

# Alibaba Cloud 视频直播

Product Introduction

Issue: 20200604

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# Document conventions

Style	Description	Example
	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 <b>Danger:</b> Resetting will result in the loss of user configuration data.
	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 <b>Warning:</b> Restarting will cause business interruption. About 10 minutes are required to restart an instance.
	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 <b>Notice:</b> If the weight is set to 0, the server no longer receives new requests.
	A note indicates supplemental instructions, best practices, tips, and other content.	 <b>Note:</b> You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click <b>Settings &gt; Network &gt; Set network type.</b>
<b>Bold</b>	Bold formatting is used for buttons, menus, page names, and other UI elements.	Click <b>OK.</b>
Courier font	Courier font is used for commands.	Run the <code>cd /d C:/window</code> command to enter the Windows system folder.
Italic	Italic formatting is used for parameters and variables.	<code>bae log list --instanceid Instance_ID</code>
[ ] or [a b]	This format is used for an optional value, where only one item can be selected.	<code>ipconfig [-all -t]</code>

Style	Description	Example
{ } or {a b}	This format is used for a required value, where only one item can be selected.	switch {active stand}



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# 1 What is ApsaraVideo Live

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ApsaraVideo Live is an audio and video streaming platform based on the next-generation content access and delivery network and large-scale distributed real-time encoding technology. It provides the live streaming service with quick access, high resolution, high fluency, low latency, and high concurrency.

You can use the [ApsaraVideo Live console](#), [APIs](#), and [SDKs](#) to use and manage ApsaraVideo Live, and integrate it with your own apps and services.

## 2 Features

### Main features

Category	Feature	Description
Live stream collection	Stream ingest protocol	Supports the RTMP stream ingest protocol.
	Stream ingest mode	Supports Alibaba Cloud stream ingest SDKs and demos for iOS, Android, and Web, and common third-party stream ingest software such as OBS, XSplit, and FMLE.
	Stream ingest device	Supports common third-party RTMP-based codecs or set-top boxes (STBs).
Live stream playback	Streaming protocol	Supports the RTMP, FLV, and HLS streaming protocols.
	Streaming mode	Supports Alibaba Cloud streaming SDKs and demos for iOS, Android, and Web, and common third-party streaming software such as VLC.
	Live stream pulling	Supports FLV, RTMP, and M3U8.
Live stream management	Management mode	Supports graphical management and API management in the console.
Console management	Domain name management	Creates, modifies, or deletes a domain name, and enables or disables the ApsaraVideo Live service.
	Setting management	Creates, modifies, or deletes the encoding, snapshot capture, recording, and stream acceleration settings.

Category	Feature	Description
	Console statistics	Collects and queries the real-time downstream bandwidth, downstream traffic, online viewers, requests (in the operator or region dimension), and the quantity and status of live streams.
	Live stream recording	Supports recording live streams in FLV, MP4, and M3U8 formats, and allows you to custom the recording duration.
	Live stream snapshots	Supports real-time snapshot overwriting and storage, and snapshot frequency customization.
	Real-time encoding	Supports the LD, SD, HD, and UHD bitrate formats, and the adaptive aspect ratio of encoded videos.
	Narrowband HD™ encoding	Supports the LD, SD, HD, and UHD bitrate formats, and the adaptive aspect ratio of encoded videos.
Live stream security	URL authentication	Supports customization of the authentication key and expiration time.
	IP blacklist	Restricts IP addresses from accessing the accelerating domain names.
	Hotlinking protection	Supports blacklist or whitelist.
Data statistics	Traffic statistics	Collects traffic data for statistical analysis on a daily basis.
	Peak bandwidth statistics	Collects the peak bandwidth for statistical analysis on a daily basis.

Category	Feature	Description
	Access statistics	Views the number of UVs, the regions of requests, and other data.
	Feature usage statistics	Queries the resource usage during encoding, snapshot capture, recordings.
API management	Domain name management	Creates, deletes, modifies, and views domain names.
	API stream management	<ul style="list-style-type: none"> <li>Creates, modifies, deletes , enables, and disables live streaming domain names.</li> <li>Queries the number of the current concurrent viewers.</li> <li>Creates and stops recording tasks.</li> <li>Creates and stops snapshot capture tasks.</li> </ul>
	Live stream recording	Supports using the ApsaraVideo Live console or API to record live streams and store them to OSS.
	Live stream snapshot capture	Supports capturing snapshots during live streaming, and saving them to the Alibaba Cloud OSS platform by using APIs.
	Live stream encoding	Supports encoding a live stream to multiple formats by using APIs.
SDK support	Stream ingest SDK	Adjusts the stream ingest, adaptive bitrate, frame rate , watermark, and beauty effect parameters according to the network condition of the stream ingest terminal.

Category	Feature	Description
	Player SDK	Provides iOS, Android, and Web player SDKs, and supports multiple playback formats, minimal video start-up delay, and live stream time shifting.
	Demo SDK	Allows users to quickly experience the whole process of stream ingest and live streaming.

## Edge ingest

### Introduction

The edge ingest feature preferentially ingests video streams to the optimal CDN node to ensure that users can access the optimal uplink network. This also minimizes the negative impact of problems such as video lagging and slow stream-pulling ratio caused by slow uplink transmission.

### Benefits

Wide coverage: ApsaraVideo Live has over 1,500 CDN nodes around the world, including over 700 nodes in mainland China, covering most mainstream cities and regions.

Smart access: The edge ingest feature preferentially allows users to access the CDN node nearest to them to ensure stable transmission.

## Stream acceleration

### Introduction

Stream acceleration is designed to create a high-quality network transmission path between the video capture region and the playback source station. This allows videos to be transmitted by using the shortest and optimal path between the video capture and playback regions, and eliminates the problems of video lagging and high latency.

### Benefits

Low-cost access: Stream acceleration supports access in a highly flexible way. No development and server purchase costs are needed. This feature is enabled immediately after the configuration is completed.

High speed and stability: Stream acceleration supports access and distribution from the nearest edge node. Global nodes are connected through high-speed lines.

Global coverage: Mainstream regions such as Asia, Europe, and America are covered.

Flexible billing: To meet different user needs, the service is billed on a daily basis and supports the configuration of transmission networks at the stream level.

**Comparison between public network transmission and stream acceleration**

Comparison item	Public network transmission	Stream acceleration
Communication quality and availability	The quality of long-distance public network communication is affected by a variety of factors. It is difficult to guarantee low latency, high stability, and a low packet loss rate.	The high-quality infrastructure of Alibaba Cloud guarantees enhanced path quality and higher availability.
Costs	Public network transmission is billed in Pay-As-You-Go mode.	No hardware cost is required. The billing methods are flexible and the price is affordable.

## 3 Benefits

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### Comprehensive solutions

- ApsaraVideo Live provides a full range of technical solutions covering stream ingest, video processing, content distribution, and playback.
- Features and services provided by ApsaraVideo Live include uplink bitrate adaption , narrowband HD™ encoding, snapshot capture, recording, time-shifting, and data monitoring.

### Global coverage

- ApsaraVideo Live has more than 1,500 live nodes in major countries of the world, facilitating globalization of your live broadcasting business.
- ApsaraVideo Live has been gradually developing live centers in Europe, Southeast Asia, and other regions to serve global users.

### End-to-end seamless support

- ApsaraVideo Live provides collection SDKs and playback SDKs for multiple platforms and terminals, covering Android and iOS devices.
- ApsaraVideo Live offers easy-to-use APIs for terminals, without any complex architectural designs. This reduces the maintenance costs and allows you to focus on implementing the business logic and improving user experience.
- ApsaraVideo Live provides various live broadcasting features, including beauty effects, reverberation effects, filters, minimal video start-up delay, and time shifting.

### Optimal smoothness, low latency, and high concurrency

- ApsaraVideo Live provides the lowest playback lagging rate in the industry, and offers the smoothest live video watching experience.
- ApsaraVideo Live uses the best-quality BGP IDCs and the optimal bandwidth to reduce live broadcasting latency and ensure real-time interactions during live broadcasting.
- ApsaraVideo Live supports tens of millions of concurrent live streams and provides a live broadcasting technical architecture that can be dynamically scaled, safeguarding your live broadcasting business.

**Self-assisted management**

- The self-assisted console allows you to apply custom configurations to services on each node within minutes.
- You can activate the ApsaraVideo Live service quickly. In the console, you can manage live streams and set up live stream features, such as recording, encoding, and hotlinking protection, that suit your business scenarios as needed.
- Scalable APIs are provided. Using ApsaraVideo Live APIs, you can flexibly configure the live video features and monitor the live video data. In addition, you can flexibly deploy , quickly operate, accurately use, and promptly monitor accelerating domain names, distributed resources, and monitored data. You can also use ApsaraVideo Live APIs in conjunction with the APIs of other Alibaba Cloud services to customize your portal.

**Comprehensive monitoring and multi-dimensional data analysis**

- Comprehensive information monitoring: bandwidth traffic, access quality, visitor data, and feature usage
- Multi-dimensional data analysis
- Full log download



## 4 Release history

### ApsaraVideo Live API

Date	Feature
December 2018	<p>Added the following operations: DescribeLiveDomainRealTimeBpsData, DescribeLiveDomainRealTimeHttpCodeData, and DescribeLiveDomainRealTimeTrafficData.</p> <p>Updated the following operations: DescribeCasterChannels and DescribeCasterStreamUrl.</p>
October 2018	<p>Added the following operations: DescribeLiveDomainBpsData and DescribeLiveDomainTrafficData.</p>
September 2018	<p>Added fields to the following operations: AddCasterVideoResource, DescribeCasterVideoResources, and ModifyCasterVideoResource.</p>
August 2018	<p>Added the following operations: AddLiveDomain, DeleteLiveDomain, DescribeLiveDomainDetail, StartLiveDomain, StopLiveDomain, DescribeLiveCertificateDetail, DescribeLiveCertificateList, SetLiveDomainCertificate, BatchSetLiveDomainConfigs, BatchDeleteLiveDomainConfigs, DeleteLiveSpecificConfig, and DescribeLiveDomainConfigs.</p>

Date	Feature
July 2018	<p>Added support for adding, deleting, and managing domain names, and the association configuration of the ingest and streaming domains.</p> <p>Added support for hotlinking protection , IP blacklist, HTTP header, and HTTPS configuration.</p>
June 2018	<p>Added the following operations: AddCasterEpisodeGroupContent and CreateCaster.</p> <p>Added the fillMode request parameter to the following operations: AddCasterLayout and ModifyCasterLayout.</p> <p>Added the fillMode response parameter to the DescribeCasterLayouts operation.</p> <p>Updated error codes of the following operations: StartCaster, StartCasterScene , DescribeCasters, CopyCaster, ModifyCasterLayout, DeleteCasterLayout, and DeleteLiveAppRecordConfig.</p> <p>Updated the following operations: ForbidLiveStream, DescribeLiveStreamsPublishList, and DescribeLiveStreamsOnlineList.</p>

Date	Feature
April 2018	<p>Added resource usage related operations.</p> <p>Added support for querying the traffic, bandwidth, and resource usage during recording, encoding, and snapshot capture.</p> <p>Added support for querying the historical user quantity and online user quantity of active ingest endpoints.</p>
March 2018	<p>Added support for scheduled recording.</p> <p>Added support for starting and stopping recording in real time.</p> <p>Added the following production studio related operations: AddCasterEpisodeGroup, DeleteCasterEpisodeGroup, AddCasterComponent, ModifyCasterComponent, DescribeCasterComponent, AddCasterVideoResource, ModifyCasterVideoResource, DescribeCasterVideoResource, AddCasterVideoResource, ModifyCasterVideoResource, and DescribeCasterVideoResource.</p> <p>Improved the AddLiveAppRecordConfig operation to support stream-level recording.</p>

Date	Feature
February 2018	<p>Improved the DescribeLiveStreamsBlockList and DescribeLiveStreamsOnlineList operations to display query results in pagination mode.</p> <p>Added response parameters to the DescribeLiveStreamsPublishList operation.</p> <p>Added the CustomTranscodeParameters response parameter.</p> <p>Added the following operations: AddTrancodeSEI and AddCustomLiveStreamTranscode.</p>

Date	Feature
<p>January 2018</p>	<p>Added support for adding the supplemental enhancement information (SEI) during encoding.</p> <p>Added support for time-shifting configuration.</p> <p>Improved the active ingest endpoint management and activity log management features.</p> <p>Added support for displaying blacklisted records in pagination mode.</p> <p>Added support for the active ingest endpoint management operation.</p> <p>Added the publishDomain response parameter to the following operations : DescribeLiveStreamsOnlineList and DescribeLiveStreamsPublishList.</p> <p>Added the streamName parameter to the following operations: AddLiveRecordVodConfig, DeleteLiveRecordVodConfig, and DescribeLiveRecordVodConfigs.</p> <p>Added the PurchaseTime and ExpireTime parameters to the following operations: CreateCaster and DescribeCasters.</p> <p>Added support for portrait encoding setting in the production studio.</p> <p>Fixed the parameter version errors of the PHP SDK for the following operations : AddLiveRecordVodConfig, DeleteLiveRecordVodConfig, and DescribeLiveRecordVodConfigs.</p>

Date	Feature
<p>December 2017</p>	<p>Added support for feeding recordings to ApsaraVideo for VOD.</p> <p>Added the StartTime parameter to the DescribeCasters operation.</p> <p>Added response parameters CallbackUrl and SideOutputUrl to the DescribeCasterConfig operation.</p> <p>Added the SideOutputUrlInvalid status code for callback events.</p> <p>Added the following operations: Input parameter SideOutputUrl for SetCasterConfig, DeleteLiveRecordVodConfig, AddLiveRecordVodConfig, and DescribeLiveRecordVodConfigs.</p>
<p>November 2017</p>	<p>Added support for custom encoding.</p> <p>Added production studio related operations (with caster in the operation name).</p> <p>Added the operation for querying the historical user quantity of active ingest endpoints.</p> <p>Updated the operation for adding pornography detection plans.</p> <p>Updated the operation for modifying pornography detection plans.</p> <p>Updated production studio related operations.</p> <p>Improved production studio related operations.</p>

Date	Feature
September 2017	<p>Added operations for adding and deleting pull-stream configurations.</p> <p>Added the operation for querying pull-stream configurations.</p>
August 2017	<p>Added support for stream-level historical frame rate and bitrate query.</p>
April 2017	<p>Added support for content moderation configuration.</p>
February 2017	<p>Added support for video recording in FLV and MP4 formats.</p> <p>Fully launched the Production Studio Management service.</p>
September 2016	<p>Added support for adding and deleting encoding configurations.</p> <p>Added support for querying encoding configurations.</p> <p>Added support for adding snapshot configurations.</p> <p>Added support for deleting snapshot configurations.</p> <p>Added support for querying snapshots of a domain name.</p>

Date	Feature
July 2016	<p>Added support for adding and deleting app recording configurations.</p> <p>Added support for recording query.</p> <p>Added support for querying the recording configuration list of a domain name.</p> <p>Added support for querying a single recording index file.</p> <p>Added support for creating a recording index file.</p>
April 2016	<p>Added support for querying historical live streams.</p> <p>Added support for querying live streams.</p> <p>Added support for managing the live stream blacklist.</p> <p>Added support for querying the number of live stream online users.</p> <p>Added support for frame rate and bitrate query.</p> <p>Added support for notification configuration .</p> <p>Added support for restoring live video push.</p> <p>Added support for disabling live video push .</p>



**ApsaraVideo Live console**

<b>Date</b>	<b>Feature</b>
June 2018	<p>Upgraded the console to the latest version.</p> <p>Added support for edge ingest, hotlinking protection, IP whitelist, HTTPS, and HTTP header configuration.</p> <p>Improved the operation experience of the service activation and video address retrieval processes.</p> <p>Connected ApsaraVideo Live to CloudMonitor to monitor the resource usage in CloudMonitor.</p>
May 2018	Added support for billing the traffic and bandwidth outside China by region.
March 2018	Added support for stream-level recording configuration.
January 2018	<p>Enabled authentication by default when a new user adds domain names.</p> <p>Added support for displaying active ingest endpoints, activity logs, and blacklisted records in pagination mode.</p> <p>Added support for configuring snapshot pornography detection in the console.</p>
December 2017	Added support for storing live recordings to ApsaraVideo for VOD.
November 2017	Launched stream acceleration settings.
September 2017	Added support for customizing the edge ingest feature.
August 2017	Launched a live center in the China (Beijing) region.

Date	Feature
May 2017	Released ApsaraVideo Live on the official website and launched a live center in the Singapore region.
February 2017	<p>Added support for recording callback configuration.</p> <p>Added support for recording in the MP4 and FLV formats.</p>
December 2016	Added support for high resolution (1440p) and high frame rate (60 fps) encoding.
November 2016	Added support for stream monitoring in the console, covering the bandwidth usage and the frame rate of users' ingest streams.
October 2016	<p>Added support for stream ingest monitoring</p> <p>.</p> <p>Added support for live resource monitoring.</p>
September 2016	<p>Added support for snapshot management.</p> <p>Added support for live recording.</p> <p>Added support for recording index management.</p>
April 2016	<p>Added support for querying and adding accelerating domain names of live streams.</p> <p>Added support for authentication configuration.</p> <p>Added support for live stream query and management.</p>

# 5 Edge streaming

## Introduction

The edge streaming function preferentially pushes your video streams to the optimal CDN node to ensure that users can access the best uplink network. Besides, it can minimize such problems as video lagging and slow stream-pulling ratio caused by uplink transmission.

## Advantages

Wide coverage: over 1,500 CDN nodes all over the world, and over 700 nodes in mainland China, covering main stream cities and regions.

Intelligentization: to preferentially access the CDN node nearest users, so as to ensure the transmission stability.

## Comparison between edge streaming and center streaming

	Edge streaming	Center streaming
Explanations	Preferentially schedule stream data to the optimal node nearest to user, and transmit the data to Alibaba Cloud's live center directly and rapidly for content delivery by using Alibaba Cloud's intelligent scheduling system.	Transmit video streams directly to live center for content delivery by using BGP.
Advantage	Rich CDN nodes, wide coverage to ensure optimal link transmission.	High-quality multi-line BGP room.

# 6 Global acceleration

## Introduction

Global acceleration function aims to create a high-quality network transmission link between the video capture region and the play source station, so that the video can be transmitted using the shortest, and the optimal link between the video capture region and the play region, to help your business solve the problem of video lagging or high delay.

## Advantages

Low-cost access: Access in a highly flexible way, and no development and server purchase costs are needed, the function is enabled when the configuration is completed.

High speed and stability: access and distribution from the nearest edge node, global nodes are connected by high-speed dedicated line.

Global coverage: mainstream regions such as Europe and America are covered.

Flexible sale: the service is billed with day as the time granularity, which supports the configuration of dedicated lines at stream level, to meet different user needs.

## Comparison between public network transmission with global acceleration

Functions	Public network	High-quality network transmission link
Communication quality and availability	The quality of long-distance public network communication is affected by a variety of factors, therefore, the delay stability and packet loss rate are difficult to guarantee.	Alibaba Cloud's high-quality infrastructure delivers enhanced link quality and availability.
Cost	On-demand payment of public network transmission fees	No hardware cost required. Flexible billing methods and affordable prices.

## 7 Limits

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This section describes the limits in ApsaraVideo Live.

Item	Description
Accelerating domain names of live streams	You can create a maximum of 20 accelerating domain names of live streams for each of your accounts by default. If you have any special requirements, <a href="#">open a ticket</a> to contact us.
Concurrent live streams	By default, each accelerating domain name can concurrently push a maximum of 20 original quality (unencoded) live streams. If you enable the encoding feature, each accelerating domain name can concurrently push a maximum of 10 encoded live streams. If you have any special requirements, <a href="#">open a ticket</a> to contact us.
Stream ingest	<ul style="list-style-type: none"><li>• ApsaraVideo Live does not have a limit on the ingest stream bitrate. It supports common resolutions and the corresponding bitrates.</li><li>• To avoid ingest stream lagging, we recommend that you set the bitrate to a value no higher than 4 Mbit/s.</li></ul>
Billing by traffic	The billing by traffic method is used. The maximum business bandwidth is <b>10 Gbit/s</b> . If you need a higher bandwidth, open a ticket.
Stream acceleration	The stream acceleration settings are applicable only to domain names in <b>China (Shanghai)</b> .
Content moderation	The content moderation settings are applicable only to domain names in <b>China (Shanghai)</b> .