

AWS Elemental Live



Video Processing for Live Streaming

AWS Elemental Live performs real-time video and audio encoding for linear pay TV broadcast and live streaming to connected platforms. The software-based solution provides 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 a premium viewing experience with the ability to encode high dynamic range video including HDR 10, HLG 2020, and Dolby Vision at resolutions up to 4K. Deploy multiple channels with a full range of adaptive bitrate outputs up to 4K from a single encoder.

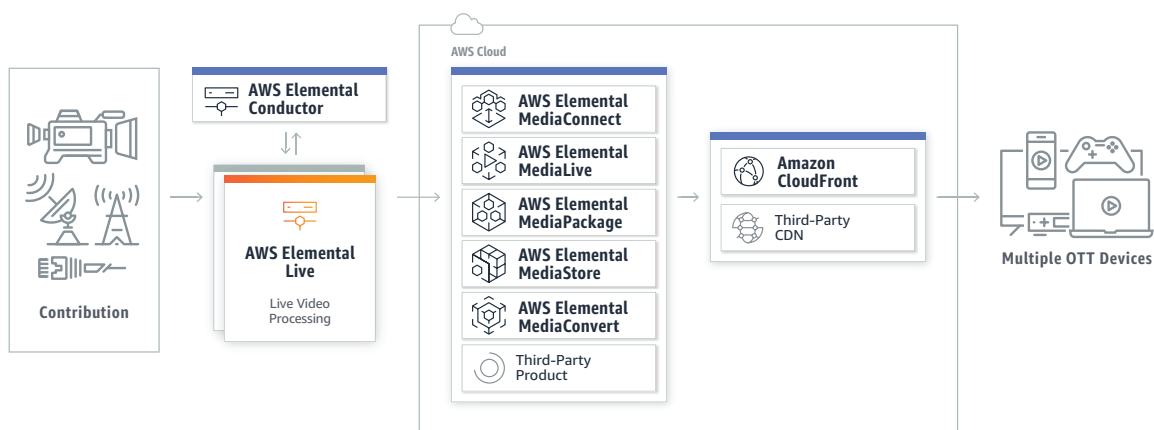
Versatile Deployment

Control the Linux-based system from an intuitive web interface and comprehensive RESTful API. AWS Elemental Conductor Live provides control and redundancy for a fleet of AWS Elemental Live encoders.

Seamless Cloud Integration

Deliver content to viewers on a global scale. AWS Elemental Live video processing can be used in combination with cloud-based AWS Elemental Media Services to deliver premium video viewing experiences.

AWS ELEMENTAL LIVE WORKFLOW





Why AWS Elemental Live

Flexible Video Processing

Deliver content via Apple HLS, Adobe RTMP, Microsoft Smooth Streaming, MPEG-DASH, and MPEG transport streams. Create mezzanine archive file outputs for transcoding using AWS Elemental MediaConvert.

Uncompromised Video Quality

Deliver the highest quality encoding using codecs developed by AWS Elemental including HEVC/H.265, AVC/H.264, and MPEG-2. Maintain quality while cutting video storage and delivery costs with Quality-Defined Variable Bitrate (QVBR) control. Advanced image processing such as anti-alias scaling, MPEG-2 deblocking and motion adaptive deinterlacing improve performance and deliver professional quality video output.

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.

Closed Caption Support

Deliver to multiple target platforms with closed captions. Output Apple HLS with burn-in, embedded, and Web-VTT captions. Output Microsoft Smooth Streaming and DASH with burn-in, SMPTE-TT, TTML and EBU-TT-D captions. Output MPEG transport streams with burn-in, embedded, teletext, DVB-Sub and ARIB captions.

Secure Valuable Content

Protect content using encryption technologies, AES and SAMPLE-AES for Apple HLS. Microsoft PlayReady for Smooth Streaming outputs and Multi-DRM for DASH outputs. AWS Elemental Secure Packager and Encoder Key Exchange (SPEKE) offers integration with industry leading DRM solution providers to meet the requirements of pay TV operators and original content owners.

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 publishing to popular content delivery networks.

Real-Time Archiving

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

Monetize Multiscreen Content

Support for SCTE 35, SCTE 104 and ESAM offers compatibility with ad insertion platforms. Monetize multiscreen video content using AWS Elemental MediaTailor.

Uncompressed IP Support

Elemental Live offers SMPTE 2110 and SMPTE 2022-6 uncompressed IP input support, SMPTE 2110 output, and NMOS (IS-04 and IS-05) control of SMPTE 2110 inputs and outputs.

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 & CLOSED CAPTION INPUTS

Video:

- HEVC / H.265
- AVC / H.264
- MPEG-2
- Apple ProRes 422 (up to HQ)

Audio:

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

Closed Captions:

- Embedded CEA-608/708 closed captions
- DVB-Sub
- Teletext
- TTML
- ARIB
- EBU-TT-D

INPUT STREAM FORMATS & CONTAINERS

- IP: UDP / RTP / RTMP / HLS / SMPTE 2022-7
- SMPTE 2110, SMPTE 2022-6
- SD, HD, 3G SDI, Quadrant 4K, Interleave 4K
- Transport stream (MPEG-TS)
- Transport stream file
- QuickTime self-contained
- MXF Op-1A
- JPEG-2000

SYSTEM CONTROL

- Web-based user interface
- RESTful API
- Notifications and alerts
- AWS Elemental Conductor Live

VIDEO, AUDIO & CLOSED CAPTION OUTPUTS

Video:

- HEVC / H.265

- AVC / H.264 (High 10-bit, High 4:2:2 & High 4:2:2 10-bit)
- MPEG-2 (4:2:0, 4:2:2)
- Apple ProRes 422 (up to HQ)
- 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)
- MPEG-1 Layer 2

Closed Captions:

- WebVTT, TTML, Embedded, Burn-in, DVB-Sub, Teletext, ARIB, SMPTE-TT

OUTPUT STREAM FORMATS & CONTAINERS

- Apple HLS
- Adobe RTMP / RTMPS
- Microsoft Smooth Streaming
- MPEG-DASH
- MPEG Transport Streams
- MPTS
- File output (MP4, TS, QuickTime)
- SMPTE 2110

CDN & ORIGIN

- Amazon CloudFront
- Akamai
- AWS Elemental MediaStore
- AWS Elemental MediaPackage
- AWS Elemental MediaConnect
- HTTP PUT
- Third-Party products

VIDEO PROCESSING

- Adaptive quantization
- AFD-driven output scaling
- Anti-aliasing scaler
- Deblocking filter
- Frame rate interpolation

- Inverse telecine support
- Lanczos scaling
- Logo and motion image insertion
- Look ahead rate control
- Motion adaptive deinterlacing
- MPEG-2 error concealment
- Noise reduction
- Scene change detection

AUDIO PROCESSING

- Audio channel mixing
- Audio loudness management (CALM compliant)
- Multiple audio tracks (languages, surround, SAP)
- Manual channel mapping

MONETIZATION

- SCTE 35 and SCTE 104 support
- ESAM
- Ad avail blanking & black-out capability
- Comprehensive encryption / DRM support
- Nielsen ID3 support
- Nielsen RTVOD C3/C7 Watermarking

RESILIENCY

- Multi-source inputs
- User-defined source failover
- User-defined input loss behavior
- Output locking
- Zixi Push

OTHER FEATURES

- Support for auxiliary data (EBIF / KLV / V-Chip / CGMS-A)
- MPEG-DASH ULL
- NMOS IS-04 and IS-05

SYSTEM HARDWARE & SOFTWARE

- CentOS, RedHat Linux
- Up to 16 SDI inputs
- 1 GbE, 10 GbE, and 25GbE IP interface options

