

Service Name

AWS Elemental MediaLive

Service Overview

AWS Elemental MediaLive is a broadcast-grade live video processing service that enables video providers to encode high-quality live video streams for delivery to broadcast televisions and multiscreen devices. The service transforms live video content from one format and package into other formats and packages to provide compatibility with various playback devices such as smartphones and set-top boxes. MediaLive supports industry-standard video codecs including H.264/AVC and H.265/HEVC, along with communication protocols like RTP, HLS, and RTSP. It operates on redundant infrastructure distributed across Availability Zones and automatically replaces degraded components without disrupting channels.

Key Use Cases

- **Live streaming:** Processing real-time live video into adaptive bitrate streams for delivery to various devices and platforms
- **Broadcast television:** Encoding high-quality live video streams with broadcast capabilities like ad markers, closed captions, and multiple language audio tracks
- **24x7 linear workflows:** Building flexible continuous streaming workflows for channels that run around the clock
- **Event-based live streams:** Creating live streams for specific events with dynamic input switching and scheduling capabilities
- **Multi-program transport streams (MPTS):** Creating UDP transport streams carrying multiple programs for broadcast distribution

Features

- **Real-time Video Encoding:** Processes live video in real-time and converts it into adaptive bitrate streams with support for H.264/AVC, H.265/HEVC, and AV1 codecs
- **Broadcast Capabilities:** Supports ad markers, closed captions, multiple language audio tracks, audio descriptors, and FCC-mandated loudness correction
- **High Availability:** Runs on redundant infrastructure across Availability Zones with automatic failover and component replacement without channel disruption
- **Statistical Multiplexing:** Optimizes bandwidth usage by combining multiple audio and video streams into a single output stream for broadcast distribution
- **Input Switching:** Supports multiple inputs per channel with scheduled switching between different video sources
- **Motion Graphics:** Enables overlay of graphics, logos, and other visual elements on live video streams

- **Live Video Workflow Monitor:** Provides monitoring and alerting capabilities for live video processing workflows
- **Automated Resource Provisioning:** Automatically deploys, scales, and monitors encoding resources based on demand

Value Proposition

AWS Elemental MediaLive offers significant advantages over alternatives through its broadcast-grade quality with 99.9% SLA, fully managed infrastructure that eliminates hardware management overhead, and seamless integration with other AWS Media Services. The service provides automatic scaling and redundancy across Availability Zones, ensuring high availability without manual intervention:

- Customers benefit from flexible pricing models including on-demand and reserved instances with up to 70% savings, comprehensive support for industry standards, and the ability to build both 24x7 linear workflows and event-based streaming
- The service's cloud-native architecture enables rapid deployment and global reach while maintaining broadcast-quality output

Service Integration

MediaLive integrates extensively with AWS Media Services ecosystem including AWS Elemental MediaPackage for video packaging and origination, AWS Elemental MediaConnect for high-quality video transport, AWS Elemental MediaStore for media-optimized storage, and AWS Elemental MediaTailor for ad insertion and monetization. Core AWS integrations include Amazon CloudWatch for monitoring and metrics, AWS Identity and Access Management (IAM) for security, Amazon S3 for asset storage and output destinations, AWS Systems Manager for password management, Amazon VPC for private networking, and Amazon EventBridge for event-driven workflows. The service also works with AWS Resource Groups for tagging and organization.

Onboarding and Offboarding

Customers can get started with MediaLive through three approaches: the workflow wizard for simplified setup supporting common input/output types, following the tutorial for console introduction with additional features, or designing workflows from scratch for advanced customization. Prerequisites include an AWS account with appropriate IAM permissions and completion of preliminary setup steps:

- The workflow wizard handles the entire MediaLive workflow including creating channels, inputs, and related resources in other AWS services like MediaPackage
- Customers can begin with basic configurations and progressively add features like input switching, motion graphics, and advanced encoding settings

Getting Started Guide: <https://docs.aws.amazon.com/medialive/latest/ug/getting-started.html>

Data Removal

MediaLive follows the AWS shared responsibility model where customers are responsible for managing their content and security configurations. When offboarding, customers must delete their channels, inputs, and associated resources through the MediaLive console or API. Content stored in integrated services like S3 or MediaStore must be deleted separately. MediaLive does not automatically retain customer data after resource deletion, and customers should follow organizational best practices for handling sensitive data during the offboarding process.

Backup/Restore and Disaster Recovery

MediaLive provides built-in disaster recovery through its distributed architecture across multiple Availability Zones with automatic failover capabilities. The service does not require traditional backup as it processes live streams in real-time. For configuration backup, customers can export channel configurations and use Infrastructure as Code tools like CloudFormation. Content backup depends on integrated services - outputs sent to S3 can use S3 versioning and cross-region replication, while MediaPackage provides its own redundancy features.

Backup Capabilities

MediaLive does not have traditional backup capabilities as it is a real-time video processing service. However, it provides configuration export capabilities and supports Infrastructure as Code for recreating channels:

- The service does not integrate directly with AWS Backup since it processes live streams rather than storing persistent data
- Customers rely on the service's high availability features and can backup channel configurations manually or through automation

Disaster Recovery

MediaLive supports disaster recovery through its multi-Availability Zone architecture with automatic failover and component replacement without service interruption. The service does not integrate with AWS Elastic Disaster Recovery as it is designed for real-time processing with built-in resilience. Customers can implement cross-region disaster recovery by replicating channel configurations and using multiple regions for critical workflows, though this requires manual setup and management.

Recovery Objectives

MediaLive helps customers achieve low RTO objectives through its automatic failover mechanisms across Availability Zones, typically recovering from failures within minutes without manual intervention. For RPO, since MediaLive processes live streams in real-time, data loss is minimized to the duration of the failover process. The service's redundant

pipeline architecture ensures continuous operation, and customers can implement multi-region deployments for even lower RTO/RPO requirements for critical broadcast workflows.

Service Constraints

Service Quotas: https://docs.aws.amazon.com/general/latest/gr/medialive_region.html

FAQ: <https://aws.amazon.com/medialive/faqs/>

Technical Requirements

Service Documentation: <https://docs.aws.amazon.com/medialive/latest/ug/what-is.html>

User Guide: <https://docs.aws.amazon.com/medialive/latest/ug/what-is.html>

API Reference: <https://docs.aws.amazon.com/medialive/latest/apireference/what-is.html>

Pricing Overview

Please see the AWS UK G Cloud 15 Pricing Document accompanying this service in the Digital Marketplace.

Public Pricing: <https://aws.amazon.com/medialive/pricing/>

Cost Optimization

MediaLive offers reserved pricing with up to 70% savings for channels running more than 180 hours per month with 12-month commitments. Cost optimization strategies include using single-pipeline channels for non-critical workloads versus standard dual-pipeline for production, optimizing input/output configurations to match actual requirements, and leveraging statistical multiplexing for broadcast distribution efficiency:

- Customers can implement data-driven reservation management using AWS Cost and Usage Reports with Amazon QuickSight for utilization analysis
- Idle resource management is important as push inputs incur costs when idle, while pull inputs do not

Savings Considerations

Primary cost savings come from reserved instances offering up to 70% discount over on-demand pricing for consistent workloads. Customers should analyze usage patterns using Cost Explorer and implement optimal balance between reserved and on-demand instances:

- Data transfer costs can be minimized by keeping MediaLive outputs within AWS or delivering to CloudFront
- Statistical multiplexing provides bandwidth optimization for broadcast scenarios

- Regular monitoring of reservation utilization through QuickSight dashboards and Cost and Usage Reports ensures continued cost effectiveness
- Proper resource sizing and avoiding over-provisioning of encoding capabilities drives additional savings