

ccConvert



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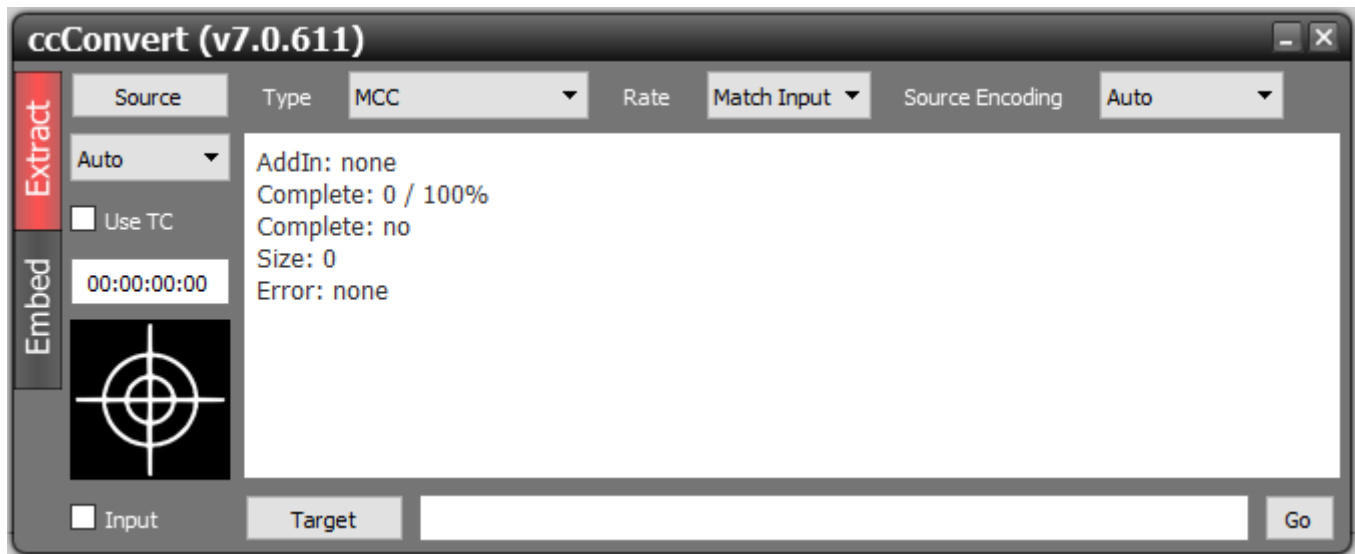
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ccConvert



ccConvert Suite is a suite of tools for converting, verifying and visually displaying closed captions. The ccConvert suite is made up of three tools: **ccEmbed/ccExtract**, **verifyCC** and **ccReview**. Standalone caption formats like SCC, MCC and AAF as well as subtitle formats like STL, EBU, SRT, XML Final Cut, YouTube and iTunes formats are supported as well as most media embedded captions in MXF (SMPTE 436, compression embedded), MOV/MP4 text track, MPEG-2/h.264 user data, transport stream SEI, Sony IMX embedded, LXF and GXF files. Cross conversion from any type to SCC, MCC and AAF for use in editing programs is provided, as well as up convert from SD captions to HD MCC and AAF formats. Side bar formats can also be embedded back into MXF and MOV files for final distribution. The captions can also be auto verified and visually checked either in-stream, independently or as a sidebar replacement of existing captions.

Here is a list of formats supported by ccConvert:

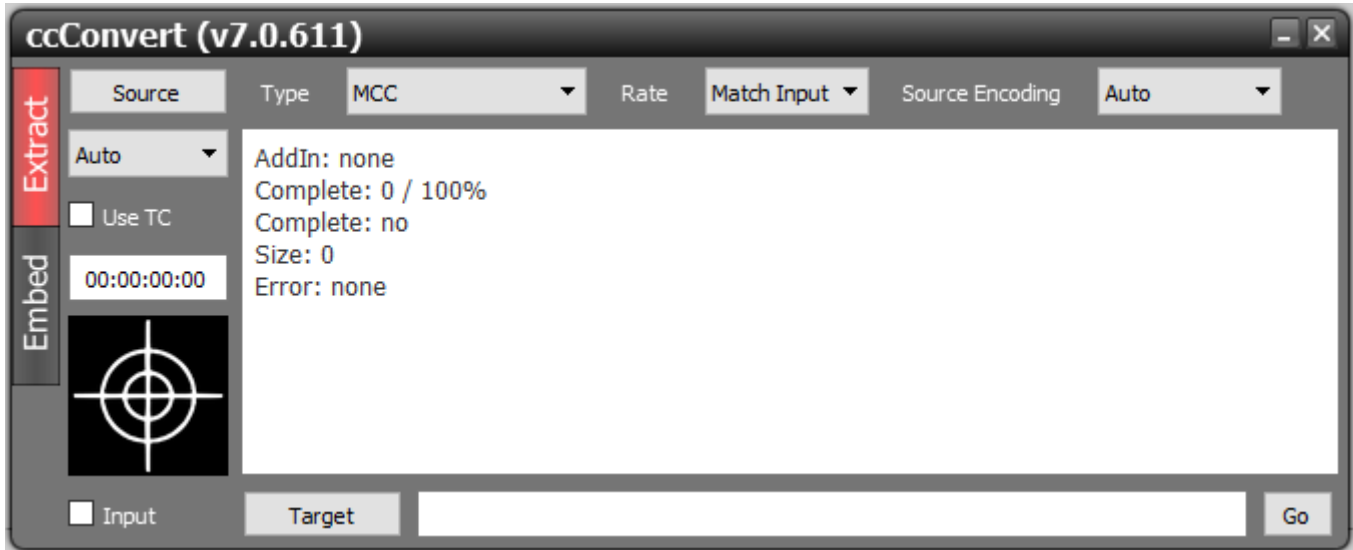
Format	Read	Write
AJA KiPro Mov/ProRes	R	W
Avid AAF CC Data Track (708 for Avid Editors)	R	W
Avid Caption - txt	R	W
Belle Nuit - stp	R	W
CaptionMaker - cap	R	
Cheetah - cap	R	
Comma Separated - csv	R	W
Digital Cinema 2007/2010 - xml	R	W
EBU Sub Titles - stl	R	W
Final Cut Pro - xml	R	W
Final Cut Pro X - xml	R	W
Flash - xml	R	W
GV XML/N0 data anc	R	W
GXF SMPTE 360 CC	R	
h.264/MPEG-4/AVC1 'user' CC	R	
iTunes Timed Text - txt	R	W
JSON (various) - json	R	W

LXF Leitch/Harris CC	R	
MCC 708 (MacCaption/PC-Caption/Adobe/etc)	R	W
MOV SD/HD CC tracks	R	W
MP4 SD/HD CC tracks	R	W
MPEG-2 'user' CC	R	
MXF Avid embedded CC	R	W
MXF SMPTE 436M	R	W
Prores embedded	R	W
QuickTime Text - txt	R	W
SAMI - smi	R	W
SCC Scenarist (608 SD with 708 up convert)	R	W
SoftNI - sub	R	W
Sony DVD - txt	R	W
Sony DVD Architect - sub	R	
Sub Station Alpha - ssa	R	W
SubRip - srt	R	W
Swift - sif	R	W
Timed Text - ttml, dxfp, xml	R	W
WebVTT/VTT - vtt	R	W
YouTube - sbv	R	W
YouTube Annotations - xml	R	W
YouTube Transcript - txt	R	W

Controls and Displays

Extract

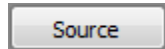
Pressing the **Extract** button (red in the diagram below) opens the Extract section of the GUI. The Extract section provides controls and displays for the extraction of closed caption files.



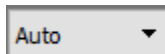
Extract button – press to select extract mode – this control turns red upon selection, and causes the interface to display controls specific to the extraction of closed caption files.



Embed button – press to select embed mode – this control turns red upon selection, and causes the interface to display controls specific to the embedding of closed caption files.



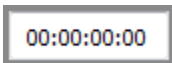
Source button – opens a browser, which allows the user to browse for a source file containing video and closed captions.



CC Data pulldown menu – use the pulldown menu to choose between **Auto** (automatically detect caption type), **Line 21** (Line 21 SD NTSC captions), **From Codec** (closed captions as contained in the codec), or **Compatibility Bytes** (CC data populates the 608 compatibility bytes and is converted and populated as native DTVCC data).



Use TC checkbox – when selected, will maintain the time code associated with the source file, and display the time code location in the associated field.



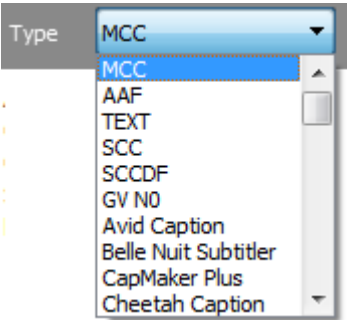
Time Code field – allows you to change the starting time of the captions being extracted. Some formats use seconds or real time. If the **Use TC** checkbox is selected, the user can enter a time code to create a caption file to match the time code of a video file.



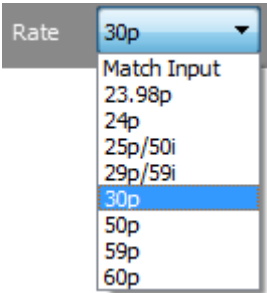
Drop field – to select a source file, the user can browse to a folder containing the source file, and drag and drop it onto the **Drop** field.



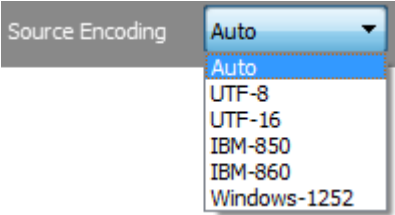
Input checkbox – selecting the Input checkbox means the new closed captions file will be created in the same folder as the source file. With the Input checkbox unselected, the user will be able to press the **Target** button and browse for a folder in which to save the new closed captions file.



Type pulldown menu – clicking on the **Type** pulldown menu reveals all supported types of closed captions. Use this pulldown menu to select the type of closed captions you intend to write.



Rate pulldown menu – use this pulldown menu to either select Match Input (use the same frame rate as the input file), or any of several other supported rates.



Source Encoding pulldown menu – use this pulldown menu to select the encoding method used.

AddIn: none
Complete: 0 / 100%
Complete: no
Size: 0
Error: none

Summary field – the **Summary** field displays details about the add-in (if any), the completion (percentage and yes/no), the size of the created file and whether any errors were observed in the conversion process.

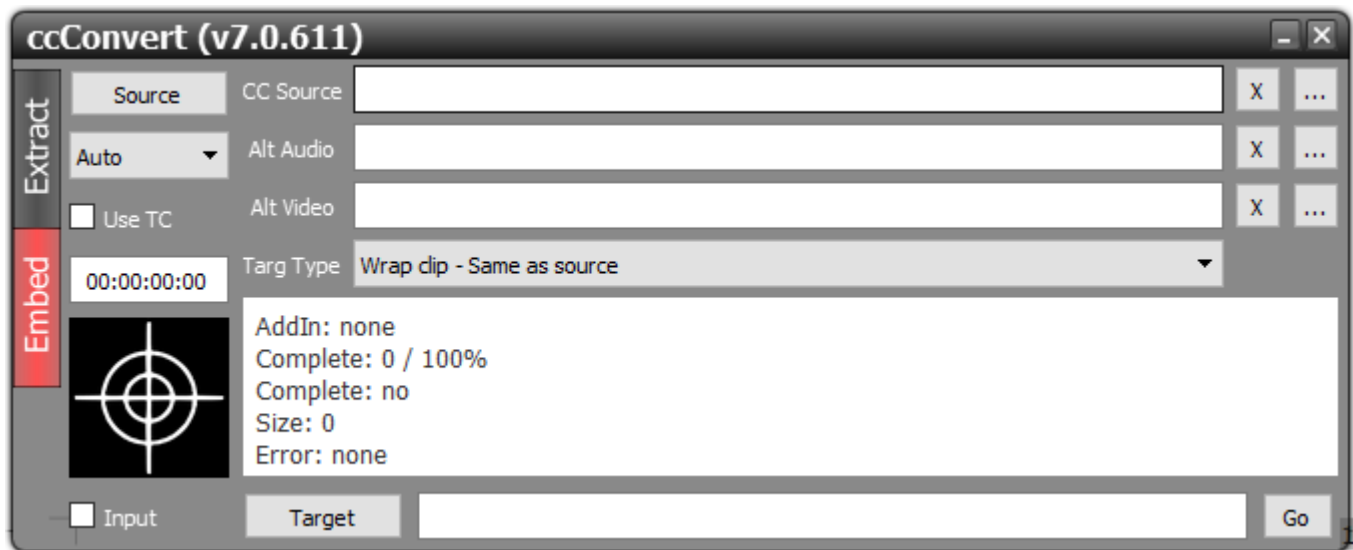
E:/aa01/forward/

Target button and field – where the **Input** button is unselected, the user will be able to browse to a folder other than the folder in which the source file is located. In this case, press the **Target** button to browse for a folder in which to save the new closed captions file. Once selected, the location will be displayed in the field to the right of the button.

Go button – press the **Go** button to begin the extraction process.

Embed

Pressing the **Embed** button (red in the diagram below) reveals the Embed section of the GUI. The Embed section provides controls and displays for the embedding of closed caption files into video files.



Extract

Extract button – press to select extract mode – this control turns red upon selection, and causes the interface to display controls specific to the extraction of closed caption files.

Embed

Embed button – press to select embed mode – this control turns red upon selection, and causes the interface to display controls specific to the embedding of closed caption files.

Source

Source button – opens a browser, which allows the user to browse for a source file containing video and closed captions.

Auto

CC Data pulldown menu – use the pulldown menu to choose between **Auto** (automatically detect caption type), **Line 21** (Line 21 SD NTSC captions), **From Codec** (closed captions as contained in the codec), or **Compatibility Bytes** (CC data populates the 608 compatibility bytes and is converted and populated as native DTVCC data).

Use TC

Use TC checkbox – when selected, will maintain the time code associated with the source file, and display the time code location in the associated field.

00:00:00:00

Time Code field – allows you to change the starting time of the captions being extracted. Some formats use seconds or real time. If the **Use TC** checkbox is selected, the user can enter a time code to create a caption file to match the time code of a video file.



Drop field – to select a source file, the user can browse to a folder containing the source file, and drag and drop it onto the Drop field.

Input

Input checkbox – selecting the Input checkbox means the new closed captions file will be created in the same folder as the source file. With the Input checkbox unselected, the user will be able to press the Target button and browse for a folder in which to save the new closed captions file.

CC Source X ...

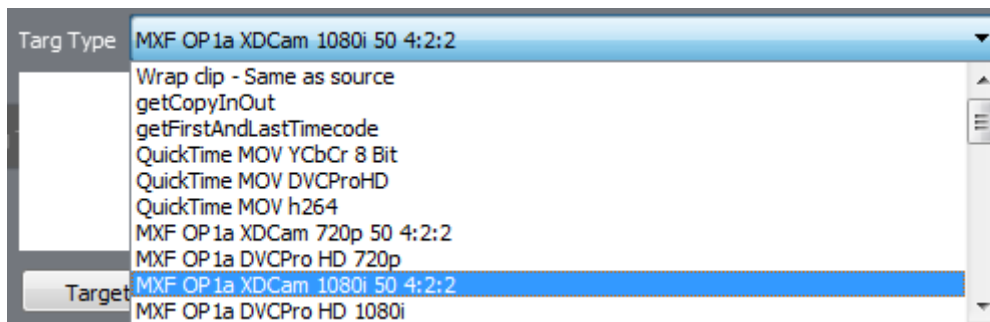
CC Source controls – the **CC Source** field displays the source for the closed captions to be embedded. The **X** button clears any selection that has been made. The **...** button opens a browser to allow the user to locate and load a closed caption file.

Alt Audio X ...

Alt Audio controls– the **Alt Audio** field displays the source for alternate audio to be embedded. The **X** button clears any selection that has been made. The **...** button opens a browser to allow the user to locate and load an audio file.

Alt Video X ...

Alt video controls– the **Alt Video** field displays the source for alternate video to be embedded. The **X** button clears any selection that has been made. The **...** button opens a browser to allow the user to locate and load a video file.



Targ Type pulldown menu– the **Targ Type** pulldown menu allows the user to select a target file type for the file being created during the embedding process.

AddIn: none
Complete: 0 / 100%
Complete: no
Size: 0
Error: none

Summary field – the Summary field displays details about the add-in (if any), the completion (percentage and yes/no), the size of the created file and whether any errors were observed in the conversion process.

E:/aa01/forward/

Target button and field – where the **Input** button is unselected, the user will be able to browse to a folder other than the folder in which the source file is located. In this case, press the **Target** button to browse for a folder in which to save the new closed captions file. Once selected, the location will be displayed in the field to the right of the button.

Go button – press the Go button to begin the extraction process.

How to Use ccConvert

Setup

Connect Hardware

ccConvert software will run on most available computers, but to support real time playback of specific file types, typically a powerful, fast system will be required.

To install and take advantage of all the features of **ccConvert** the system may need to be connected to various other hardware devices.

To view the output using an AJA, Bluefish444 or Blackmagic board, a supported board will have to be installed on the system, along with the required drivers. In these cases, suitable video and audio monitors and other devices would be useful.

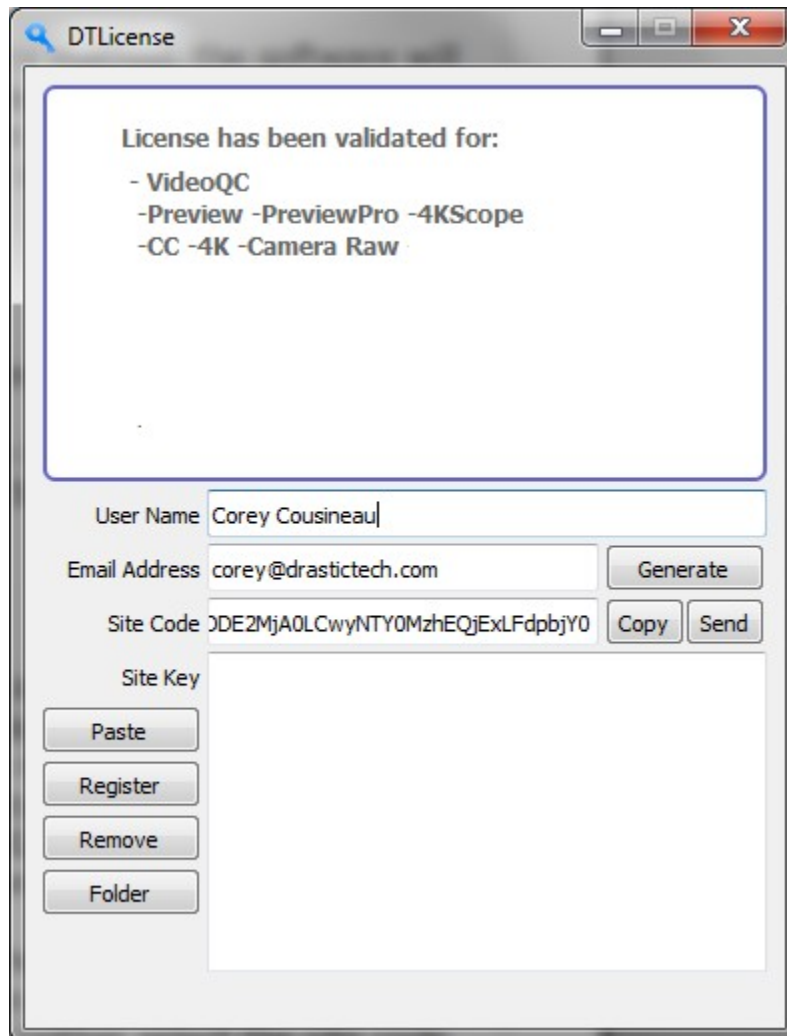
Install Software

Install **ccConvert** on the system. Regardless of the delivery method, the software will be available at some level as an (executable) installable file. In many cases the user will double-click on the file, or right click and select **Open** from the context menu. Follow the prompts to set where the software should be installed and make other installation-specific decisions.

Licensing

ccConvert will need to be licensed to run without demo limitations.

ccConvert installs an application called DTLicense which is included in the program folder. This may be accessed via the Start menu, at: **Program Files|ccConvert|License ccConvert**.



The screenshot shows the DTLicense application window. The title bar reads "DTLicense". The main content area displays the following text:

License has been validated for:

- VideoQC
- Preview -PreviewPro -4KScope
- CC -4K -Camera Raw

Below this, there are several input fields and buttons:

- User Name:** Corey Cousineau
- Email Address:** corey@drastictech.com
- Site Code:** JDE2MjA0LCwyNTY0MzhEQjExLFdpbjY0
- Site Key:** (empty field)

Buttons include: **Generate** (next to Email Address), **Copy** and **Send** (next to Site Code), **Paste**, **Register**, **Remove**, and **Folder** (all in a vertical column on the left).

Enter contact details: Type a first and last name into the **User Name** field.

Enter an email address: Type a valid email address into the **User Email** field. This is the email address at which the user will receive the required site key.

Generate the Site Code: Press the **Generate** button. This will populate the **Site Code** field with the site code. The site code is a string of alphanumeric characters which will be used to generate the site key.

Email the Site Code to Drastic: If the system is set up with email, the user may press the **Send** button, or open up a new email addressed to authorization@drastictech.com. Paste the site code into the body of the email, and indicate which software the license is for.

Receive the Site Key: Authorization will reply with an email containing the site key, another string of alphanumeric characters.

Enter the Site Key into DTLicense: Copy the site key from the email into the buffer, and paste it into the **Site Key** field, either using a standard paste command, or by pressing the **Paste** button (the button with the icon to the left of the **Remove** button).

Register the License: Press the **Register** button, and restart the software. This will update the license status and enable all the features supported by the requested license level.

Run ccConvert

Run the software by selecting ccConvert in the **ccConvert x64 6** folder.

There are two modes of working in ccConvert.

Extract Mode can read most closed caption types, including video files containing closed captions, and make a new closed caption file in any of our supported write types.

Embed Mode can take a closed caption file, and embed it into an existing video file. It can also take a video file containing closed captions, and replace the closed captions. The audio may also be replaced during these embedding operations.

Select a Source File

There are two methods to select a source file.

- a) Press the **Source** button and browse for a source file. Select it and press the **Open** button.
- b) Open a standard browser and find the folder containing the source file. Drag it and drop it onto the **Drop** field.

Set the Conversion Type

Press the **Type** pulldown menu to reveal the available types of closed captions files, and select the desired type from this list.

Set the Target Location

There are two methods to set the target location.

- a) Click the **Input** button – this choice sets the target location to the same folder as the source file.
- b) Press the **Target** button and browse to the location in which you would like the converted closed captions file to appear. Once selected, this location should be displayed in the **Save To** field.

Begin the Conversion

Press the **Go** button.

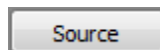
verifyCC

verifyCC software verifies many aspects of closed caption files, and displays the information in its summary field for review. The verification may be saved to a file for later review or collaboration, or copied for pasting into other documents.

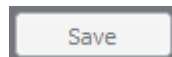
Controls and Displays



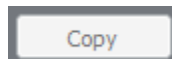
Drop field – to select a source file, the user can browse to a folder containing the source file, and drag and drop it onto the Drop field.



Source button – opens a browser, which allows the user to browse for a source file containing video and closed captions.



Save button – press the **Save** button to save the analysis into a file.



Copy button – press the **Copy** button to copy the analysis to the clipboard so you can paste it into documents, emails etc.

```
AddIn: none
Complete: 0 / 100%
Complete: no
Size: 0
Error: none
```

Summary field – the Summary field displays details about the add-in (if any), the completion (percentage and yes/no), the size of the created file and whether any errors were observed in the conversion process.

How to Use verifyCC

Here is how to use verifyCC to analyze a closed captions file

Run verifyCC

Run the software. If the default installation path is used, you can open it at: Start | Programs | ccConvert (x64 6) | verifyCC.

Select a Source File

There are two methods to select a source file.

- a) Press the **Source** button and browse for a source file. Select it and press the **Open** button.
- b) Open a standard browser and find the folder containing the source file. Drag it and drop it onto the **Drop** field.

Once the source file has been selected, analysis will begin immediately, with the information being displayed in the **Summary** field.

Save the Analysis to a File

Once a source file has been analyzed, press the **Save** button. This opens a standard browser. Navigate to your preferred location, type in a name for the file and save it.

Copy the Analysis to the Clipboard

Once a source file has been analyzed, press the **Copy** button. This copies the analysis to the clipboard, where it can easily be pasted into a document or email. verifyCC analyzes and displays the following information:

- header information
- time code validity
- preface
- size
- count
- count matching
- checksum
- valid 708
- valid 608

ccReview

ccReview is a hardware enabled media player included in ccConvert. The user will be able to open files and play them on their VGA monitor, and through supported video boards from AJA, Bluefish444 and Blackmagic. The **ccReview** player supports closed caption playback so you can review any incoming or delivery files you are processing.

Please refer to the documentation for videoQC for details on how to use this product.

Note: ccReview provides features equivalent to videoQC Pro. You can view information about the features included in videoQC Pro here:

<https://www.drastic.tv/productsmenu-56/videoiosoftwarelist>

How to Use ccReview

File Playback

Run the software. If the default installation path is used, you can open it at: Start | Programs | Drastic | ccReview.

Load a File

Press the **Open** button. A standard browser opens which allows the user to navigate to the location of the desired media file and load it for playback. Select a file and press the **Open** button in the browser.

Alternately, navigate to the folder where the desired media is located, and 'drag' the file onto the **ccReview** interface.

Once loaded, the file will be cued to the first frame and ready to play. Its name will appear in the Play List and in the Transport section.

Cue to a Location

Transport Controls: Jump through the file in 5 second increments using the **+5** button to get near the desired location. Press **Play** (or **Reverse Play**) if you're close, then **Pause** when you're real close. The **+1** (or **-1**) button can get you to the exact frame, just keep clicking.

Position Bar: Select a point on the Position bar at the top of the transport controls and click on it. The file will be immediately cued to that relative location. Click to 'drag' the pointer to the left or right to get to the desired location.

Use the Time Code Display: Click with the mouse in the time code display – now a cursor should appear in this display, which allows you to cue to an exact location. Enter a time code location after 00:00:00:00 and before the end of the file, and press the **Enter** button on the keyboard. The file will be immediately cued to that exact location.

Use the Transport Controls

With a file loaded, press the **Play** button to play the file from start to finish. The other transport controls are available for cueing (plus or minus 1 frame, plus or minus 5 seconds) and quick review (reverse play, fast reverse, pause, fast forward) functionality. **Stop** cues the first frame of the file.

ccReview supports the J-K-L keys for basic transport control.

Playback Modes

The **Mode** button on the Transport section lets you cycle through available playback modes.

Normal Mode - In **Normal Mode**, file playback starts at the cued location, and stops at the end of the file or PlayList.

Loop Mode - In **Loop Mode**, the file plays to the end of the file or PlayList, then restarts playback at the beginning, playing repeatedly until interrupted.

Palindrome Mode - In **Palindrome Mode**, the file plays forward to the end of the file or PlayList, then restarts playback at the end and plays in reverse, front to back and back to front repeatedly until interrupted.

Display

Zoom In/Out

Press the **Picture** button in the **Transport Control** section to enter **Picture** view. Press Ctrl+Z, and click (left mouse button) to drag the mouse pointer to the left or right. The size of the image will shrink or enlarge. This allows the user to see fine details in the video portion of the file.

To return to normal size, press **Ctrl+Right Click** on the keyboard and shift the mouse slightly.

Pan/Center

Press the **Picture** button in the **Transport Control** section to enter **Picture** view. Press Ctrl+C, and click (left mouse button) to drag the mouse pointer to the left or right. The image will move around the screen correspondingly. This allows the user to focus on a particular area of the image, which is especially useful where the user has zoomed in and wants to see a specific portion of the video in fine detail.

To return to the normal location, press **Ctrl+Right Click** on the keyboard and shift the mouse slightly.

Full Screen Mode

Press the **Full** button to enter 'Full Screen' mode. In 'Full Screen' mode the portion of the interface within the GUI window expands to fill the VGA monitor. This setting does not affect the video output from the AJA, Bluefish444 or Blackmagic board, as the interface is not present through the video board's HD-SDI output.

Alternately the user may press **Ctrl+F** on the keyboard to enter full screen mode.

The **Full** button becomes a **Restore** button when in 'Full Screen' mode. To return to normal, non-full screen mode, press the **Restore** button or **Ctrl+F** on the keyboard.

Note: in normal, non-full screen mode the user can simply optimize the window to retain the minimize/resize/close controls yet still see a large image.

Closed Captioning

Where an existing file has a supported form of closed captioning the user may opt to display it over the video output. Once the file is selected, press the **CC** button and select the specific closed captioning type. When the file plays you should see the closed captioning.

To turn off the closed captioning display, press the **CC** button and select **Disabled**.

Lock/Unlock

The user may press the **Unlock** button to enter 'Unlocked' mode. This mode causes the controls to disappear when the mouse is not above the interface, and thereby increases the amount of screen available for displaying the video.

The **Unlock** button becomes a **Lock** button in 'Unlocked' mode, and pressing the button will return **ccReview** to the normal, 'Locked' mode with the controls and displays always shown.

Display Time Code Over Unlocked GUI

When in 'Unlocked' mode, and once the mouse is not above the interface, the controls and displays will disappear. Press the **T** button on the keyboard to display the time code over the video in this mode.

To remove the time code overlay from the 'Unlocked' mode, press the **T** button on the keyboard.

MRMetadata - Extract a File's Metadata Information

There is a command line tool called by ccConvert called MrMetadata.exe. You can get the command line with

```
mrmetadata -?
```

mrmetadata - Extract metadata information from GXF, MXF, AVI, etc.

```
Usage: mrmetadata.exe -i <sourcefile> -t <targetfile> -qlx -r <01:00:00:00> -j # -k <picon.jpg> -e # -c
-a -o <outputdir> -f # -s # -t # -n 1 -w <output.wav> -v <outputvideo.raw>
-m <reference.mov>
-i <sourcefile> File to be referenced
Optional parameters:
-t <targetfile> File and path to write to
-q Quiet mode.
-l Loud mode.
-x Export metadata XMLS
-r 01:00:00:00 Override time code start
-j # Create a JPEG picon from frame #
-k <picon.jpg> Filename for JPEG picon frame
-e # Extract a JPEG picon for every # frame
-s Force CC in video stream
-c # Convert closed captioning to
0=MCC, 1=AAF, 2=TEXT, 3=SCC, 4=SCCDF, 5=N0
100=Avid Caption, 101=Belle Nuit Subtitler,
102=CapMaker Plus, 103=Cheetah Caption, 104=Csv, 105=Csv2, 106=Csv3,
107=D-Cine SMPTE 2007, 108=D-Cine SMPTE 2010,
109=EBU STL, 110=Final Cut Pro Xml,
111=Final Cut Xml Gap, 112=Final Cut Pro X Xml,
113=Final Cut Pro XCM, 114=Flash Xml,
115=iTunes Timed Text, 116=JSON, 117=JSON Type 2,
118=JSON Type 3, 119=JSON Type 4, 120=QuickTime text,
121=SAMI, 122=SAMI modern, 123=Scenarist, 124=DVD_SCC,
125=DVD_SCCDF, 126=SoftNi sub, 127=Sony DVDArchitect,
128=Sony DVD Exp dur, 129=Sony DVD line/dur,
130=Sony DVD Tabs, 131=SubRip, 132=Sub Station Alpha,
133=Swift V2, 134=Timed Text 1.0, 135=TT 2006-04 .dfxp,
136=TT 2006-04 .html, 137=TT 2006-04 .xml, 138=WebVTT,
139=YT Annotations, 140=YouTube sbv,
141=YouTube Transcript,
-f # Force frame rate (23, 24, 25, 29, 30)
-o <out-dir> CC output directory
-p # Detect scene changes, # = threshold
-d # Scene change output type, 0-XML, 1-ALE, 2-EDL
-n # First channel of source audio for the wave file (0,2,4)
-w <output.wav> Extract audio to a wave file
-w <outputvideo.raw>Extract video to raw stream file
-a # Interpret input file using encoding
0=Auto, 1=UTF-8, 2=UTF-16, 3=IBM-850, 4=IBM-860, 5=Windows-1252
-m <reference.mov> Create a QuickTime reference file
```

Keyboard/Clipboard Commands

ccReview has a full set of keyboard commands available. Key press events can be sent to control playback like:

c = play
v = pause
b = reverse play
z = fast reverse
x = fast forward

A full set of keyboard commands is available here:

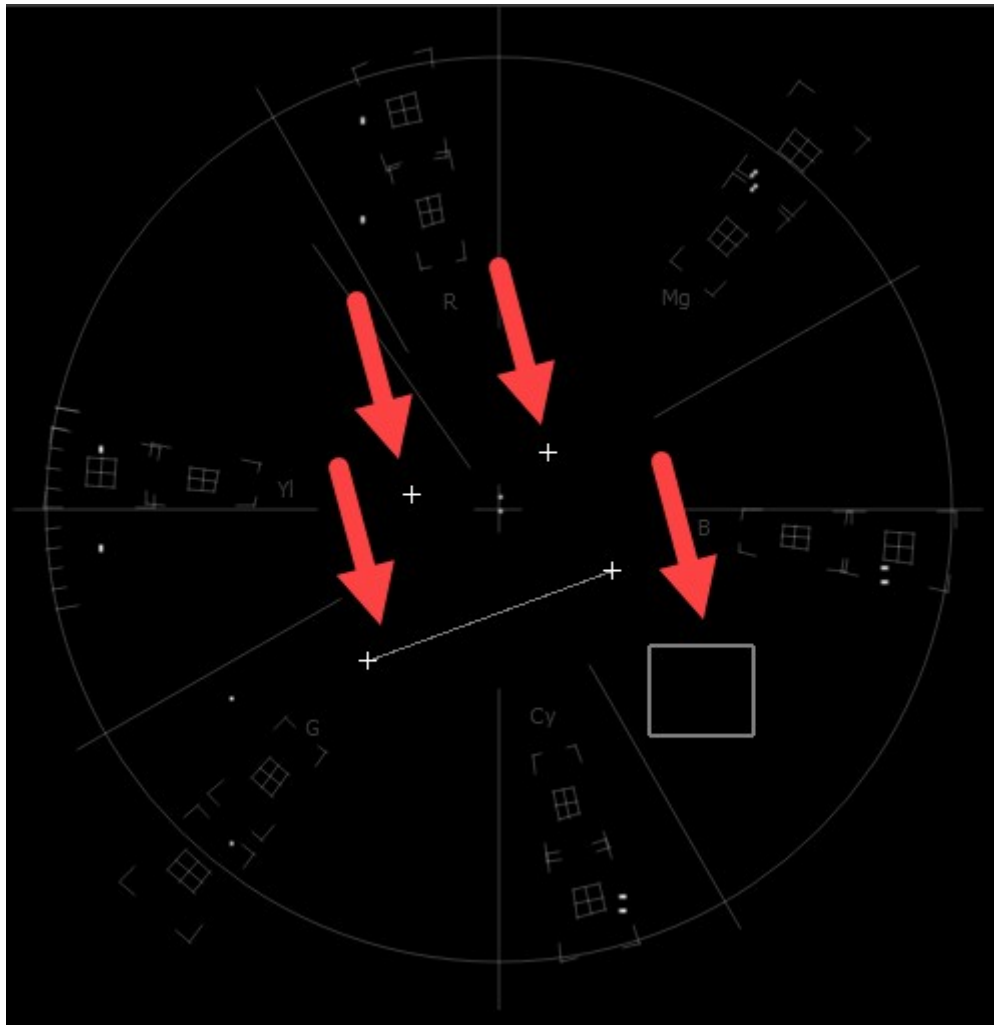
<http://www.drastic.tv/images/software/drastickeyboard.pdf>

ccReview also supports using the system clipboard. A cut/copy on the application (via keyboard or programmatically) will pull the current time code in a ##:##:##:## format. Pasting a time code into the application will cause it to seek to that absolute (0 based) point in the file. If the pasted buffer contains a file URL, then that file will be loaded into that application.

Mouse Control

ccReview also features extended mouse controls. These include:

- <MouseWheel> - zoom in and out
- <CTRL><MouseWheel> - volume up and down (0..200%)
- <CTRL><LeftClick> - volume to 100% (unity)
- <CTRL><SHIFT><MouseWheel> - change background luminance
- <LeftClick>Drag - pan and scan the video image in the app
- <ALT><LeftClick> - view magnifying window
 - <LeftClick> - bring up color selector with color under cursor
 - <RightClick> - exit magnify mode
- <DoubleLeftClick> - enter and exit full screen mode
- <T> - enable or disable time code display in full screen



Making Marks/Guides (cross, line and box)

- <SHIFT><LeftClick> - Make a point/cross
- <SHIFT><ALT><LeftClick> - Undo last
- <SHIFT><CTRL><LeftClick> - Drag to make a line
- <SHIFT><CTRL><ALT><LeftClick> - Drag to make a box
- <SHIFT><RightClick> - Clear all markers/guides

Finish

Exit

Once you are finished using **ccReview**, click on the **X** in the upper right hand corner.

This manual has been compiled to assist the user in their experience using **ccConvert** software. It is believed to be correct at the time of writing, and every effort has been made to provide accurate and useful information. Any errors that may have crept in are unintentional and will hopefully be purged in a future revision of this document. We welcome your feedback.

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