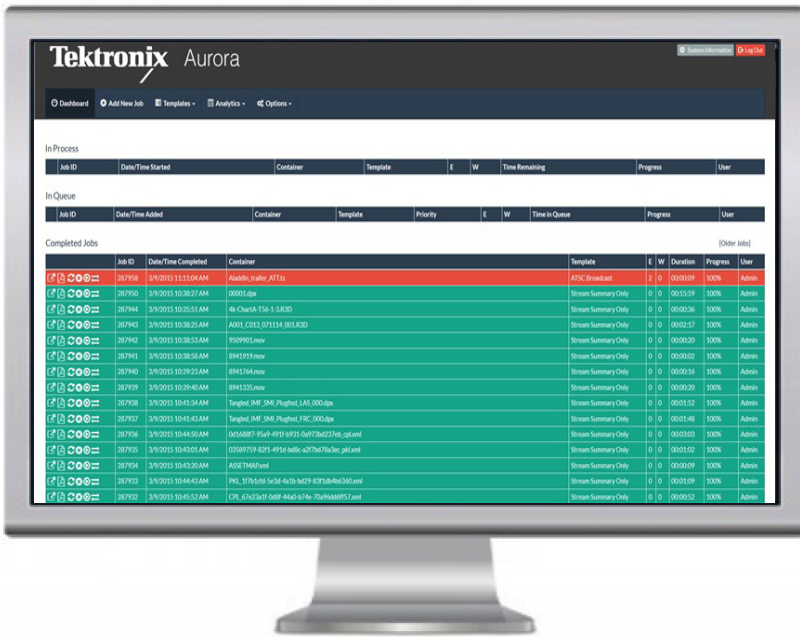# Aurora 5 file-based QC

Aurora 5 is the new generation of automated file-based QC product that represents a significant leap forward for file-based quality control, moving it significantly ahead of other products in its class in a number of critical areas....

- Unparalleled, Scalable Speed

- Faster than Real-time 4K Analysis

- Enhanced Adaptive Bit Rate Support

- 8x Faster Manual Review

- Configurable Automated Workflows

- QC Report Analytics

Aurora 5 is the automated file-based QC tool that integrates into your production workflow and consistently delivers dependable results. We focus on eliminating false positives and utilize a high degree of correlation to human audio and visual perception to ensure that our test reports highlight just the key issues, not hundreds of irrelevant non-issues.

The unique Aurora 5 architecture and advanced use of both CPUs and GPUs ensures concurrent analysis of more file types at faster speeds than alternative solutions. Aurora is available with configurable CPU allocation and 3 levels of product for different grades of hardware utilization, providing an upgrade path for increased performance in the future.

Constant feedback from customers, integrators and partners helped design the new Aurora 5 user interface, making configuration, operation and review easy to learn, quick to adopt and practical across a variety of ingest, production, and distribution environments.

Whether you are looking to apply metadata gate-keeping to keep your ingest clean, detecting visual and audible artifacts, identifying common editing errors, or testing for broadcast and distribution constraints, Aurora 5 will make a positive difference across your operation.

Aurora 5 Standard
Our entry level Aurora 5 Standard file-based QC platform enables up to 2x CPU cores to be allocated to each Aurora Verification Unit (VU). The resulting performance enables throughput of SD files up to 5x real time and HD files up to real time.

Aurora 5 Professional
Our flagship Aurora 5 Professional QC platform can utilize up to 8x CPU cores per Verification Unit and provides support from up to 2 GPUs. A full hardware configured Aurora 5 can analyze SD files up to13x real time, HD files up to 4x real time, and 4K files up to real time.

Aurora 5 Professional Plus
The VU Plus Plug-in for Aurora 5 Professional enables up to 16 CPU cores to be dedicated to each Verification Unit and will access high numbers of GPU cores for accelerated testing. The analysis speed is up to about 50% faster than Aurora 5 Professional.

Aurora 5 Automated File-based QC with manual review player and workflow

Guaranteed QC Capacity
Aurora 5 guarantees QC capacity by reserving CPU and CUDA GPU capacity so that the system does not to overload itself. Aurora 5 doesn't slow down as the system loads up, with the first file analyzed just as fast as that same file with hundreds of other concurrent jobs in progress.

Broad Codec and Wrapper Support
As a result of constant participation in key standards committees (EBU, SMPTE, AMWA, FIMS) Aurora 5 always has the latest codes and wrappers with new updates arriving often. This means that almost any file you can make, Aurora can test.

New User Interface
Aurora 5 has a totally updated user interface with a consistent information layout, with the ability to modify the theme/colors and display different language scripts in both the user interface and QC reports. Current support includes English, Japanese and Chinese Simplified.

Easy-to-Use QC Reports
Aurora 5 job reports are a single easy-to-read page displaying all of the metadata in one location followed by an interactive error summary including frame-accurate access through Hydra Player. The report is consistent in look and content whether using a web browser and PDF.
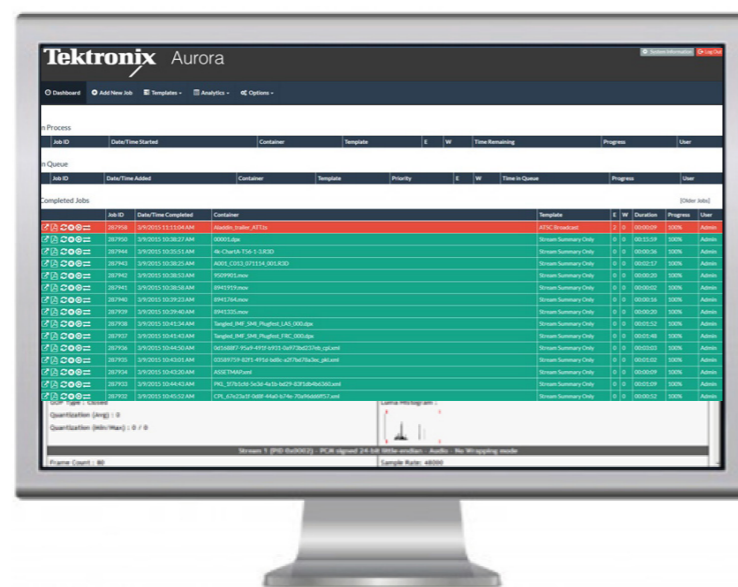
Fast Access Help Files
Aurora 5 provides Help files for every test accessed with a click from test templates or reports, providing an explanation of each individual test, how the test is performed, recommended correction(s), and where to in the workflow may be the best location to perform the fix.

Email Notification
Aurora 5 email notifications ensure that regardless of the receiving email device there is appropriate information provided for decision making or further action. Emails contain summary info and a HTML link to the full QC Report, and optionally the PDF version.

8x Faster Manual Review
Aurora 5 is designed to dramatically reduce human review of QC results by 8 times compared to linear processes. By tightly integrating the Tektronix Hydra frame accurate player, instant access and visual aids simplify the tasks and increase efficiency.

Aurora 5 is the new generation of file-based QC solution from Tektronix fully implemented in a 64-bit architecture, enabling broad use of available CPU processing power and GPU acceleration to deliver unrivaled QC analysis speed and accuracy, perform up to 8 times faster manual review, and automate corrective actions.

Unrivaled, Scalable Speed
Aurora 5 is the first file-based QC product to have the ability to dynamically allocate threads across a user-specified number of CPU cores, enabling performance and scalability in high density virtual and blade environments. Using high CPU allocation or a lower CPU allocation combined with Aurora 5's unique GPU accelerated processing capability, QC throughput approaching wireline limits can be achieved, rather than being constrained by a legacy decoding and testing architecture.

QC Report Analytics
Aurora 5 is the first file-based QC product that has an optional QC Analytics plug-in to enable media organizations to analyze results of multiple QC Reports and search across reports for specific criteria. Aurora 5 can identify QC artifact trends and compare results from QC done at different workflow stages, pipeline issues and trends or identify vendors for KPI and SLA documentation.

4K Production Workflow
Aurora 5 can test and play back IMF, the master format agreed on by major motion picture studios. Aurora 5 has the ability to QC and play back complex Composition Play Lists (CPL) and is capable of testing 4K at real-time or faster in any other container or codec, including JPEG 2000, DPX, HEVC, H.264/AVC/AVCI/XAVC*. (* optional Advanced Codec pack is required for access to Canopus, HEVC and JPEG 2000 decoders.)

Enhanced Adaptive Bit Rate Support
Aurora 5 is the only file-based QC solution on the market capable of both testing and playing back HLS/HSS/HDS/DASH and CableLabs intermediate ABR playlist file sets. Aurora 5 includes tests that have been specifically designed to catch the most common causes of adaptive bit rate streaming problems.

Minimal False Positives
Aurora 5 algorithms are designed to reduce false positives, ensuring an accurate QC report. Tektronix operates a unique machine learning loop that ensures that continuous accuracy improvements of test algorithms based on customer supplied files with known QC artifacts.

Video Essence Tests
Aurora 5 video essence tests include Macro block Noise, Up-conversion, Comb Artifacts, Field Order Swaps, Tape/Digital Hits, Perceptual & Film Artifacts, Black/Freeze Frames, Letterboxing/Pillarboxing, Color Bars, PSE/Flash Detection (Harding FPA), and Cadence Change.

Audio Essence Tests
Aurora 5 audio essence tests include Silence, Drop-outs, Peaks (dBTP, PPM, dBFS), Average Levels (R128, ATSC, ARIB), Clipping, Snaps/Clicks/Pops, Test Tones, Phase Swaps and Hiss/Hum. Aurora 5 also applies a user-defined Audio Service Map for processing AES wrapped tracks or when mono channel audio essence tracks are tested together.

Metadata Tests
Aurora 5 metatadata tests include Container Syntax, Video Essence Syntax, Dolby Audio Syntax, Dolby E Guard Band Alignment, Caption Syntax, Container Essence Contents, Cross-Check Container-Essence, Rude Word Detection in Text, Start Time code, Time code Discontinuity, Video Resolution and Run-times.

Distribution Constraint Tests
Aurora 5 has pre-defined distribution tests with the distribution constraints pre-set. This includes test plans for CableLabs VOD, iTunes, Netflix, DVB, ISDB-T / TB, ATSC, XDCAM / RDD-9, AS-02, DPP / AS-11, DVD and Blu-ray.

Automated Workflows
Aurora 5 includes tools for implementing end-to-end workflows, including Smart Test Plans for automatically applying test plans to your incoming files, and a Decision Engine that enables automated post QC test file movement and corrective actions.

Systems Integration
Aurora QC includes an easy to use SOAP API that leading vendors have used to seamlessly integrate Aurora QC into their solution workflows. Major partners include Amberfin, Aspera, Astec, Imagine Communications, Telestream, iBroadcast, DataMiner, and FileCatalyst.

Supported Formats

As of April 2015 Aurora 5 supports the following file formats.
Please contact Tektronix for latest listing.

Container Wrappers

MXF (All OP, including AMWA defined AS, RDD-9, P2, SxS), Transport Stream, Elementary Stream, Program Stream/VOB, AVI, WMV/ASF, QuickTime/ MOV, GXF, MP4, 3GPP, LXF, R3D, DPX, DXW, HLS, DASH, Smooth Streaming, IMF, DCP (unencrypted).

Video Codecs

H.264 (AVC/AVC-Intra/MVC 3D), MPEG-2 (including XDCAM, IMX and D-10), ProRes, JPEG 2000, DNxHD (VC-3), Cineform (VC-5), VC-1 (and WMV), DV/DVCPro, Flash VP-6/7, RAW (Huffman, YUV, RGB, Blackmagic), EXR, DPX, Canopus, H.265 (HEVC).

Audio Codecs

PCM Audio (WAV/AES/BWF), Dolby Digital (AC-3), DD+ (EAC-3), Dolby TrueHD (MLP), Dolby E, AAC, HE-AAC, WMA Standard/Pro, MPEG-2 (L1,2,3), MPEG-1.

Captions/Subtitles/Text

Line 21, CEA-608, CEA-708, Timed Text / DFXP, STL, SRT, SCC.

Ordering information

Please contact your Tektronix Sales Representative to understand how Aurora 5 may be customized for your specific workflow needs and content volume.

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Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar..

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.

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