

# Cerify® – Automated Quality Control of File-based Video

## CYSW Data Sheet

Job ID	Name	Job Status	Progress	MediaSet	Profile	Priority	File Size	Creator	Status	Creation Time	Start Time	End Time	Channel	Copy	
1	D-10V	Complete	100%	HDTV	HDTV	High	1.37GB	topho	Active	2008-02-05 02:10:03	2008-02-05 02:10:03	2008-02-05 02:12:30			
2	1 Commercials	Complete	100%	Commercials	Commercials	Medium	31.1MB	admin	Active	2007-11-08 14:58:21	2007-11-08 14:58:48	2007-11-08 14:59:33			
3	1 Movies	Complete	100%	Movies	Movies	Low	39.4MB	admin	Active	2007-11-08 14:58:42	2007-11-08 15:02:15	2007-11-08 15:03:16			
4	1 News	Complete	100%	News	News	Medium	31.3MB	admin	Active	2007-11-08 14:58:58	2007-11-08 14:59:19	2007-11-08 15:00:15			
5	1 Sports	Complete	100%	Sports	Sports	Medium	31.8MB	admin	Active	2007-11-08 14:59:29	2007-11-08 15:00:09	2007-11-08 15:01:00			
6	Andrea	Complete	100%	Andrea Video	Andrea Video	High	545MB	admin	Active	2008-05-19 21:08:51	2008-05-19 21:08:59	2008-05-27 16:37:56			
7	Copy of 01_MG2_MVTFast	Complete	100%	TestMVF_MG2	MG2_MVF_Prof	High	328MB	admin	Active	2008-11-20 14:58:51	2008-11-20 14:58:59	2008-11-20 15:24:09			
8	Copy of 02 Commercials	Complete	100%	Commercials_v5	Commercials	Medium	2	31.1MB	admin	Active	2008-03-09 08:58:02	2008-03-09 08:58:02	2008-03-09 08:59:04		
9	JOB001	Complete	100%	M0001	PROF001	High	1	114MB	admin	Active	2008-02-05 05:52:11	2008-02-05 05:52:11	2008-02-05 05:52:53		
10	TalkSports_2008-06-17 05:51:04	Complete	100%	MPEG2-TS	MPEG2-TS MPEG1-Audio	Medium	2	173MB	slave	Active	2008-06-17 05:51:04	2008-06-17 05:51:04	2008-06-17 05:57:53		

### Tests Include

- Encoding Errors, Syntax Errors, Format, Bit Rate, Quantization, Frame Rate, GOP Length, Aspect Ratio, Color Format, Buffer Analysis, File Size, Correct PID, CableLabs VoD Compliance, Number of Video and Audio Streams, Number of Audio Channels
- Video Playtime, Signal Levels, Gamut, Luminance, Chrominance, Black Frame Detection, Video Quality (Blockiness), Freeze Frame Detection, Field Order
- Audio Playtime, Peak and Minimum Levels, Audio Loss, Clipping, Silence, Mute, Test Tones, Multitrack Audio Testing, Audio Loudness Testing (except Dolby E), Peak Audio-level Reporting (except Dolby E)

### Formats

- Format – All Frame Sizes, Bit Rates, and Resolutions for SD/HD and Mixed Workflows
- Container – MPEG TS/PS, MXF, GXF, MP4, QuickTime, ASF (Windows Media), 3GPP, DNxHD (through QuickTime)
- Video – MPEG-2 (IMX, XDCAM), H.264/AVC, MPEG-4, H.263, VC-1/WMV, DV/DVCPPro25/50/100/HD, Apple ProRes 422/422(HQ)/422(Proxy)/422(LT)/444\*1, AVC-Intra, JPEG-2000\*1
- Audio – MPEG-1/2, AAC, HE AAC, PCM (AES, BWF, AIFF, WAV), DV, WMA, Dolby D / AC-3, Dolby E

### Applications

- Broadcasters – For checking audio and video after encoding, at ingest, after editing, after transcoding, and before playback for terrestrial, satellite, cable, internet, and video-on-demand content
- Archiving – For checking integrity before and after archiving
- Content Providers – For checking post production and aggregated content has been correctly encoded and conforms to the required quality and format

### Features & Benefits

- Provides Exception-based Technical Compliance to Enable the QC Teams to Focus only on the Problem Content and the Subjective Requirements
- Performs Consistent and Thorough Checks of Incoming Video Files against User-defined Templates
- Integrates with Video Servers
- Logs Errors, Informs Automation Systems, plus Programmable Actions such as E-mail User Alert, Quarantine and Move Files
- XML-based Templates to Reduce Ingest Rejection due to Noncompliance
- Web-based Multiuser Interface
- Flexible Windows Software-only Solution
- All the Test Features of the Cerify 200 Market-leading Auto-QC Product
- CeriTalk** API for Integration with Automation and Asset Management Systems
- Available in 2 Configurations: Stand-alone or Enterprise (clustered for higher parallel processing requirements)

## With Cerify You Can Ensure that Your Content is Ready for Delivery

Quality control of file-based video that may be ingested from different sources and encoded at different bit rates, formats, and compression standards for SD/HD, VOD, and IPTV delivery presents considerable operational challenges. File-based video must be quality checked for:

- Correct Encoding Syntax:** At the digital level the audio and video must be correctly encoded without errors in accordance with the compression standard, so that it plays out correctly at the customer's STB/payout device
- Correct Encoding Parameters:** The audio and video bit rates, GOP structure, video color-space, color depth, frame size, frame rate, aspect ratio, and quantization levels must be correct
- Correct Baseband and Quality Levels:** The analog parameters of signal levels, luma, chroma, gamut, and quality levels of black frames, video quality (blockiness), loss of audio, audio clipping, and video and audio playtime

Manual inspection can playout, watch, and listen but is subjective and cannot look inside the encoding to check that the correct syntax and parameters have been used.

Cerify solves these problems, and can be easily integrated with Automation and Asset Management systems using the **CeriTalk** API.

Cerify SW is the functionally equivalent software version of the CYC200, the world's 1st and leading automated system for checking/verifying file-based video content prior to delivery or use.

The XML-based test templates can be exchanged between Cerify systems, and applied as the definition of the required test standards between suppliers and broadcasters to establish Service-level Agreements and reduce costly churn (rework of content).

The Cerify Developer Community (CDC) of companies working together on integrated solutions is expanding rapidly and is featured on the Tektronix website.

\*1 There are no syntax checks for these codecs.

## User Interface

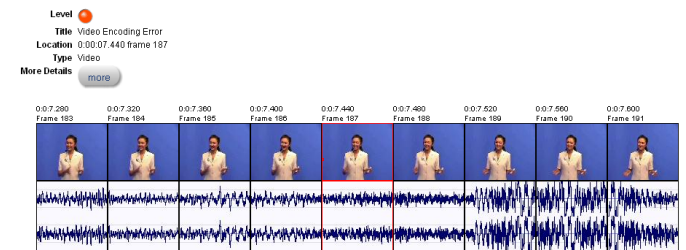
Easy-to-use web browser interface shows job status results at top level as red light / green light

Result	Filename	Size	Status	Progress	Start Time	Poster Frame
<span style="color: red;">●</span>	ftp://cerifycontroller/content/news/airport_interview.ts	8.45MB	Complete	100%	2006-06-16 13:08:09.0	
<span style="color: red;">●</span>	ftp://cerifycontroller/content/news/beijing_weather_girl.ts	8.03MB	Complete	100%	2006-06-16 13:08:10.0	
<span style="color: green;">●</span>	ftp://cerifycontroller/content/news/live_report.ts	8.47MB	Complete	100%	2006-06-16 13:08:33.0	
<span style="color: green;">●</span>	ftp://cerifycontroller/content/news/news360.ts	7.88MB	Complete	100%	2006-06-16 13:08:34.0	

Click to get job details

Result	Name	Job Status	Progress	MediaSet	Profile	Priority	File Size	Creator	Status	Creation Time	Start Time	End Time	Channel	Copy
<span style="color: green;">✔</span>	01C01	Complete	100%	HCV	HCV	High	1.37MB	tosho	Active	2008-02-05 02:10:03	2008-02-05 02:12:00	2008-02-05 02:12:00		
<span style="color: red;">✘</span>	1 Commercials	Complete	100%	Commercials	Commercials	Medium	31.1MB	admin	Active	2007-11-08 14:58:21	2007-11-08 14:59:33	2007-11-08 14:59:33		
<span style="color: red;">✘</span>	1 Movies	Complete	100%	Movies	Movies	Low	39.4MB	admin	Active	2007-11-08 14:58:42	2007-11-08 15:03:16	2007-11-08 15:03:16		
<span style="color: red;">✘</span>	1 News	Complete	100%	News	News	Medium	4.31MB	admin	Active	2007-11-08 14:58:58	2007-11-08 15:00:15	2007-11-08 15:00:15		
<span style="color: red;">✘</span>	1 Sports	Complete	100%	Sports	Sports	Medium	2.31MB	admin	Active	2007-11-08 14:59:25	2007-11-08 15:01:00	2007-11-08 15:01:00		
<span style="color: red;">✘</span>	Andrea	Complete	100%	Andrea	Andrea Video	High	3.54MB	admin	Active	2008-05-19 21:08:51	2008-05-19 21:08:52	2008-05-27 18:37:56		
<span style="color: green;">✔</span>	Copy of 001_MG2_M07Test	Complete	100%	TestREV_MG2	MG2_M07_Prof	High	4.32MB	admin	Active	2008-11-20 14:38:51	2008-11-20 14:38:59	2008-11-20 14:38:59		
<span style="color: green;">✔</span>	Copy of 02 Commercials	Complete	100%	Commercials_05	Commercials	Medium	2.31MB	admin	Active	2008-03-09 08:08:02	2008-03-09 08:08:02	2008-03-09 08:08:02		
<span style="color: green;">✔</span>	JOB001	Complete	100%	M0001	PROF001	High	1.14MB	admin	Active	2008-02-05 05:52:11	2008-02-05 05:52:23	2008-02-05 05:52:23		
<span style="color: red;">✘</span>	Tell Sports_2006-06-17 05:51:04	Complete	100%	MPEG2-TS	MPEG2-TS MPEG2 Audio	Medium	2.173MB	slave	Active	2006-06-17 05:51:04	2006-06-17 05:57:53	2006-06-17 05:57:53		

Click to get details of stream errors



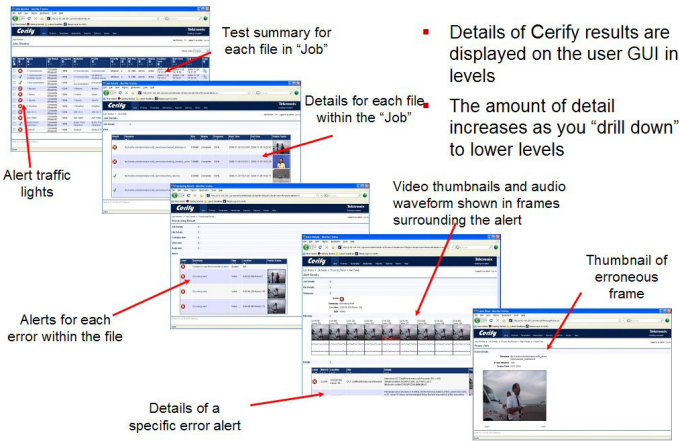
Report by job, type, date range, file name, etc.

Level	Type	Location	Details
error	video	0:00:00.080 Frame 3	Invalid Code (alertID: 22015) In an I-picture, I_code[] (I) must be 15. Here it is set to 2. Stream position: 0:00:00.120, bit 3 Bitstream content: (VSPFC)CSLIMH362
error	video	0:00:06.200 Frame 156	DCT coefficient index out of bounds (alertID: 22109) Intra-block DCT coefficient index out of bounds (65 == 64) Stream position: 0:00:07.000 (dec: 3077807), bit 7 Bitstream content: (VSPFC)CSLIMH362
error	video	0:00:06.200 Frame 156	Bad slice order (alertID: 22210) Restricted slice structure is in effect, yet the first macroblock of the current slice (n=0, w=31, slice=31) does not immediately follow the last macroblock of the preceding slice (n=2, w=30, slice=30). Stream position: 0:00:07 (dec: 3078154), bit 7 Bitstream content: (VSPFC)CSLIMH362
error	video	0:00:06.200 Frame 156	Invalid VLC for macroblock address increment (alertID: 22105) Invalid VLC for macroblock address increment encountered bit pattern '00000010101'. This does not match any valid code value. Stream position: 0:00:07 (dec: 3078154), start bit 1 Bitstream content: (VSPFC)CSLIMH362
error	video	0:00:06.200 Frame 156	Bad slice order (alertID: 22210) Restricted slice structure is in effect, yet the first macroblock of the current slice (n=0, w=32, slice=32) does not immediately follow the last macroblock of the preceding slice (n=1, w=31, slice=31). Stream position: 0:00:07 (dec: 3078155), bit 7 Bitstream content: (VSPFC)CSLIMH362
error	video	0:00:06.840 Frame 172	Slices must be contained within a single row of macroblocks. The current macroblock (n=0, w=18) belongs to a slice from a previous row. Stream position: 0:00:07 (dec: 3078155), bit 0 Bitstream content: (VSPFC)CSLIMH362
error	video	0:00:06.840 Frame 172	Slices must occur in raster scan order and not overlap. However the current macroblock with index 610 (n=0, w=18, slice=18) occurs earlier in raster scan order than the previously decoded macroblock with index 610 (n=0, w=18, slice=18). Stream position: 0:00:07 (dec: 3078155), bit 7 Bitstream content: (VSPFC)CSLIMH362

Level	Type	Location	Details
error	video	0:00:07.440 frame 187	Bad slice order (alertID: 22210) Restricted slice structure is in effect, yet the first macroblock of the current slice (n=0, w=23, slice=23) does not immediately follow the last macroblock of the preceding slice (n=43, w=22, slice=22). Stream position: 0:00:08 (dec: 3140037), bit 0 Bitstream content: (VSPFC)CSLIMH362

See and Solve test results



Characteristics

Standards Supported

**Format** – All frame sizes, bit rates, and resolutions for SD/HD and mixed workflows.  
**Container** – MPEG TS/PS, MXF, GXF, MP4, QuickTime, ASF, 3GPP, DNxHD (through QuickTime).  
**Video** – MPEG-2 (IMX, XDCAM), H.264/AVC, MPEG-4, H.263, VC-1/WMV, DV/DVCPPro25/50/100/HD, Apple ProRes 422/422(HQ)/422(Proxy)/422(LT)/444\*1, AVC-Intra, JPEG-2000\*1.  
**Audio** – MPEG-1/2, AAC, HE AAC, PCM (AES, BWF, AIFF, WAV), DV, WMA, Dolby D / AC-3, Dolby E.  
 \*1 There are no syntax checks for these codecs.

Test Templates and Levels are User-controlled and Include:

- Container-level Transport System Tests
  - Correct Standard and Integrity
  - File size, Bit Rate, Playtime, Number of Video and Audio Streams in Transport Container
  - Packet Size, CableLabs VOD Compliance
  - Signalling of Close Captions, Teletext
- Video Tests
  - Correct Encoding Standard, Profile, and Syntax Checks for Encoding Errors
  - GOP Structure, Quantization, Frame Rate, Bit Rate, Frame Size, Interlaced/Progressive, Aspect Ratio
  - Baseband Tests including Gamut Levels, Luma, Chroma, Signal Levels, Letterbox/Pillarbox, Playtime
  - Color Depth, Color Format (4:2:0, 4:2:2), Copyright
  - Black Frames (Lead in, lead out, and during the video), Video Quality (Blockiness), Frozen Frames, Field Order
- Audio Tests
  - Correct Encoding Standard, Profile, Syntax Checks for Encoding Errors
  - Sample Rate, Bit Rate, Playtime
  - Number of Channels, Peak and Minimum Signal Levels on Each Channel
  - Audio Silence (Lead in, lead out, and during the video), Clipping, Mute, Test Tones
  - Long and Short Audio Loudness Tests for All Supported Audio Codecs except Dolby E Codec per ITU-R BS.1770 Standard
  - True Peak-level Tests for All Supported Audio Codecs except Dolby E Codec
- Action Templates and Reporting
  - Copy or Move File on Success or Error
  - E-mail Alerts with Test Reports
  - Web-based On-screen Job Reports and Detailed Drill-down to Error Details
  - Text/HTML Query Reports of All Files in the Database with Full File Details and Error Reports
- CeriTalk Automation API
- Multiple User Templates and Profiles can be set up for Different Content Types and Sources
- XML-based Templates can be Imported and Exported
- Automatic Reprocessing of a File, if there is a Change in the Last Modified Time or the Size of the File

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- Switzerland 00800 2255 4835\*
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- United Kingdom & Ireland 00800 2255 4835\*
- USA 1 800 833 9200

### System Requirements

For a single channel of Cerify, the minimum requirements are the following, additional memory may be required to support a greater number of channels:

- Windows XP, Vista, 7, Server 2003, or Server 2008
- Processor Speed – 3 GHz
- Memory – 2 GB RAM
- Ports – USB and Ethernet
- Hard Drive – 20 GB available

### Ordering Information

Product	Option	Description
CYSW		Cerify single-channel software licence for MPEG-2, MPEG-4, H.263 (Baseline), H.264/AVC, VC-1, and DV options
CYSW	CH	Convert one additional single-channel software license from a CYx100/200 platform to a CYSW platform. Up to 8 of these may be used with a single CYSW stand-alone configuration, or up to 50 may be used with a CYSW Enterprise configuration
CYSW	ENT-5	Enterprise solution of up to 5 server units
CYSW	ENT-10	Enterprise solution of up to 10 server units
CYSW	ENT-20	Enterprise solution of up to 20 server units
CYSW	ASM	One year of software updates and technical phone support per install of Cerify CYSW



Product(s) are manufactured in ISO registered facilities.



Product(s) complies with IEEE Standard 488.1-1987, RS-232-C, and with Tektronix Standard Codes and Formats.

\* European toll-free number. If not accessible, call: +41 52 675 3777

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**For Further Information.** Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit [www.tektronix.com](http://www.tektronix.com)



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