

# Cerify™ - Automated Quality Control of File-based Video

## CYSW Data Sheet

| Job ID | Name                            | Job Status | Progress | Media Set      | Profile           | Priority | File Size | Creator | Status | Creation Time | Start Time          | End Time            | Channel | Copy |
|--------|---------------------------------|------------|----------|----------------|-------------------|----------|-----------|---------|--------|---------------|---------------------|---------------------|---------|------|
| 1      | 1 HDV                           | Complete   | 100%     | HDV            | HDV               | High     | 1         | 137MB   | admin  | Active        | 2008-02-05 02:10:03 | 2008-02-05 02:12:39 |         |      |
| 2      | 1 Commercials                   | Complete   | 100%     | Commercials    | Commercials       | Medium   | 2         | 31.1MB  | admin  | Active        | 2007-11-08 14:58:21 | 2007-11-08 14:59:33 |         |      |
| 3      | 1 Movies                        | Complete   | 100%     | Movies         | Movies            | Low      | 3         | 39.4MB  | admin  | Active        | 2007-11-08 14:58:42 | 2007-11-08 15:03:16 |         |      |
| 4      | 1 News                          | Complete   | 100%     | News           | News              | Medium   | 4         | 31.3MB  | admin  | Active        | 2007-11-08 14:58:56 | 2007-11-08 15:00:15 |         |      |
| 5      | 1 Sports                        | Complete   | 100%     | Sports         | Sports            | Medium   | 2         | 31.8MB  | admin  | Active        | 2007-11-08 14:59:25 | 2007-11-08 15:01:00 |         |      |
| 6      | Andrea                          | Complete   | 100%     | Andrea Video   | Andrea Video      | High     | 3         | 545MB   | admin  | Active        | 2008-05-19 21:08:51 | 2008-05-19 16:37:56 |         |      |
| 7      | Copy of 02 Commercials          | Complete   | 100%     | TestRef_MG5    | MG5_MOF_Prof      | High     | 4         | 328MB   | admin  | Active        | 2008-11-20 14:58:51 | 2008-11-20 15:24:59 |         |      |
| 8      | Copy of 02 Commercials          | Complete   | 100%     | Commercials_M5 | Commercials       | Medium   | 2         | 31.1MB  | admin  | Active        | 2009-03-09 08:58:02 | 2009-03-09 08:59:04 |         |      |
| 9      | JOBO001                         | Complete   | 100%     | M00001         | PROF001           | High     | 1         | 114MB   | admin  | Active        | 2009-02-05 05:52:11 | 2009-02-05 05:52:53 |         |      |
| 10     | Tell Sports_2008-06-17 05:51:04 | Complete   | 100%     | MPEG2-TS       | MPEG2 MPEG1 Audio | Medium   | 2         | 173MB   | slave  | Active        | 2008-06-17 05:51:04 | 2008-06-17 05:57:53 |         |      |

### Formats

- Format – All frame sizes, bit rates, and resolutions for SD/HD and mixed workflows
- Container – MPEG TS/PS, MXF, GXF, MP4, QuickTime, ASF, 3GPP
- Video – MPEG-2 (IMX, XDCAM), H.264/AVC, MPEG-4, H.263, VC-1/WMV, DV/DVCPRO25/50/100/HD
- Audio – MPEG-1/2, AAC, HE AAC, PCM (AES, BWF, AIFF, WAV), DV, WMA, Dolby-D/AC-3, Dolby-E

### Features & Benefits

- Replaces Subjective, Error-prone, Time-consuming, and Expensive Manual Processes of Visually Inspecting Video Content
- 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 can be Shared with Other Users in the Content Supply Chain
- 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

### 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

### Applications

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

### 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/playout 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

## Data Sheet

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 all these problems, and can be easily integrated with Automation and Asset Management systems using the **CerifyTalk** API.

Cerify SW is a fully compatible software-only version of the Cerify 200 which is the world's first 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.

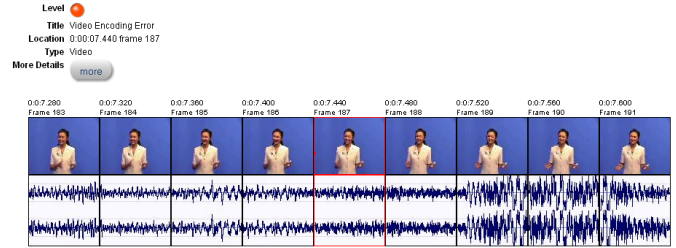
## User Interface

The screenshot shows the Cerify web interface with a table of jobs. The table has columns for Job ID, Name, Job Status, Progress, Metadata, Profile, Priority, Size, File Size, Creator, Status, Creation Time, Start Time, End Time, and Channel. The jobs listed include 3 HDV, 1 Commercial, 1 Movies, 1 News, 1 Sports, Andrea, Copy of 001\_MGS\_MQTest, Copy of 02 Commercial, JOE001, and Talk Sports\_2006-06-17 05:51:04.

Click to get job details

| Result | Filename                                                    | Size   | Status   | Progress | Start Time            | Poster Frame |
|--------|-------------------------------------------------------------|--------|----------|----------|-----------------------|--------------|
|        | ftp://cerifycontroller/content/news/airport_interview.ts    | 8.45MB | Complete | 100%     | 2006-06-16 13:08:09.0 |              |
|        | ftp://cerifycontroller/content/news/beijing_weather_girl.ts | 8.03MB | Complete | 100%     | 2006-06-16 13:08:10.0 |              |
|        | ftp://cerifycontroller/content/news/live_report.ts          | 8.47MB | Complete | 100%     | 2006-06-16 13:08:33.0 |              |
|        | ftp://cerifycontroller/content/news/news360.ts              | 7.88MB | Complete | 100%     | 2006-06-16 13:08:34.0 |              |

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



Click to get details of stream errors

The screenshot shows a Microsoft Internet Explorer window displaying a detailed error report. The report is titled 'Error Details' and lists several errors. The first error is 'Invalid L-code (alert ID 22015)' at location 0:00:06:380 frame 3. The second error is 'DCT coefficient index out of bounds (alert ID 22199)' at location 0:00:06:200 frame 156. The third error is 'Bad slice order (alert ID 22210)' at location 0:00:06:200 frame 156. The fourth error is 'Bad VLC for macroblock\_address\_increment (alert ID 22100)' at location 0:00:06:200 frame 156. The fifth error is 'Bad slice order (alert ID 22210)' at location 0:00:06:200 frame 156. The sixth error is 'Bad slice order (alert ID 22210)' at location 0:00:06:340 frame 172. The seventh error is 'Bad slice order (alert ID 22210)' at location 0:00:06:340 frame 172.

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

The screenshot shows the Cerify web interface with a test summary and details of a specific error alert. The test summary shows a list of jobs and their status. The details of a specific error alert show the error type, location, and details. The error is identified as 'Video Encoding Error' at location 0:00:07:440 frame 187. The type is 'Video'.

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.

**Video** – MPEG-2 (IMX, XDCAM), H.264/AVC, MPEG-4, H.263, VC-1/WMV, DV/DVCPPro25/50/100/HD.

**Audio** – MPEG-1/2, AAC, HE AAC, PCM (AES, BWF, AIFF, WAV), DV, WMA, Dolby-D/AC-3, Dolby-E.

### 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, Cable Labs 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
- 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

### System Requirements

PC with minimum requirements of:

- Windows XP Professional
- Processor Speed – 3 GHz
- Memory – 2 GB RAM
- Ports – USB and Ethernet
- Hard Drive – 20 GB available

### Ordering Information

| Product | Option | Description                                     |
|---------|--------|-------------------------------------------------|
| CYSW    |        | Single channel Cerify software including MPEG-2 |
| CYSW    | CH     | Additional channels inc MPEG-2                  |
| CYSW    | MP4    | MPEG-4 and H.263 (Baseline)                     |
| CYSW    | AVC    | H.264/AVC                                       |
| CYSW    | VC1    | VC-1                                            |
| CYSW    | DV     | DV                                              |
| CY-SWS  |        | 12 months software support and updates          |



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.

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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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