



Video Processing for Live Streaming

AWS Elemental Live is a video processing platform component that provides real-time video and audio encoding for linear pay TV broadcast and live streaming to new media platforms. The software-based solution performs simultaneous processing of multiple video outputs, delivering the high-quality, high-efficiency performance required for formatting live video for any device. AWS Elemental Live is designed to integrate seamlessly into an end-to-end real-time video delivery workflow, evolve as technology requires and maximize revenue opportunities.

Experience the Benefits

High Performance

Deliver content via Apple HLS, Adobe Primetime (HDS and RTMP), Microsoft Smooth Streaming, MPEG-DASH or transport streams. Alternatively, create mezzanine deliverables for wrapping with a separate packager such as AWS Elemental Delta to reduce network bandwidth.

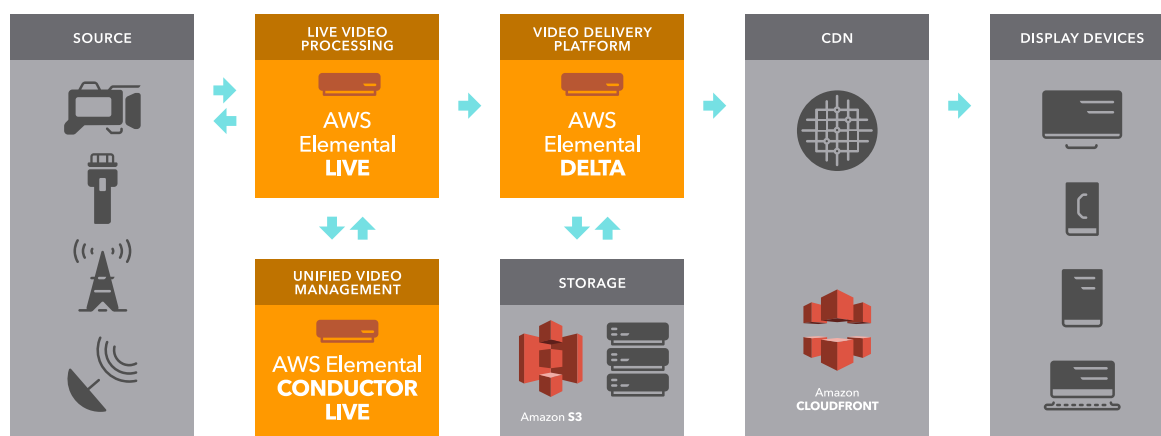
Versatile Deployment

Control the Linux-based system through an intuitive web interface or REST / XML APIs for quick and simple integration into existing workflows. Unified control and management with AWS Elemental Conductor reduces setup time, simplifies maintenance tasks and allows for centralized upgrades of multiple deployments.

Seamless Cloud Integration

Expand video processing as needed to flex with variable demand. Integration with AWS Elemental Cloud replicates the profiles, capabilities and formats used on-premises so that video outputs are identical regardless of where they are processed.

AWS ELEMENTAL LIVE WORKFLOW





Why AWS Elemental Live

High-Performance Encoding

Patented technology harnesses the power of a massively parallel architecture to perform large-scale video processing. Realize high-performance encoding with a smaller operational footprint, lower power consumption and reduced cooling requirements.

Uncompromised Video Quality

Deliver the highest quality encoding using codecs developed by AWS Elemental including HEVC / H.265, H.264, VC-1 and MPEG-2.

Produce Multiple Outputs

Simultaneously output a mix of streams at different resolutions and bitrates for multiple target platforms. Wrap streams in popular formats or retain content in a base container for downstream packaging.

Adaptive Bitrate Support

Stream live adaptive bitrate broadcasts via Adobe, Apple, Microsoft and MPEG-DASH protocols without the need for multiple units or signal-splitting equipment, reducing both cost and complexity.

Advanced Video Processing

Advanced image processing such as anti-alias scaling, MPEG-2 deblocking and motion adaptive deinterlacing improve performance and deliver professional quality video output.

Real-Time Controls

A web-based user interface offers real-time controls for linear video delivery coupled with catch-up TV features as well as live event ad insertion capabilities and one-click access to popular content delivery networks.

Real-Time Archiving

Start and stop control of archive streams enables instant creation of high-quality VOD files, saving editing cycles and lowering the cost of content delivery.

Monetize Multiscreen Content

Support for ESAM, Adobe Primetime and comment-based HLS methods provides the ability to work with numerous ad insertion platforms.

Secure Valuable Content

Protect content using traditional AES and SAMPLE-AES for HLS, PlayReady for HLS and Smooth Streaming, or Adobe Access for HDS. Or, use content protection systems such as Ciolution, Widevine and NDS to meet requirements for pay TV operators and original content owners.

SOFTWARE-BASED VIDEO

Deliver video to any screen, at any time, all at once.

Generate all the profiles needed for adaptive streaming in a reduced footprint.

Use real-time controls for event management and archiving content.

Lower total cost of ownership with a highly upgradable platform.



SPECIFICATIONS

VIDEO & AUDIO INPUTS

Video Codecs:

- Apple ProRes 422 (up to HQ)
- AVC / H.264 (Baseline, Main, High)
- HEVC / H.265
- MPEG-2 (4:2:0, 4:2:2)
- VC-1 (Simple, Main Advanced)

Audio:

- AAC
- AC-3 (Dolby Digital)
- Dolby-E
- E-AC-3 (Dolby Digital Plus)
- MPEG-1 Layer 2
- MP3
- PCM (AIFF or WAV)
- WMA

INPUT STREAM FORMATS & CONTAINERS

- ASI
- Elementary Streams
- GXF
- IP: UDP / RTP / HLS / RTMP (MPEG-TS)
- MXF Op-1A
- QuickTime Self-Contained (.mov)
- SD, HD, 3G SDI with Upstream Router Control
- Transport Stream File (.ts, .m2t)

Other:

- 4K Ultra HD via IP
- CEA-608/708 Closed Captions
- OP-42 Subtitles
- Standard & User-Defined Frame Rates
- Standard & User-Defined Frame Geometry

SYSTEM CONTROL

- Web-Based User Interface
- AWS Elemental Conductor Live
- SNMP (Control and Status)
- REST XML API
- System Resource & Statistics Monitoring

- Notifications and Alerts
- Automated Load Balancing
- Event Prioritization and Planning
- Multiple Authentication Tiers
- Video and Audio Preview

VIDEO & AUDIO OUTPUTS

Video:

- Apple ProRes 422 (up to HQ)
- AVC / H.264 (Baseline, Main, High)
- HEVC / H.265
- MPEG-2 (4:2:0, 4:2:2)
- VC-1 (Simple, Main Advanced)
- Frame Capture to JPEG (Thumbnails)

Audio:

- AAC-LC / AAC-HEV1 / AAC-HEV2
- AC-3 (Dolby Digital), AC-3 Passthrough
- Dolby-E Passthrough
- DTS Express
- E-AC-3 (Dolby Digital Plus), E-AC-3 Passthrough
- PCM (AIFF or WAV)
- WMA2

OUTPUT STREAM FORMATS & CONTAINERS

- 3GP (3GPP)
- Apple HLS
- Adobe Media Server (RTMP / F4F / F4V)
- Adobe HDS
- CableLabs Compliant Option (MPEG-TS)
- Elementary Streams
- Microsoft Smooth Streaming (ISMV)
- Microsoft Windows Media (WMV / ASF)
- MP4
- MPEG Transport Streams (.ts, .m2t)
- MPEG-DASH (MP4 and ISO)
- QuickTime Self-Contained (.mov)
- Save as File to Local or Network Storage
- TCP / IP
- UDP Unicast or Multicast
- Ultraviolet (CFF, UVU)

SYSTEM HARDWARE / SOFTWARE

- Linux CentOS
- 4-16 CPU cores
- 500 GB RAID-1 Local Storage
- Up to 8 HD-SDI Inputs
- Up to 4 High Performance GPUs
- Up to 16 GB Main Memory
- Up to 6 Gigabit Ethernet ports
- 3 ASI Inputs (Option)
- Fibre Channel Interface (Option)
- Hot-Swappable Power Supplies (Option)

VIDEO PROCESSING

- Adaptive Quantization
- AFD-Driven Output Scaling
- Anti-Aliasing Scaler
- Deblocking Filter
- Frame Rate Interpolation
- Inverse Telecine Support
- Lanczos Scaling
- Logo Insertion
- Look Ahead Rate Control
- Motion Adaptive Deinterlacing
- MPEG-2 Error Concealment
- Noise Reduction
- Scene Change Detection

OTHER FEATURES

- Ad Avail Blanking & Black-Out Capability
- Audio Channel Mixing
- Audio Loudness Management (CALM Compliant)
- Burned-In Timecode
- Caption Extraction and Passthrough
- Comprehensive Encryption / DRM Support
- Forensic Watermarking
- Integrated CDN Support
- Multiple Audio Tracks (Languages, Surround, SAP)
- Nielsen ID3 Support
- Open Caption Support
- SCTE-35 and SCTE-104 Support
- Support for Auxiliary Data (EBIF / KLV / V-Chip / CGMS-A)