multiple sample widths)

New UI section where all audio program parameters are moved to and new ones added.

Number of Audio Programs: This is the number of audio programs that the output file will contain.

Select Audio Program: This will allow you to select which audio program to modify.

Language Descriptor: This field allows you to enter a 3-letter ISO 639-2 language code.

You will find the 3-letter ISO 639-2 language descriptor code listed in here:

http://www.loc.gov/standards/iso639-2/php/English_list.php.

F-13723: Avid MXF Exporter to AMT SDK Updated to V1.5.2

The new SDK has added new Avid formats, frame rates, bit rates, etc.

New formats added to Carbon Coder Avid MXF Exporter

Encoder	Format	Field/Frame	Bitrate (Mbps)	Bits per pixel	Framerate (fps)
DNxHD	1080p	Progressive	36	8	23.976
DNxHD	720p	Progressive	60	8	23.976
DNxHD	720p	Progressive	90	8	23.976
DNxHD	720p	Progressive	90X	10	23.976
DNxHD	1080p	Progressive	115	8	23.976
DNxHD	1080p	Progressive	175	8	23.976
DNxHD	1080p	Progressive	175X	10	23.976
DNxHD	1080p	Progressive	36	8	24
DNxHD	1080p	Progressive	115	8	24
DNxHD	1080p	Progressive	175	8	24
DNxHD	1080p	Progressive	175X	10	24
DNxHD	1080p	Progressive	36	8	25
DNxHD	720p	Progressive	60	8	25
DNxHD	720p	Progressive	90	8	25
DNxHD	720p	Progressive	90X	10	25
DNxHD	1080i	Interlaced	120	8	25
DNxHD	1080i	Interlaced	185	8	25
DNxHD	720p	Progressive	75	8	29.97
DNxHD	720p	Progressive	110	8	29.97
DNxHD	720p	Progressive	110X	10	29.97
DNxHD	1080p	Progressive	145	8	29.97
DNxHD	1080p	Progressive	220	8	29.97
DNxHD	1080p	Progressive	220X	10	29.97
DNxHD	720p	Progressive	115	8	50
DNxHD	720p	Progressive	175	8	50
DNxHD	720p	Progressive	175X	10	50

F-13835: Extended the API Multiplexer with Options for Text Justification

When using the API multiplexer to create DVB Transport Streams, one of the input file type options is STL subtitle files, which are automatically converted to the DVB subtitle format when multiplexing the DVB TS. Different customers want different format choices of how to display captions, this requirement adds API control of some aspects of caption rendering.

New parameters for the API Transport Stream multiplex option for "MP2TSMuxer":

FrameWidth (default: 720)

FrameHeight (default: 576)

FrameRateNum (default: 25)

FrameRateDen (default: 1)

PageID (default: 1)

Justification (Possible values: "Left", "Center", "Right"; default: "Left")

OutlineText (Possible values: "true", "false"; default: "false")

No user interface has been changed, API-only.

Here is an example of the API:

```
<?xml version="1.0" encoding="utf-8"?>
<cnpsXML CarbonAPIVer="1.2" TaskType="JobQueue" JobName="Muxing Test">
  <Sources>
    <Module_0 Filename="C:\Video_1920x1080.m2v"
      ElementaryStream="VIDEO_MP2"
      PID.DWD="1001" />
    <Module_1 Filename="C:\Audio01.mp3"
      ElementaryStream="AUDIO_MP1L2"
      PID.DWD="1012" ISO639Desc="Fre" />
    <Module_2 Filename="C:\Audio02.mp3"
      ElementaryStream="AUDIO_MP1L2"
      PID.DWD="1013" ISO639Desc="Eng" />
    <Module_3 Filename="C:\SubTitle.stl"
      ElementaryStream="SUBTITLE_STL"
      PID.DWD="1014" ISO639Desc="Fre"
      FrameWidth.DWD="1920" FrameHeight.DWD="1080"
      FrameRateNum.DWD="25" FrameRateDen.DWD="1"
      PageID.DWD="1" TextJustify="Center" UseOutlineFont="True" />
  </Sources>
  <Destinations>
    <Module_0 MP2TSMuxer.DWD="1" OutputFile="C:\1920x1080.m2t">
      <ModuleData pcr_pid.DWD="1001" pmt_pid.DWD="1000"
        use_fixed_mux_rate.DWD="1" transport_rate.DWD="0"
        pat_interval.DWD="125" pmt_interval.DWD="125" pcr_interval.DWD="37" />
    </Module_0>
  </Destinations>
  <ProjectSettings KernelGUID="{AFC43F6A-64E8-41fb-BB9A-2947A9A0AAD1}" />
</cnpsXML>
```

F-13966: Enhanced the H.264 Importer to Allow Multiple Audio Programs

MPEG Transport Streams can contain multiple audio programs, each stored with a unique Program Identifier (PID). The H.264 Importer allows users to select which audio PID should be used when transcoding from Transport Streams with MPEG-2 video essence. It also allows the user to "combine" all the channels in all the audio programs into one linear list of channels, essentially providing simultaneous access to all the audio channels in one Transport Stream.

When multiple audio PIDs are detected in the Transport Stream, allow the user to select which audio PID to use during transcoding.

Offer the ability to combine all audio streams into one linear list of audio input channels.

When combining audio programs, channel 0 in program 0 will become channel 0 of the linear list of output channels, and the output channel will increase with audio channels added by each input program. If for example program 0 has 4 channels, then input Ch3 Prg 0 becomes output Ch3, and input Ch0 Prg 1 becomes output Ch4, and so on.

Interface

A list of all the audio PIDs in the source transport stream. The list is sorted from lowest to highest PID.

A checkbox to allow all audio programs to be used as transcoding input. This will be the default mode of the H.264 Transport Stream Importer, to meet the needs of the majority of Pitchblue users. All the channels of the first two audio programs will now appear as a list of 4 input audio channels, which can be manipulated in Carbon with the Channel Mixer audio filter for example.

The Combine Audio Programs checkbox will be on by default for the H.264 Transport Stream Importer.

F-14268: Read ATSC A/53 Captions from QuickTime Omneon Files

Read ATSC A/53 compliant caption data from QuickTime-wrapped Omneon input files with MPEG essence. Should work for self-contained files as well as QT reference files with media.dir folders.

No interface change has been applied since the data will be read automatically.

F-14269: MXF Importer to Read CEA-708 Caption Files with MPEG Video

Added the ability to read caption data from MXF input files with MPEG video essence. This should work for OP1A and OP1B (AS02), self-contained files as well as MXF reference files, like Omneon files with media.dir folders.

The Uncompressed VBI in MPEG Elementary streams in user data headers is a custom Omneon implementation, not a standard.

F-14336: AS02 Exporter to Write ATSC A/53 CC and SMPTE 328M Timecode

Captions for SD output files must be available in MXF AS02 outputs. This can be realized by using ATSC A/53 and SMPTE 328M to insert captions and timecode respectively into the User Data Headers of MPEG Elementary Streams.

Functionality

Read the 708 captions payload from the transcoder pipeline.

Check if the source has already inserted data into the caption payload.

If enabled, Insert the CEA 708 captions into the MPEG Elementary Video Streams in compliance with ATSC A/53.

If enabled, Insert the frame timecode into the MPEG Elementary Video Streams in compliance with SMPTE 328M.

Interface

A checkbox that enables the insertion of pipeline captions in the payload into the output.

A checkbox that enables the insertion of pipeline frame timecode in the payload into the output.

Parameters

Parameter	Dependent	Type	Values	Default	Description/Help
ATSC A/53 Captions	Always visible.	Checkbox	n/a	Enabled	Insert CEA 708 (608/DTV) captions from the transcoder pipeline caption payload into the MPEG Elementary Video Stream in compliance with ATSC A/53.
SMPTE 328M Timecode	Always visible.	Checkbox	n/a	Enabled	Insert timecode from the transcoder pipeline frame timecode payload into the MPEG Elementary Video Stream in compliance with SMPTE 328M.

F-13013: H.264 Exporter to Write CEA-708 Closed Captioning Data

Write CEA-708 caption data to H.264 target files.

This feature will allow the source file containing CEA-708 Closed Captioning data to be passed to the H.264 target.

This will work for the MPEG-2 Transport Stream, MPEG4 System Stream, F4V and Raw H.264 multiplexed files.

One field has been added to the H.264 exporter to support this feature. The name of the field is: "Closed Captioned Mode" and the choices are: ATSC and Echostar.

No other changes are implemented for this feature.

F-14787: API Multiplexer with Added Controls for Advanced Video Options

When using the API multiplexer to create DVB Transport Streams, one of the input file type options is STL subtitle files, which are automatically converted to the DVB subtitle format when multiplexing the DVB TS. Different customers want different format choices of how to display captions, this requirement adds API control of some aspects of caption rendering.

New parameters for the API Transport Stream multiplex option for "MP2TSMuxer":

RemoveNullPackets.DWD

InsertAuInformation.DWD

UseFieldPairPerPESPacket.DWD

program_number.DWD

use_std_descriptor.DWD

use_data_stream_alignment_descriptor.DWD

No user interface has been changed, API-only.

Here is an example of the API:

```
<?xml version="1.0" encoding="utf-8"?>
<cnpsXML CarbonAPIVer="1.2" TaskType="JobQueue" JobName="mp2tsjobAVCDVB_2Audio">
  <Sources>
    <Module_0 Filename="C:\Video.h264" ElementaryStream="VIDEO_AVC" use_std_descriptor.DWD="1"
      use_data_stream_alignment_descriptor.DWD="0" PID.DWD="4096" />
    <Module_1 Filename="C:\Audio1.ac3" ElementaryStream="AUDIO_AC3" ISO639Desc="Swe" />
    <Module_2 Filename="C:\Audio2.m2a" ElementaryStream="AUDIO_MP1L2" ISO639Desc="Eng" />
    <Module_3 Filename="C:\Audio3.m2a" ElementaryStream="AUDIO_MP1L2" ISO639Desc="Spa" />
    <Module_4 Filename="C:\Audio4.ac3" ElementaryStream="AUDIO_AC3" ISO639Desc="Hin" />
    <Module_5 Filename="C:\Title.dvb" ElementaryStream="SUBTITLE_DVB" ISO639Desc="Pol" />
  </Sources>
  <Destinations>
    <Module_0 MP2TSMuxer.DWD="1" OutputFile="C:\Output.m2t">
      <ModuleData pcr_pid.DWD="4096" pmt_pid.DWD="48" use_fixed_mux_rate.DWD="1"
        transport_rate.DWD="0" pat_interval.DWD="125" pmt_interval.DWD="125"
        pcr_interval.DWD="37" RemoveNullPackets.DWD="1" InsertAuInformation.DWD="1"
        UseFieldPairPerPESPacket.DWD="1" program_number.DWD="1990"
        transport_stream_id.DWD="2004" />
    </Module_0>
  </Destinations>
  <ProjectSettings KernelGUID="{AFC43F6A-64E8-41fb-BB9A-2947A9A0AAD1}" />
</cnpsXML>
```

Allow API to extract DVB subtitles from a MPEG transport stream

This function allows the MPEG Multiplexer to extract the VBD content from a MPEG Transport Stream source file.

No user interface has been changed, API-only.

Here is an example of the API:

```
<?xml version="1.0" encoding="utf-8"?>
<cnpsXML CarbonAPIVer="1.2" TaskType="JobQueue" JobName="DeMux DVB">
  <Sources>
    <Module_0 Filename="C:\Source.m2t" />
  </Sources>
  <Destinations>
    <Module_0 OutputFile="C:\Video1.m2v" PID.DWD="4000" />
    <Module_1 OutputFile="C:\Audio1.ac3" PID.DWD="4001" />
    <Module_2 OutputFile="C:\Audio2.ac3" PID.DWD="4002" />
    <Module_3 OutputFile="C:\Audio3.ac3" PID.DWD="4003" />
    <Module_4 OutputFile="C:\Title1.dvb" PID.DWD="4004" />
    <Module_5 OutputFile="C:\Title2.dvb" PID.DWD="4005" />
    <Module_6 OutputFile="C:\Title3.dvb" PID.DWD="4006" />
  </Destinations>
  <ProjectSettings KernelGUID="{6ADD6BFE-4856-4698-9E90-7F40790B4201}" />
</cnpsXML>
```

Update SMPTE302M importer to support 32-Channel source files.

The old SMPTE302M importer only supported 16-channel source files. New workflow requires it to support more than 16 channels.

No interface change has been applied since the audio channels will be detected automatically.

Known Issues - Overview

- Windows Server 2003 systems do not officially support installing the Windows Media Redistributable SDK version 11. Exporters that require this version of the SDK such as the VC-1 Exporter and the Smooth Streaming Exporter will fail on Windows Server 2003. (B-7288)
WORKAROUND: The Windows Media Redistributable SDK version 11 needs to be hacked in.
- The duration specified by some input files is inaccurate, this may cause the transcoder to time-out with an error if the Status Timeouts in the Kernel Settings menu are not set high enough, specifically the Transcoding Inactivity setting (B-5921).
WORKAROUND: Set Timing Mode to "Imprecise" for MPEG sources in the Source tab in Carbon Coder.
- Not all old Pinnacle MPEG-1 source files can be successfully converted (B-6242).
WORKAROUND: There is no workaround for this issue.
- When using a transcoder farm with agents, if the kernel setting "Maximum Node Errors" is larger than the current number of active agents, the server may continue sending failed jobs to agents even after the Maximum Node Errors number has been exceeded (B-6504, B-7451).
WORKAROUND: Make sure the Maximum Node Errors is lower than the number of enabled agents in the farm.
- In some computer using Windows XP with the Clear Type font enabled, the text part of the source list is unreadable due to graphics errors (B-24).
WORKAROUND: Disable the Clear Type font in Windows XP.
- The GXF Exporter API delivery element is spelled incorrectly. The name is that is used is "Delviery_20_Mode.DWD" (B-5348).
WORKAROUND: There is no workaround for this issue.
- There is no way to delete user created filters from Carbon Admin (B-5447).
WORKAROUND: It can only be done through main CarbonCoder Application.
- When importing some Avid .mxf files with invalid structure, Carbon will show a "Failed to parse stream" error (B-5743, T-4566).
WORKAROUND: There is no workaround for this issue.
- Resizing the CarbonAdmin window will result in "very thick borders" (B-5890).
WORKAROUND: Closing and Reopening CarbonAdmin should solve the problem.
- CarbonAdmin will crash when clicking in the description box of the Watch rule window (B-7384).
WORKAROUND: There is no workaround for this issue.
- CarbonAdmin will crash when it has been open for two days (B-7776).
WORKAROUND: There is no workaround for this issue.

- Using a watch folder with a user preset consisting of QuickTime 7 target with Sorenson codec will result in a "Conversion Cancelled. [CR: 0x00020005]" error (B-7138).
WORKAROUND: There is no workaround for this issue.
- CarbonServer Admin can access CarbonAgent Kernel Settings without the license of the CarbonAgent enabled (B-7333).
WORKAROUND: There is no workaround for this issue.
- QuickTime MP4 Interlaced video will be detected as progressive (B-7381).
WORKAROUND: Use the Source Properties video filter to correct the interlacing mode.
- Imported QuickTime video does not playback in advanced mode. (B-7993).
WORKAROUND: This is a third party bug. There is no workaround for this issue.
- "Audio follows Video" option is not available when using Alternate Audio (B-8028, T-12523).
WORKAROUND: Set an out-point at the end of the video and execute the transcode.
- Carbon fails to transcode a MXF OP1A ASO2 wrapped audio track file (B-8057, T-12987).
WORKAROUND: Must use a MXF to WAV tool to convert the audio file.
- Timecode value will reset to zero if the transcode involves a frame rate conversion (B-8178, F-12201).
WORKAROUND: Must use the "Video Timecode Inject" filter to inject the desired timecode into the target file.
- The "Channels per File" field disappears when other audio parameters are changed (B-8179, F-12828).
WORKAROUND: There is no workaround for this issue.
- All the disabled fields are enabled after reloading a project with Omneon exporter (B-8180, F-12828).
WORKAROUND: There is no workaround for this issue.
- The Smooth Streaming Exporter UI is inconsistent with other exporters supporting similar attributes (B-8198, F-12127).
WORKAROUND: There is no workaround for this issue.
- Encoded files with AAC or HE-AAC using 32KHz sample rate will result in noisy playback (B-8220, F-12472).
WORKAROUND: This is a third party bug. There is no workaround for this issue.
- Custom presets created in CarbonCoder do not show up in CarbonAdmin (B-8244).
WORKAROUND: Restarting Nexus should solve this problem.

- Cannot import MP4 AVC files based on ISO/IEC 14496-1 with MP41 container (B-8326, T-14200).
WORKAROUND: There is no workaround for this issue.
- Updating CarbonAgent Kernel Settings in CarbonServer Admin will cause it to crash (B-8322).
- **WORKAROUND:** There is no workaround for this issue.
- Avid Importer only supports 4:3 in SD and 16:9 in HD (B-7931, F-13723).
WORKAROUND: This is a third party bug. There is no workaround for this issue.
- Using a watch folder or API to FTP deliver a GXF file with Chinese characters to the K2 server will fail (B-7598, T-10766).
WORKAROUND: Use the CarbonCoder UI to do the transcoding and FTP delivery.
- Transcoding will fail on some flexible frame rate sources (B-7898, F-13084, T-12461).
WORKAROUND: Put a check mark on the "Enforce Fixed Frame Rate" field.
- Long movie will not playback from beginning to end or starts at random location (B-8117).
WORKAROUND: Need to add "#EXT-X-ENDLIST" to the last line of the .m3u8 files.
- The .m3u8 files do not list the last stream (B-8333).
WORKAROUND: Add the last stream and "#EXT-X-ENDLIST" to the last lines of the .m3u8 files.
- Using frame rate of 1.000 fps or 2.000 fps will cause stalling (B-8344, F-13084).
WORKAROUND: Change the target frame rate to at least 5.000 fps.
- The "EIA ATSC CC in Picture Use Data" field is described incorrectly (B-8345, F-12810).
WORKAROUND: There is no workaround for this issue.
- Memory leak when transcoding from a HD Photo JPEG to a SD QuickTime 7 H.264 (B-8317, T-14240).
WORKAROUND: This is a third party bug. There is no workaround for this issue.
- Audio has popping noise during playback on QuickTime (B-7792).
WORKAROUND: This is a third party bug. There is no workaround for this issue.
- Different error message was showing when trying to overwrite an existing file (B-8130, F-12841).
WORKAROUND: This problem cannot be reproduced anymore.
- FTP Retry will only download a partial file when the connection is interrupted (B-8240).
WORKAROUND: There is no workaround for this issue. Need to download the file again.
- Memory leak detected on some MPEG Transport Stream files (B-8339).
WORKAROUND: There is no workaround for this issue.

- Transcoding of a long dpx sequence generates a "Process time out error" (B-8062).
WORKAROUND: Increase the timeout in the "Timeout Starting Status".
- Carbon fails to import some invalid h.264 files (B-8200).
WORKAROUND: There is no workaround for this issue.
- Transcoding from a MXF audio file results in muted output (B-7808, T-11938).
WORKAROUND: This problem cannot be reproduced anymore.
- The duration is not detected properly in some MXF JPEG2000 sources (B-8341).
WORKAROUND: This is duration detection only. It does not affect transcoding.
- Pillar boxes are added to some invalid MXF AS02 sources (B-8207, F-12941).
WORKAROUND: There is no workaround for this issue since the source file is invalid.
- Fails to transcode Amberfin JPEG2000 file names containing "%20" instead of " " (B-8342).
WORKAROUND: Rename the files containing "%20" with the space character " ".
- Cannot transcode files generated by the Omneon v6.1 Ingest server (B-8101, T-13169).
WORKAROUND: This is a third party bug. We implemented a work-around patch, but not a fix.
- De-Interlacing some .mp4 and .flv files will cause drop in quality (B-8346, T-14168).
WORKAROUND: There is no workaround for this issue.
- coreaudiotoobox.dll causes PNXCERNL.exe to crash when 10 - 15 files are queued (B-8347).
WORKAROUND: This is a third party bug. There is no workaround for this issue.
- Stalling occurs when importing Flexible Frame WMV to Http Live Encoding (B-8348, T-12461).
WORKAROUND: Put a check mark on the "Enforce Fixed Frame Rate" field.
- 5.1 sources to Stereo output are not mapped properly when using any RPI exporter (B-8350).
WORKAROUND: Must use the Channel Mapper filter to custom map the channels properly.
- Unspecified T-STD error when using very low bitrates with Http Live Streaming output (B-8351, T-14407).
WORKAROUND: Needs to increase the bitrate to avoid this Buffer Underflow problem.
- Audio stuttering problem when using VOB sources (B-8352).
WORKAROUND: Isolate the VOB files by themselves. If working with more than 1 VOB files, you must binary concatenate them into one.
- ComplexSource encoding stalls when using 6-Channel PCM WAV audio files (B-8353).
WORKAROUND: There is no workaround for this issue. Use Stereo files for the time being.
- Actual video bitrate is lower than the minimum specified bitrate on a special case (B-8355).
WORKAROUND: There is no workaround for this issue.

- Unable to import files generated by Avid Transfer Manager 1.6.2.8020 (B-8354, T-14226).
WORKAROUND: There is no workaround for this issue.
- API projects created by CarbonCoder 3.15.1 and older with frame size exceeding default Profile / Level will be resized (B-8356, T-14531).
WORKAROUND: Include the "Profile.DWD=3" and "Level.DWD=51" to the API file.
- Allowed values for Start Channel are one less than they should be (B-8358).
WORKAROUND: There is no workaround for this issue.
- Some files will not transfer properly to FTP server with limited connections (B-8150).
WORKAROUND: set the "FTP Max Upload Sessions" in "Kernel Settings "to 1.
- API using STL files will fail if the TextJustify and UseOutlineFont elements are missing (B-8363).
WORKAROUND: Add TextJustify="Left" and UseOutlineFont="False" to the STL Module.
- A letter preceding the wildcard in FTP retrieval does not work (B-7375).
WORKAROUND: There is no workaround for this issue.

Bug Fixes and Improvements

Miscellaneous

Nr.	Description
B-7481	Clicking Option -> Application Settings in Japanese Vista will cause application to crash.
B-8266	Exporting to video-only target on some specific files will cause stalling.
B-8230	Integer division by zero detected when using some filters.
B-8309	Crashes when converting PAL with VBI area to NTSC format.
B-5685	Hitting the letter "E" in the target tab causes CarbonCoder to crash.
B-7939 F-12500	"New" button should be enabled in the Audio Filter category.
B-8185	Content of the Help -> About box should be updated.
B-8247	End-User License Agreement should be updated.
B-8270	Random instances of "Job cannot be started!" are present.

Admin Application

Nr.	Description
B-8004	Carriage Return is not passed to the email notification.
B-7668 T-11296	Trailing clip missing if a watch rule is applied.

API

Nr.	Description
B-6644 T-7849	Allow API to extract DVB subtitles from a MPEG transport stream.
B-8285	Remove "Pre-conversion Task" from the API User Guide.
B-8176	Demux of MPEG Transport Stream with AC3 audio fails to create output AC3 files.
B-8122 F-13835	FrameWidth and FrameHeight are not having effect in the TS Muxer.
B-8126 F-13835	Needs proper messages for error checking on out of range values in the TS Muxer.
B-8127 F-13835	Stalling detected when FrameWidth and FrameHeight are set to 32 in the TS Muxer.
B-8250 T-13757	Jobs fails at the end of the job with an error in the TS Muxer.
B-8288 F-14787	"InsertAuInformation.DWD" parameter doesn't seem to work in the TS Muxer.
B-8300	Buffer underflow when using low bitrate video in the TS Muxer.
B-8100	24-Bit audio sources will introduce a muted section in the output file in ComplexSource.
B-8371	Job fails too often for the TS Muxer.

Background Services & Watch Folders

Nr.	Description
B-6070	In the "Max Failed Jobs" setting, only the oldest jobs are kept.

Exporter – Avid AMT MXF

Nr.	Description
B-8217 F-13723	Invalid project settings will generate unknown error.
B-7932 T-12592	Files generated by the Avid exporter ha A/V length difference.
B-8119 F-13723	Carbon will stall if Stop button is pressed during transcoding.

Exporter – Dolby Digital/ Dolby Digital Plus

Nr.	Description
B-8246	Carbon was not checking the proper license.

Exporter – GXF

Nr.	Description
B-8053 T-12824	Memory leak detected when encoding in GXF HD.
B-8307 T-13405	When the Grass Valley PVS-1000 plays back a CarbonCoder generated GXF file, the caption appears on line 20 instead of line 21.

Exporter - H.264

Nr.	Description
B-6619	Frame rate calculation used in F4V file is 2997/100 instead of 30000/1001.
B-6747	Audio CODEC was not fixed to AAC when "Sony PlayStation Portable" is checked causing application lock.
B-6748	Improved error message issued during encoding when the VBV buffer is too low.
B-7846 T-11861	Allow user selectable multiplexing method of ATSC or DVB for Generic MPEG streams.
B-7919	Using audio only source into a 2-pass VBR causes the application to stall.
B-8021	EB UnderFlow error when used in watch folder with leading and trailing clips.
B-8076 T-13090	Stitching two MPEG HD sources to a H.264 target results in EB Underflow error.
B-8085 F-12472	Audio Transport Type option is exposed when MPEG4 System multiplexer was selected.
B-8090 F-12472	Output file has stuttering audio when using LATM/LOAS settings.

B-8137 F-13687	Bitrate value field was present in "PCM/SMPTE302M" audio program type.
B-8143 F-13687	Encoding 16 layers of MPEG audio will cause an Elementary Buffer (EB) Underflow error.
B-8152 F-13687	Invalid bitrate is allowed in the Video Bitrate field.
B-8190 F-14734	Closed Caption mode field was missing when 23.98p and 59.97p frame rates are selected.
B-8197 F-13687	Entering a high bitrate was changing the Profile and Level.
B-8199	VBV underflow error due to incorrect bitrate calculation.
B-8225 F-13687	Creating a MPEG-2 AAC-LC audio only file will generate an encoding parameter error.
B-8226 F-13687	The bitrate was not being updated properly after changing the audio codec.
B-8252 T-13906	Importing Echostar closed captioned H.264 files will cause a buffer underflow error.
B-8259 F-13687	Using an audio-only file to create a raw H.264 stream will cause unknown error.
B-8269	Some conversion options causes "Cannot create output with neither audio nor video."
B-8282	TB buffer overflow error when there are too many audio streams.

Exporter - Http Live Streaming

Nr.	Description
B-7406	When Maximum bitrate is set to the same value as Minimum bitrate, it errors.
B-7746 F-13084 T-11877	Converting a project with invalid parameters will stall.
B-7806 F-13084 T-11920	Conversion was not using the specified frame size and bitrates.
B-7837 T-11621	When the frame rate of the lower layers were not divisible by the top layer, it stalls.
B-7898	Transcoding will fail on flexible frame rate sources.
B-8093 F-13084	Unknown error was shown when invalid settings were used.
B-8094 F-13084	The default profile was not set to "Baseline".
B-8095 F-13084	The Maximum and Minimum Frame Size fields were missing.
B-8113 F-13084	Encoding in 2-Pass VBR will produce "An Unknown Error Occurred. [CR:0x00000002]".
B-8114 F-13084	The default bitrate setting is not set to VBR.

B-8115 F-13084	Spelling error detected in the Audio Stream Type field.
B-8116 F-13084	Default Audio Sample Rate was not set to 44.1KHz.
B-8117 F-13084	Long movie will not playback from beginning to end or starts at random location.
B-8165 F-13084	Memory Leak detected during 2-Pass conversion.
B-8206 F-13084	Error message is unclear when invalid settings were applied.
B-8212	Error message is unclear when invalid settings were applied.
B-8215 F-13084	Memory Leak detected when performing a 2-Pass conversion.
B-8251 F-13084	Error message was displaying bitrates as bytes instead of Kilobytes.
B-8305 F-13084	Previous projects with 16 layers were changed to 1 layer.
B-8308 F-13084	Encoding stalls when the frame rate of the lower layers were not divisible by the top layer.
B-8323 F-13084	When encoding to 2-Pass VBR, a Filed to Perform an Operation error will show up.
B-8324 F-13084	When encoding to 16-Layers with 2-Pass VBR, the encoding will stall.
B-8333 F-13084	The .m3u8 files do not list the last stream.
B-8338 F-13084	Blocking artifacts were detected at the stitching points.
B-8343 F-13084	Using frame rate of less than 30.000 fps will cause stalling.
B-7807 F-13084 T-12038	Files are not delivered properly in watch folder mode.
B-8349	Bitrates are incremented linearly by 100Kbps for each layer.

Exporter – LXF-NEXIO

Nr.	Description
B-8145 T-13380	Transcoding a file with invalid timecode will cause stalling.

Exporter – MPEG

Nr.	Description
B-7426	EIA708 captions are not preserved on an elementary stream output file.
B-8287 T-14025	Encoding sources with invalid or incorrect timestamp values causes stalling.

B-8316 F-13687	Encoding will stall when it cannot get AAC audio bit rate from the header.
-------------------	--

Exporter - MXF

Nr.	Description
B-5568 T-2894	MXF HD to MXF SD conversion inserts false information into the VBI area.
B-8248	The Video line map is not modified depending on PAL/NTSC targets.
B-8249	Number of audio channels was forced to 8 instead of being automatically detected.
B-8167 F-14336	For PAL conversion, the "ATSC A/53 Captions" was not disabled.
B-8169	ASO2 source file was not decoded properly, resulting in strange behavior.
B-8201 F-14336	Exporter graph fails error when decoding certain MXF ASO2 files.

Exporter - NTT-AT H.264

Nr.	Description
B-8315	Conversion stalls when using a low bitrate audio.

Exporter - Omneon

Nr.	Description
B-8059 F-12828	Exporter does not use the Temp folder defined in the Transcoding Settings.
B-8147	Non-Reference QuickTime MPEG files option is disabled.
B-8157 T-13490	Carbon crashes during conversion if the AVC-Intra 100 or AVC-Intra 50 is selected.
B-8181 F-12828	Target files are locked if the conversion is stopped.
B-8184 F-12828	CarbonCoder will crash after hitting the Stop button during the transcode.
B-8187 F-12828	CarbonCoder crashes when converting to AVC-Intra-100, PAL HD (1920x1080i) with AIFF.
B-8233 F-12828 T-13671	Exporting with the AVC Intra 100 option crashes CarbonCoder
B-8243 F-12828	Update the Video Standard description for "AVC-Intra Class50" or "AVC-Intra Class100".
B-8277 F-12810	The "EIA ATSC CC in Picture User Data" option should be enabled by default.
B-8278 F-12810	Updated the description for "EIA ATSC CC in Picture User Data".
B-8281 F-12810	The top few lines of the output MPEG stream are green when CEA-708D caption is inserted.

B-8189	An invalid file is created when the imported cannot handle the stream.
--------	--

Exporter - P2 (Panasonic)

Nr.	Description
B-8172 T-13512	Some MXF files were able to be transcoded in the UI, but not in a watch folder.
B-8173 F-12828	Invalid stream type error when selecting AVCI compression.

Exporter - Poster Frame

Nr.	Description
B-6844	Frames generated are based on the previous generated frame, not based on time.

Exporter - QuickTime

Nr.	Description
B-7297	Encoding very short sources to QuickTime exporter will generate an error.
B-6526	Error generated when adding and removing QuickTime 7 target several times.
B-7780 T-9796	Needs to change the Audio Sample Rate to 48KHz for QuickTime IMX exporter.
B-8195	Incorrect color space when encoding from DV to TIFF file using QuickTime exporter.

Exporter - Smooth Streaming

Nr.	Description
B-8056	Setting a frame size of 1920x1080 will result in a 1280x720 file.
B-8084	Incorrect folder structure created after conversion.
B-8150 F-12127	FTP delivery does not deliver audio files.
B-8151 F-12127	Network delivery does not deliver audio files.
B-8160 F-12127	Correct the spelling error on number of streams field.

Exporter - XDCAM

Nr.	Description
B-7899 T-12241	Timecode is off by 20 frames when exporting to XDCAM 422 target.
B-8087	Exporter does not use the Temp folder defined in the Transcoding Settings.

Exporter – YUV

Nr.	Description
B-7849	Some parameters are missing after saving and restoring the project.

Audio Filter – Channel Mixer

Nr.	Description
B-7629 T-11075	Channel Mixer does not support more than 16 channels.
B-7671 T-11658	Add the override automatic input channels option.
B-8142 F-12500	All mapping after the 18th output channel is lost.

Audio Filter – Dolby-E Encoder

Nr.	Description
B-8306 F-12135	The description section needs formatting.
B-8314 F-12135	Entering more than 8 channels will cause it to crash.

Video Filter – Bitmap Keying

Nr.	Description
B-8045 T-12823	Illegal black levels are generated in the output file.

Video Filter – De-Interlacer

Nr.	Description
B-8325 T-14200	When using files with incorrect H.264 stream, it generates an error.

Video Filter – STL Caption Burn-In

Nr.	Description
B-7492 T-10729	STL files with Hebrew characters were producing invalid text imprinted on video.
B-7917 T-9546	Some invalid characters were displayed using some STL files.
B-7504 T-10729	Needs to add text justification options.

Video Filter – Temporal Noise Reducer

Nr.	Description
B-8223	Projects using this filter will crash.

Video Filter – Timecode Processing

Nr.	Description
B-8280 F-13101	The description of this filter needs to be updated.
B-8291 F-13101	The .dll module is missing from the installation.

Video Filter – VBI Line Mapper

Nr.	Description
B-8107 F-12841	The name and description needs to be updated.
B-8128 F-12841	The Relative Output Lines option has no effect.
B-8129 F-12841	The "Relative Input Lines" option is not mapping the lines properly.
B-8175 F-12841	Incorrect error message is shown when checking source frame size.
B-8311 F-12841	Error occurs when VBI Mapper filter is used.

Video Filter – V-Chip

Nr.	Description
B-8077 F-12133	The settings are not kept after saving and restoring a project using the V-Chip filter.
B-8069 F-12133	The name of this filter is incorrect.
B-8070 F-12133	The PG-13 rating is missing.
B-8071 F-12133	Extra rating needs to be removed.
B-8074 F-12133	Some combination of criteria has no effect.

Video Filter – Video Closed Caption Inject

Nr.	Description
B-6814	Allow insertion of captions for 23.976 fps targets.

Video Filter – Video Multi

Nr.	Description
B-8168 F-14269	Not passing Closed Captions using Source or target files using 29.97p fps.

Video Filter – Video Source Properties

Nr.	Description
B-7649 T-10896	Filter applied to the target has no effect.

Video Filter – Video Timecode Inject

Nr.	Description
B-8196	The description needs to be changed.
B-8228	Using this filter in the source will cause an unknown error.

FTP

Nr.	Description
B-7807	Files are not delivered properly in the http live streaming exporter in watch folder mode.
B-7374 T-11737	FTP Max Download setting does not work as expected.

Importer – DPX

Nr.	Description
B-8062 T-12580	Transcoding of a long dpx sequence generates a "Process time out error".

Importer – E-AC3

Nr.	Description
B-6480	Source files less than 2 seconds in duration will not import.

Importer – GXF

Nr.	Description
B-8083	Files with data tracks will generate errors when imported.
B-8171 F-12201	An unknown error occurs when setting more than one In/Out point.

Importer - H.264

Nr.	Description
B-8183 F-13013	Loading some source files will cause the application to crash.
B-8188 F-13013	Setting In/Out point on certain files will cause application to crash.

Importer - H.264 (Clock Aware)

Nr.	Description
B-7423	Some audio files with 32KHz are being detected as 48KHz.

Importer - Image Sequence

Nr.	Description
B-7602 T-9317	Image sequences coming from a Unix system are being loaded incorrectly.

Importer - MediaStream

Nr.	Description
B-7052 T-9027	Pinnacle MSS source files take a long time to load.

Importer - MP4

Nr.	Description
B-8098	Carbon crashes when loading MP4 files with more than 512 bytes of metadata.

Importer - MPEG

Nr.	Description
B-7730 T-11661	Some MPEG files causes CarbonCoder to crash when loaded.
B-7740	Loading some MPEG Transport stream files will cause memory leak.
B-7741	Not handling timestamps and captions for TS sources with multiple programs.

Importer - MXF

Nr.	Description
B-6607	Access violation when an invalid file is loaded.
B-7018 T-8877	Carbon is unable to read the duration from MXF files created by the Sony E-VTR.

B-7511 T-11061	Avid IRT OPAtom files do not load in CarbonCoder.
B-7515 T-11065	MXF IRT OP1A files do not load in CarbonCoder.
B-8075 F-12941	Spaces encoded with %20 are not loaded in Carbon.
B-8209 T-13649	Some AS02 files will stall Carbon when loaded.
B-8279	Duration of some .MXF files are not detected properly.
B-8283 T-13608	Frame-rate from AmberFin generated OPAtom J2K - MXF OP1A file is not detected.
B-6608	Carbon crashes when an invalid MXFOP1A file is loaded.
B-8041 T-12764	Some MXF files can be transcoded with CarbonCoder but not with CarbonAdmin.
B-8310	Access violation occurs when transcoding from JPEG2000 MXF sources.
B-8319 T-13608	AmberFin OPATOM JPEG2000 - MXF OP1A video files play fast-forwarded.
B-8320	Multi-threading crashes Carbon when transcoding from JPEG2000 MXF sources.
B-6700 T-7948	Field order was not detected properly on some Quantel HD files.
B-7469 T-10698	Field order was not detected properly on Quantel DVCPRO100 files.
B-8203 F-12941	Carbon fails to convert from a MXF OP1B sources.
B-8210 F-12941	Some Progressive MXF AS02 files are loaded as Upper Field First.

Importer - Omneon

Nr.	Description
B-7817 T-11958	Reference .MOV files containing different audio types generate error when loading.
B-8265	Some Omneon QuickTime reference files fails during conversion.

Importer - QuickTime

Nr.	Description
B-8073	Cannot load certain Avid IMX MOV files.
B-8109	Loading and unloading certain ProRes422 files causes Carbon to error out.
B-8111	Converting from ProRes422 source provided by Turner causes Carbon to crash.
B-7972 T-12670	Sources with multiple Display-Time cannot be transcoded.
B-8055 T-12814	Files captured from a DV camera fails to be imported.

Importer - SMPTE 302M

Nr.	Description
B-8245 F-12136	Audio bitrate field should be hidden.
B-7436	Captions will be ignored if they are not found in the first 30 seconds.
B-8103	Importer fails to recognize E-AC3 with System-B descriptor.
B-8121 T-12768	Carbon will stall when loading certain Transport Stream files.
B-8159	Update the SMPTE302 importer to support 32-Channel source files.

Importer - Windows Media

Nr.	Description
B-7805 T-11926	Carbon fails to transcode certain WMV files causing stalling problems.

Metadata, Captions, Timecode

Nr.	Description
B-8146	Closed Caption does not pass through for 29.97p files.
B-8328 T-13417	SCTE-20 Captions in CC1 is being moved to CC3.

RPI - Rhonet Plug-in Interface & SDK

Nr.	Description
B-6958	RPI does not support sources with flexible frame rate.