



USING THE 608 TO 708 CAPTION CONVERSION OPTION



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Synopsis

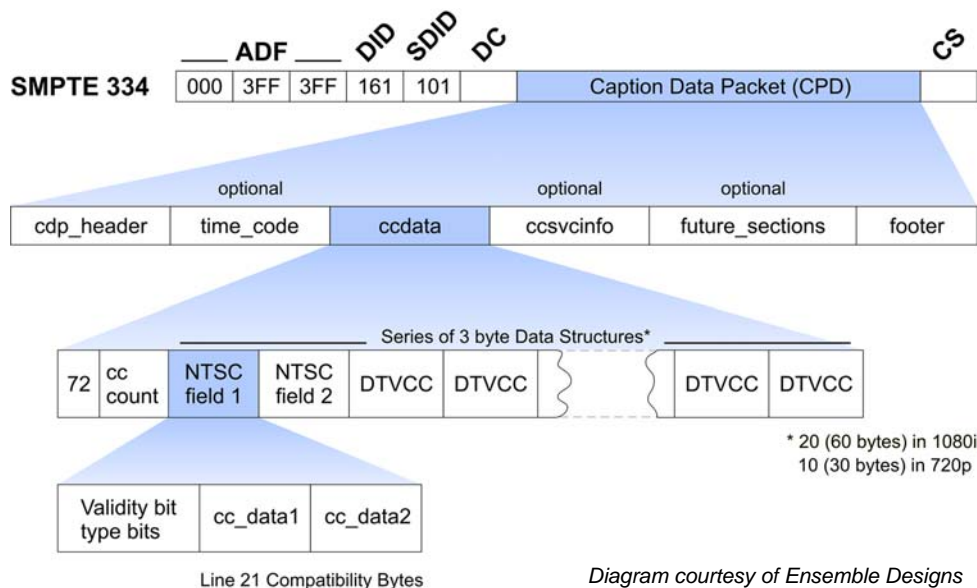
The purpose of this licensed feature is to make existing NTSC Closed Caption (CC) data available for use in DTV video streams. This provides the following benefits:

- Support for additional formatting options and features in DTVCC
- Compliance with broadcast standards that require support for native DTVCC data (as opposed to compatibility data, which is described below)
- CC support on newer decoding equipment that does not support legacy CEA-608-B data

NTSC CC is defined in CEA-608-B, and DTVCC is defined in the newer CEA-708-B standard. In time, newer decoders are likely to drop support for NTSC CC and only support DTVCC. With this feature, you can easily leverage existing CEA-608-B data and populate the DTVCC data fields during the transcode process in Vantage Workflows, converting both the video stream and CC data in one step.

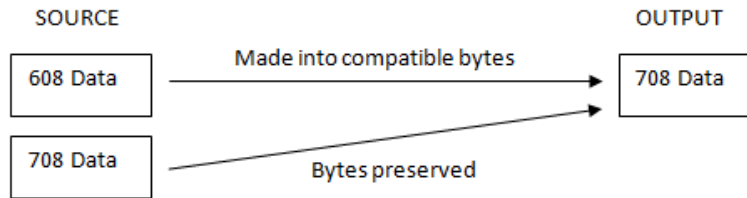
CEA-608-B defines how multiple caption services, text services, and XDS data are carried in an NTSC broadcast. This standard defines the CC information as digital data (seven bits, plus one parity bit, at 120 characters per second), and defines how the digital data is encoded as analog data on line 21 within an NTSC video stream. The digital source for CEA-608-B CC data is often a caption file with a .scc extension, and Vantage can add these files to a video stream. When the CEA-608-B CC data is part of an NTSC video stream, it must be converted to digital with another product, such as Pipeline, before conversion to CEA-708-B.

CEA-708-B defines coding of DTVCC in an ATSC A/53 specified bit stream. This standard significantly enhances DTV display and formatting features (CEA-CEB-10-A discusses implementation details). CEA-708-B also defines caption distribution packets (CDPs) that hold DTVCC data, caption service information, and (optionally) time code information as shown in the following illustration.



The NTSC fields shown in the above illustration are also called 608 compatibility bytes because these bytes are designed to hold CEA-608-B CC data. This legacy CEA-608-B CC data can be used to support CEA-608-B CC on downstream NTSC devices, and it can be displayed on DTVCC devices that are capable of displaying CC information encoded in the 608 compatibility bytes. When you use Vantage to transcode a video stream that contains CEA-608-B CC data, Vantage automatically places the CEA-608-B CC data in the 608 compatibility bytes of the output video

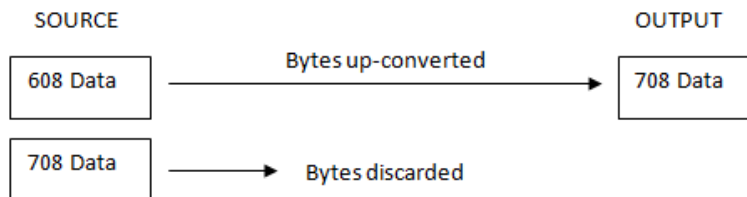
stream. No license or special configuration is required to transfer CEA-608-B CC data to the 608 compatibility bytes.



The Vantage caption conversion feature is a licensed feature that transcodes CEA-608-B CC data to create DTVCC data in the CEA-708-B format. This DTVCC data can be decoded on all devices that display CEA-708-B DTVCC data, regardless of whether or not the device decodes the 608 compatibility bytes.

When to Use Caption Conversion

Use Vantage caption conversion when the source video stream contains only NTSC CC (CEA-608-B) data and you want to convert this data to CEA-708-B DTVCC data. When this option is enabled, the Vantage transcode process replaces any CEA-708-B data in the source video stream with the converted data from the CEA-608-B data source as shown below.



The CEA-608-B data is also stored in the 608 compatibility bytes in the DTVCC data output, so the converted output supports both NTSC CC and DTVCC.

When to Disable Caption Conversion

Because the conversion process ignores any CEA-708-B data in the source video, you should not use this feature when you want to include source CEA-708-B data in the output file.

Applying SCC Files to a Video Stream

If a video stream does not already contain CEA-608-B CC data, you can configure Vantage to import this data from an SCC file, which is created on a workstation with CC software. If a source video file does contain CEA-608-B CC data, you can skip the procedure in this section.

Note: *This app note assumes you know how to create and configure Vantage workflows and how to submit jobs. Review the Vantage Workflow Designer User's Guide for details.*

When you want to add CC data from an SCC file to a video stream, you need to first associate the SCC source file with the video source file before an Encode action in the Vantage workflow. After this association is made, each encode for the associated files populates the 608 compatibility bits in the output stream.

Note: *The CEA-608-B CC data is not populated as CEA-708-B DTVCC data until you complete the procedure in the following section, [Enabling Caption Conversion](#).*

To establish an association between an SCC file and a video file, do the following:

1. Establish a naming convention that uses the same filename prefix (filename minus the file extension) for a video file and the SCC file that supports it. For example, using the names test.mov and test.scc prepares the files for association during transcoding.
2. In Binder mode, add the Associate action to the workflow between the Watch action and the Encode action that will be configured for caption conversion.
3. Open the Inspector for the Associate action, click the Attachments radio button, select Attachment Files, and click Next.



4. In the Find matching file dialog that appears, select the file system type that will host the video stream and the SCC file, then click Next.
5. In the next dialog that appears, specify the path to the watch folder where the SCC file will be stored. You can enter the path or use the Browse button to select the path.

- In the next dialog that appears, configure the settings for attachment files using the same controls you use for configuring source video files.



- Click Finish.

When the workflow is executed, the CC data in an SCC file with the same prefix as a video stream source file is added to the video stream. If the Caption Conversion option is disabled, the CC data is added to the 608 compatibility bytes for DTVCC. If the Caption Conversion option is enabled, the CC data populates the 608 compatibility bytes and is converted and populated as native DTVCC data.

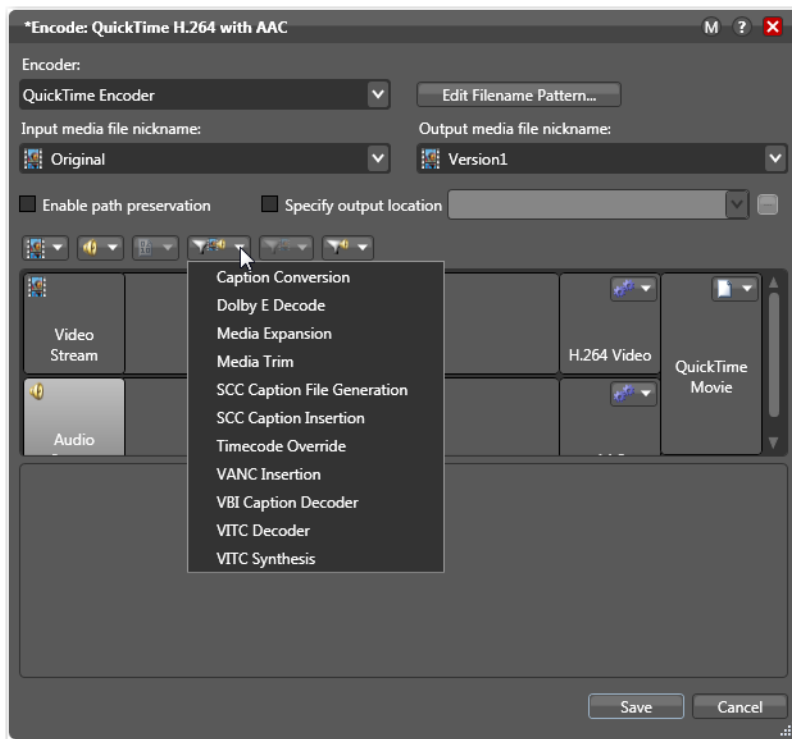
Enabling Caption Conversion

You can enable the Caption Conversion feature in an existing workflow or in a new workflow.

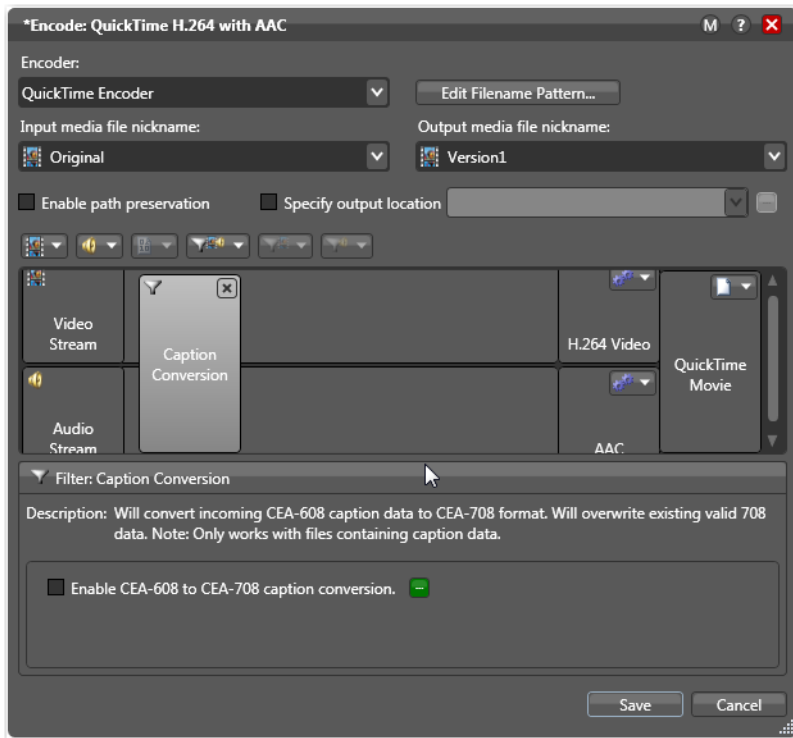
Note: *This app note assumes you know how to create and configure Vantage workflows and how to submit jobs. Review the Vantage 3.0 Workflow Designer User's Guide for details.*

To enable conversion of CEA-608 caption data to CEA-708 format, open the workflow for editing and use the following procedure:

1. Create or select an Encode action and open the inspector for that action.
2. Click the Add Movie Filter drop down list, and select Caption Conversion:



3. Check the checkbox for Enable CEA-608 to CEA-708 caption conversion:



4. Click Save to save your settings:
5. Complete the workflow design or edit.

When the workflow is activated, all Encode actions for which Caption Conversion is enabled perform their configured transcode task and populate the CEA-708 data fields with any data found in the CEA-608-B data fields.

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