

Cerify Automated Video Content Verification System
Release Notes for Software Version 7.6
077075201

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Contents:

- Product documentation
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These release notes provide the following information for the Cerify Automated Video Content Verification System:

- A list of the new Cerify features available in software version 7.6.3
- A list of important defects that have been fixed in software version 7.6.3
- A list of known Cerify installation and operational issues relating to software version 7.6.3

CAUTION. To prevent loss of data in the unlikely event of the database becoming corrupted, it is strongly recommended that you regularly back up the Cerify database. See the Database Backup section of the Cerify User Manual for instructions on how to perform this task.

Product documentation

Cerify user documents that support software version 7.6.3 are

Document: Cerify Quick Start User Manual (English)
Tektronix part number: 071-2680-07
Description: Provides installation instructions, system requirements, concepts of how to operate the software, and basic procedures for common tasks. This is a printed manual and is also available on the product DVD and on the Web at www.tektronix.com/downloads.

Document: Cerify User Manual (English)
Tektronix part number: 077-0352-09

Description: Provides in-depth descriptions of how to operate the software. This is a manual version of the product online help. This PDF-only manual is available on the product DVD and on the Web at www.tektronix.com/downloads.

Document: Cerify Software License Notices (English)

Tektronix part number: 001-1513-01

Description: Provides the Cerify Software License Agreement and also the licenses of various third party software used in Cerify. This PDF-only manual is available only on the product DVD.

General notes

New features

This software release includes the following major features:

- Supervisor HA support
- Loudness measurement to account for silence, mute and test tone.
- Support for dialog intelligence and bitstream mode while doing audio loudness correction.
- Support for cross track audio loudness correction.
- Re-wrapping of the loudness corrected audio to MXF for MXF Op1A and OpAtom1A streams
- AVID native format support
- Support for Microsoft Smooth Streaming OTT/ABR content
- Support for MPEG 4 Simple studio profile and Core studio profile
- HE-AAC (LAOS/LATM) codec support
- MXF metadata analysis (Including tests for doing AS11 compliance analysis)
- Inclusion of following new video quality tests
 - 1) Detection of tape hit and combing artifacts
 - 2) Detection of color bars
- Time code support for TS and MOV
- Support for Comparison of multiple time code pairs in MPEG-2 video
- AFD detection and detection of its change in the stream
- Dolby-E guard band measurement and test
- GOP structure, GOP bit rate, peak bit rate and frame size tests.
- Support for Single File QC workflow
- Installer changes to enable user to configure cluster in unicast mode.

Dongle reprogramming

All software versions after v7.2 require an update of the license dongle prior to being able to use the new version. Please make sure to update your Cerify license dongle before installing v7.6 as your Cerify system will cease to operate on v7.6 with the older license dongle until you get the license dongle updated to v7.6. Also note, all users with a valid Cerify Annual Software Maintenance contract are eligible to receive the base features included in this version without any additional cost. Licensing for the optional HA (Supervisor high availability functionality) is an additional cost that is not covered by the Cerify Annual Software Maintenance. Please call your Tektronix Sales representative if you wish to add HA feature to your existing Cerify system.

To obtain the license updates needed by your Cerify system to use this new

version, send the c2v file of your Cerify dongle to the following address: cerify-asm@tek.com.

The HA feature is available as an option but requires the Enterprise option as a separate pre-requisite, i.e. customer needs Cerify ENT-x option to be able to add the new HA option to their Cerify system. Ordering this option will result in an additional Cerify USB license dongle to be shipped to the customer that will be a replica of their primary Cerify USB license dongle. This secondary dongle can only be used in HA system and cannot be used without the primary dongle. These two dongles should be connected to primary and secondary supervisor. In the future, when you need to update the dongles to next version, you will need to send the c2v files for both of the dongles.

Cerify demo dongles need to be updated to version 7.6 in order to use the new features. If you would like to try out HA feature, you will need to get two identical demo dongles programmed with "Cerify HA Enterprise Trial Pack 7.6" product.

Users upgrading from older versions do not need to export and re-import the Cerify database. The upgrade of the database is performed as part of the upgrade install with the exception of a case where an existing non-HA version of Cerify is upgraded to an HA Enterprise cluster option, where an in-place upgrade is not available.

Product enhancements

- Supervisor HA

Today's file-based workflows need to be operational 24x365 and as such all components of these workflows need to be highly available to support such 24x365 operations. The High Availability (HA) option of Cerify will ensure that the Cerify QC & Audio Correction services are available 24x365 even in the event of hardware failures in a Cerify Enterprise deployment. This is achieved by replicating the Cerify Supervisor functionality on another node within the Cerify Enterprise cluster. As such, in the event that the primary Supervisor fails the backup Supervisor will automatically and immediately take over Supervision services thus ensuring that Cerify services remain uninterrupted.

Please note that the target customers for this functionality is not just customers with large Cerify installations, but also customers who might have smaller Cerify systems but need assurance of 24x365 operation.

PLEASE NOTE: High Availability is an optional feature in Cerify that needs to be purchased additionally and is not included with the base Cerify product.

Please be aware of following when you use the HA feature:

- The Primary Supervisor should be started first with one of the two HA dongles installed. At the time the Primary Supervisor is started, the system with the Secondary Supervisor installed should be up and have the matching HA dongle installed. Otherwise, the Primary Supervisor will not start.
- Initial database sync between primary and secondary supervisor might take sometime (For database of size 100MB, the sync up time would be around 3 minutes).
- For the HA feature to work, both primary and secondary supervisor

systems should have 2 network interfaces where one will be used for normal Cerify cluster communication and other will be used for communication to Cerify from outside (UI or Ceritalk). Both of these network interfaces should be configured with a static IP address.

- If the primary supervisor goes down at any time, the secondary supervisor will become the active supervisor. However, you should make sure that you bring the primary supervisor up as soon as possible and make sure that Cerify started on the primary supervisor so that databases on both the supervisor systems are in sync.
- An HA cluster needs both of the dongles to be present for correct operation. So please ensure that dongles are attached to the primary and secondary supervisors at all times.

- Automated Audio Loudness Correction Enhancements

Automated Audio Loudness Correction was added to Cerify in v7.5 but with some limitations that have now been removed. In v7.6 the following enhancements have significantly increased the scope of the product and as such have increased the target customer segments that we can now approach with it:

- Cross-track ALC - with this enhancement Cerify will be capable of automatically correcting audio channels that are spread across multiple tracks

NOTE : Valid channel configurations for cross track correction are:
stereo channels:

Left, Right (need not be in this order, but one track should be left and other should be right)

5 channels:

Left, Right, Center, Ls, Rs (need not be in this order, but these channel types should be selected)

5.1 channels:

Left, Right, Center, Lfe, Ls, Rs (need not be in this order, but these channel types should be selected)

- Dolby Dialog Intelligence & Bitstream Normalization support - The Dolby Professional Loudness Correction engine used in Cerify provides the same Dialog Intelligence and Bitstream Normalization functionalities as available on the Dolby® DP600 Program Optimizer product. In v7.6 Cerify provides the ability to use DI and Bitstream normalization functions while correcting audio.
- Re-wrapping of MXF Op1A and OpAtom1A files - Cerify v7.6 now enables the rewrapping of corrected audio tracks within MXF Op1A & OpAtom1A files in addition to MXF AS-02 and Transport Stream files (that were supported in v7.5). This functionality will support Loudness correction of RIFF, RF64, BWF, and Dolby E streams and rewrapping into Op1A & OpAtom1A streams.
- Option to copy the audio loudness corrected and rewrapped TS and MXF files to user specified location. User can specify local disk location, FTP or SMB location for copying the rewrapped file.

PLEASE NOTE: Automated Loudness Correction is an optional feature in Cerify that needs to be purchased additionally and is not included with the base Cerify product.

-New Microsoft Smooth Streaming OTT/ABR content Supported

Cerify v7.6 will add support for testing of Adaptive Bit-Rate (ABR) content used to deliver Over-The-Top (OTT) video services using Microsoft Smooth Streaming technology. In this version Cerify will

test MS SS content to ensure readiness for ABR service.

Cerify supports checks for the syntax and integrity of the container layer; i.e. detecting problems in the wrapper/container layer, but not in the elementary streams.

The following checks are supported for MSS streams:

- Mandatory tests for consistency between the manifest and media files for:
 - 1) Duration of the tracks
 - 2) Video resolution
 - 3) Video codec format (with profile & level)
 - 4) Audio codec format
 - 5) Average bit rate of the media fragments
 - 6) Audio sampling rate
 - 7) Audio bit depth
 - 8) Number of audio channels
 - 9) Number of movie fragments (chunks)
 - 10) Number of quality representations present
- Test for Video GOP Length
- Test for Closed GOP
- Test for Frame Rate
- Test for Display Aspect Ratio

This new functionality now ensures that Cerify can be used to test files using the 2 prevalent technologies used to deliver OTT/ABR services, i.e. HLS & MS SS. As such, Cerify can now be used to ensure quality and ABR readiness of files in OTT service workflows.

- AVID ISIS Server Support

The AVID ISIS server stores file in a somewhat unique manner whereby the metadata and the essences were stored separately. As such, Cerify could not use any of its standard access methodologies to access files on ISIS servers and was required to integrate the AVID APIs into Cerify in order to access files stored on AVID ISIS & Unity server. Cerify v7.6 will provide the ability to access files on AVID ISIS & Unity servers.

- New Ancillary Data Supported

Cerify v7.6 includes additional time code support enhancements.

The following enhancements are added related to time code support:

- Time code support for TS & MOV containers
- Support for Comparison of multiple time code pairs in the case of MPEG-2 video

- MXF Metadata Analysis Enhancements

Cerify v7.6 provides additional MXF metadata analysis (Including tests for doing AS11 compliance analysis). The following new checks are added in the MXF container template:

- UL/UMID syntax checks
- Check for wrapping mode
- Check for the presence of Index tables
- Check for the presence of Random Index Pack (RIP)
- Check for KAG size
- Check for body partition duration
- UL presence and value checks

- New Single File QC workflow

Cerify v7.6 provides a means to quickly set up QC of a single file without having to go through the process required to set-up jobs for larger sets of files thus providing the user a means to quickly test a single file when the need arises for such one-off testing. With this functionality user can set up testing of a single file with a few clicks of the mouse on 1 page of the Cerify Web UI without the need to create Media Locations or Mediasets.

- New Codecs Supported

Cerify v7.6 will add full decode and quality testing support for:

- HE-AAC (LOAS/LATM) audio codec
- MPEG 4 studio profiles - Support for following profiles and levels are added:
 - Support for Simple Studio profile; Level 1 to Level 4
 - Support for Core studio profile; Level 1 to Level 4
- Support for MPEG 4 video in MXF

- Improved Audio/Video Tests

Cerify v7.6 has had the following improvements made to audio/video testing:

- Inclusion of Tape Artifacts Baseband test including:
 - Detection of tape hits
 - Detection of combing artifacts
 - Detection of Color bar sequence at the start and during the programming content
 - Active Format Description (AFD) Support - The following tests related to AFD have been added:
 - AFD change detection through the duration of the stream. This test also compares the AFD value across the layers: the container (MXF) and the compressed layer.
 - AFD presence/absence checks
 - AFD value check
 - Loudness Measurement to account for silence and test tone
 - Dolby-E guard band measurement and test
 - New GOP testing - GOP structure, GOP bit rate
 - Peak bit rate test
 - Frame size test
- Installer changes to enable user to configure cluster in unicast mode.
- Inclusion of property update utility to set Cerify properties, as a replacement for cerify.properties file. (this will enable upgrade of Cerify in future to retain custom configurations)

Defects fixed

The following defects have been fixed in software version 7.6:

- Processing of some MXF files which had XML special characters in the history metadata were getting stuck at 99%.
- Processing of some MXF files which had certain first edit unit size were getting stuck at 0%
- Failures while processing certain large files because of issues in system memory utilization

- Processing was getting aborted for some multi program TS streams
- Processing of some ProRes streams contained in MOV was getting stuck
- Cerify was wrongly reporting "VBV underflow by 0 bits" errors
- Cerify was not able to detect and process multiple Dolby E interleaved audios
- Container bitrate for remuxed TS stream after the audio loudness correction was different from the original TS stream for some specific streams
- MXF time code integrity alerts were not raised.
- GetMediaLocations Ceritalk call was failing when Media location directory path contained space characters in it.
- Cerify was producing a warning alert when no audio loudness correction was necessary to meet the specified threshold.
- Cerify was unable to recover from lost license due to intermittent issues.
Cerify was inaccurately displaying frame rate of some DNxHD streams contained in MOV as 29.97fps instead of 25 fps
- Some streams having MPEG-4 Part 2 video ES were not getting processed correctly.
- A TS stream with AVC video was wrongly getting detected as MPEG-4 Part 2 video
- Cerify was partially decoding MXF streams which have certain number of zeros in between the KLVs.
- Reports were not getting copied to report location when skip alerts rule is enabled in template and when file processing comes up with fatal error
- Video Type (Cadence) test was not working for ProRes files.
- AVI and LXF files required excessive processing time to finish processing in quick check mode
- HTML report was not getting rendered in Internet Explorer 9

General limitations

This software release has the following general limitations. Please check the Tektronix Web site (www.tek.com/software/downloads) for any updates to the Cerify software.

HA Cluster

- HA cluster might not work correctly if there is momentary outage of network (less than 10 seconds). In such cases, you might need to restart the cluster.
- HA cluster will not work correctly if the dongle is removed and attached back (both on primary and secondary supervisors) or if the dongle is missing in any of the supervisor systems.
- The in-place upgrade of the database will not be performed when an existing non-HA version of Cerify is upgraded to an HA Enterprise cluster option. So while upgrading your Supervisor or standalone Cerify to HA Supervisor, please perform the following steps:
 - take the backup of the database using database backup option in Admin page
 - Perform installation upgrade by executing Cerify v7.6.3 installer
 - Restore the previously backed up database using database restore option in Admin page

MXF rewrapping after loudness correction (Op1A and OPAtom1A streams)

- After re-multiplexing, the following items will not be preserved in the re-multiplexed streams:
 - Package Names

- Sub-packages
- dark metadata
- ULs registered for private use (private metadata)
- The re-multiplexed stream will always have the following:
 - Random Index Package
 - MXF Generic Container Version as SMPTE 385M System Metadata Pack
 - A Footer partition
- The following items will change in the re-multiplexed stream:
 - Index SID
 - Body SID
- The size of the re-multiplexed stream may be different from the original.

Cross Track Audio Loudness Correction

- Cerify supports cross track correction only for WAV format (RIFF and BWF).
- Cross track correction support is limited to tracks with single channel.
- Bitstream correction is not supported for cross track loudness correction.

Audio loudness correction

TS related limitations:

- If the original transport stream contains TS related errors, the Remuxed stream also might contain those errors in certain conditions.
- Remultiplexing of corrected AC3 streams are supported only for the transport streams with 188 byte packet size.

Limitations imposed by the Dolby Pro Loudness Correction engine:

- AC3:
 - Sampling rates supported: 48 kHz
 - Number of channels supported: 1 to 6
 - Audio loudness correction library fails when trying to correct a silent audio stream
- WAV(RIFF/ RF64/ BWF) limitations:
 - Sampling rates supported: 32, 44.1, or 48 kHz
 - Bit depth supported: 16, 20, or 24
 - Number of channels supported: 1 to 6
- Dolby E limitations:
 - Maximum Dolby E frame rate supported: 30 fps
 - Bit depth supported: 16 or 20
 - Must contain Dolby Digital metadata for each program