



FlipFactory®

USING THE FLIPFACTORY 608 TO 708 CAPTION CONVERSION OPTION

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This App Note
applies to
FlipFactory
versions
7.2 & later

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:

- Reduced cost. No need to create new captions in DTVCC format.
- 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.

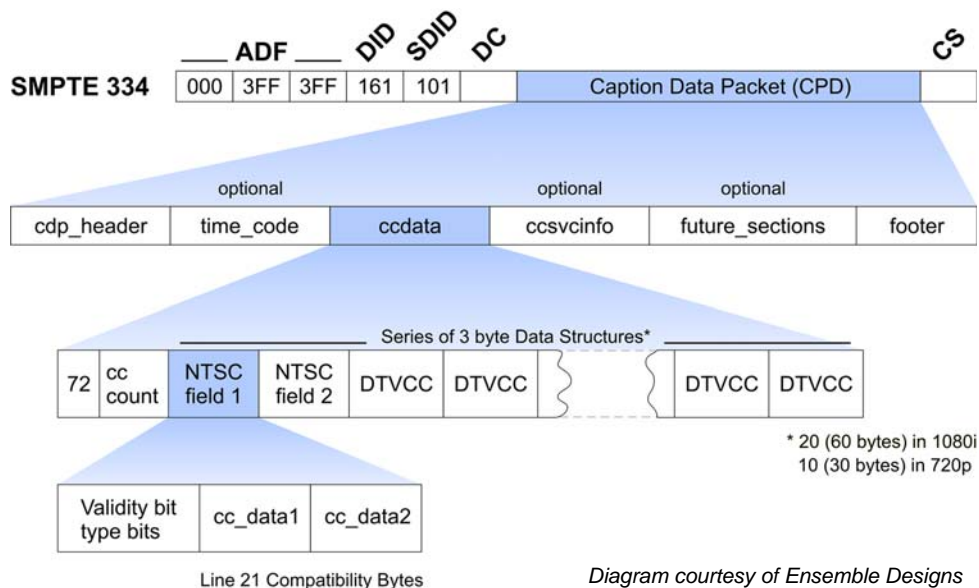
NTSC CC is defined in CEA-608-B, and DTVCC is defined in the newer CEA-708-B standard. In time, newer decoders are likely to drop support for NTSC CC and only support DTVCC. With this feature, you can easily leverage existing CEA-608-B data and populate the DTVCC data fields during the transcode process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

FlipFactory can collect captioning data from the following sources:

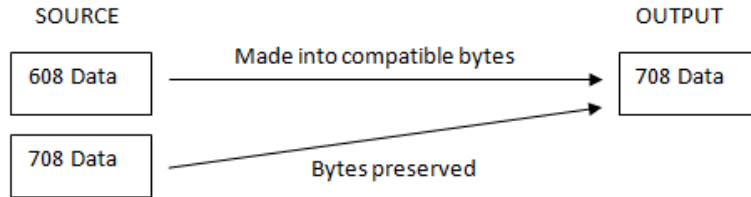
- FlipFactory decoders that extract captions from raw pixel data or from encoded MPEG or DV streams
- CEA-608-B line 21 data from an NTSC video stream that has been converted to a digital file using a product such as Pipeline
- CEA-608-B captioning information created by captioning software and saved to a .SCC file

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.

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.



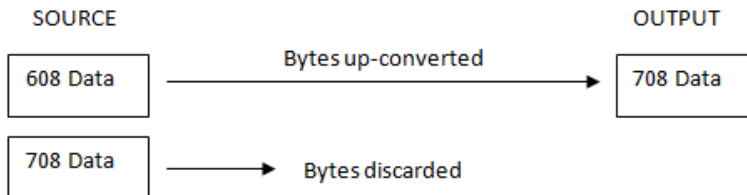
The NTSC fields shown in the above illustration are also called 608 compatibility bytes because these bytes are designed to hold CEA-608-B CC data. This legacy CEA-608-B CC data can be used to support CEA-608-B CC on downstream NTSC devices, and it can be displayed on DTVCC devices that are capable of displaying CC information encoded in the 608 compatibility bytes. When you configure a factory to create a file that supports DTVCC, FlipFactory automatically places the CEA-608-B CC data in the 608 compatibility bytes of the output file. No license or special configuration is required to transfer CEA-608-B CC data to the 608 compatibility bytes.



To convert the CEA-608-B CC data to DTVCC data, however, you must use the FlipFactory caption conversion feature, which is provided as a licensed option for FlipFactory 7.2 and later. The caption conversion feature 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 FlipFactory 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 FlipFactory transcode process generates new 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.

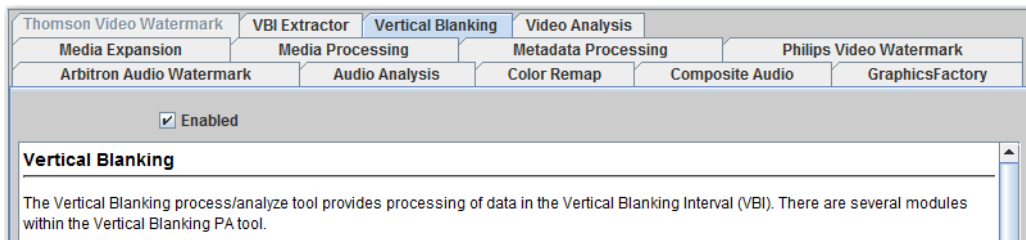
Enabling Caption Conversion

You can enable the caption conversion feature in an existing factory or in a new factory.

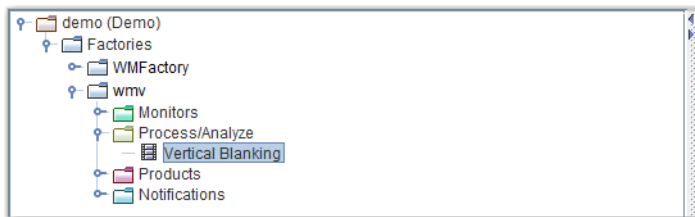
Note: This app note assumes you know how to create and configure FlipFactory factories and how to submit jobs. Review the FlipFactory User's Guide for details.

To enable conversion of CEA-608 caption data to CEA-708 format in a factory, use the following procedure:

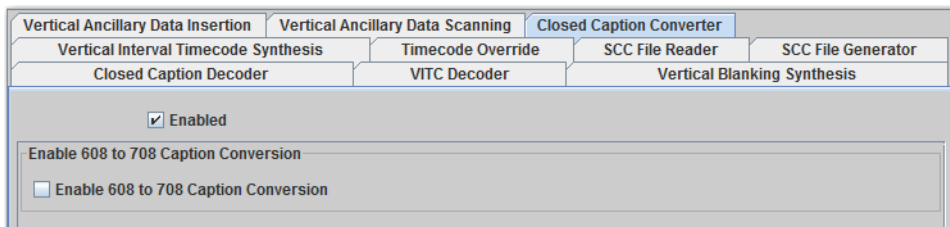
1. Open the Process/Analyze folder and click the Vertical Blanking tab.



2. Check the Enabled checkbox to enable Vertical Blanking.
3. Below the Process/Analyze folder, click Vertical Blanking to display the Vertical Blanking options.



4. Click the Closed Caption Converter tab.



5. Check the Enable 608 to 708 Caption Conversion checkbox.
6. Click the Save icon to save your changes.

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