Live

Service Overview

Issue 01

Date 2024-06-20

HUAWEI CLOUD COMPUTING TECHNOLOGIES CO., LTD.

Trademarks and Permissions


and other Huawei trademarks are the property of Huawei Technologies Co., Ltd.
All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei Cloud and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Huawei Cloud Computing Technologies Co., Ltd.

Address: Huawei Cloud Data Center Jiaoxinggong Road
Qianzhong Avenue
Gui'an New District
Gui Zhou 550029
People's Republic of China

Website: https://www.huaweicloud.com/intl/en-us/

Contents

1 What Is Live?

Huawei Cloud Live is the cumulation of years of video expertise. It offers a secure and high-concurrency E2E livestreaming solution while delivering a low-latency HD experience. Huawei Cloud Live provides Cloud Stream Live and Low Latency Live (LLL). Cloud Stream Live improves the stability and efficiency of high-concurrency livestreaming and provides powerful real-time media processing capabilities. LLL reduces the E2E latency to milliseconds and is more adaptable to poor network conditions. It is suitable for scenarios that require low latency and good content synchronization.

Live offers the following subproducts:

- Cloud Live: This easy-to-use livestreaming service provides diverse live acceleration capabilities for entertainment, e-commerce, and education scenarios.

  Cloud Live involves the following two scenarios. **Table 1-1** describes the differences between the two scenarios.

  - Cloud Stream Live improves the stability and efficiency of high-concurrency livestreaming and provides powerful real-time media processing capabilities.
  - Low Latency Live (LLL), which is built on cutting-edge technologies such as transmission protocol optimization, dynamic routing, and low-latency transcoding, slashes live latency to milliseconds in latency-sensitive scenarios and delivers an unrivaled experience even when there are a massive number of concurrent requests.
- Media Live: This broadcast-grade livestreaming service supports features such as channel management and content encryption, making it an ideal option for media assets and broadcasting.

Table 1-1 Comparison of Cloud Live sub-scenarios

Cloud Live Sub-Scenario	Cloud Stream Live	LLL
Streaming Protocol	RTMP, HTTP-FLV, and HLS	WebRTC

E2E Latency	RTMP and HTTP-FLV latency > 3s HLS latency > 6s	E2E latency < 800 ms
Adaptable Network	Average	Good
Application Scenario	Livestreaming that is insensitive to latency	Interactive livestreaming that requires low latency and good image synchronization
General Capability	• Functions such as real-time transcoding, recording, real-time snapshot capturing, content encryption, authentication, and statistics analysis • More than 2800 acceleration nodes in China and more than 800 outside China to provide superlative service experience	

2 Scenarios

Online Education

Live is an easy-to-integrate cloud service that can guarantee low-latency HD even when there are a massive number of viewers. Powerful real-time media processing ensures that videos can be quickly sent to interactive education websites. The acceleration nodes networkwide allow students to watch smooth videos. With video recording and transcoding, students can review learning materials at any time. In addition, hotlink protection prevents teaching materials from unauthorized use to protect copyrights.

Social Networking & Entertainment

Live can be used for livestreaming by influencers and enterprises, or livestreaming for entertainment and gaming. Diverse media processing functions are provided, such as real-time transcoding and inappropriate content identification, to build a one-stop E2E livestreaming solution.

Live Commerce

Live helps e-commerce platforms better present their products to turn more prospects into customers. The ultra-low latency keeps both streamers and viewers informed of transactions in real time so that viewers can buy products while watching the video.

Event Livestreaming

Live enables you to manage permissions for playing video using IP address access control lists (ACLs), remote authentication, and the Advanced Encryption Standard (AES). These features help protect live content from unauthorized playback. Live video recording and recording file index creation are supported. Together with VOD, a one-stop Live-to-VOD solution is provided, which is applicable to sports events, games, and enterprise presentation.

Live Sports

Fans can watch sports games together in a live room and interact with each other in real time at a low latency.

Live Fashion Shows

The streamer can receive gifts sent by viewers and answer their questions immediately, improving interactivity in this latency-sensitive scenario.

3 Constraints

Before using Live, understand the following constraints.

Resource Constraints

Table 3-1 describes the constraints.

Table 3-1 Usage restrictions

Item	Description
Region	Currently, Live is available only in AP-Bangkok, AP-Singapore, and CN North-Beijing4.
Domain name	By default, you can add a maximum of 64 domain names to each account. If you want to livestream an event in the Chinese mainland or globally, ensure that the domain name to be added has been licensed by the Ministry of Industry and Information Technology (MIIT) and the ICP license is valid.
Concurrent live stream	There is no limit on the number of concurrent live streams. However, if you will have a large number of concurrent live streams, you are advised to **submit a service ticket**.
Stream pushing	There is no limit on the bitrate. Common resolutions and bitrates are supported. To ensure smooth streaming, it is recommended that the bitrate be no greater than 4 Mbit/s.
Playback	You can play a live stream only after ingest and streaming domain names have been associated and the values of **AppName** and **StreamName** in the streaming URL are the same as those in the ingest URL.

Item	Description
Input/Output format	**Cloud Stream Live** • Video packaging protocols – RTMP and FLV Video codec: H.264 and H.265, etc. – HLS output protocol Video codec: H.264 and H.265, etc. • Audio packaging protocols – RTMP and FLV Audio codec: AAC, etc. – HLS output protocol The supported audio encoding format is AAC. **Low Latency Live (LLL)** • Transmission protocol requirements – Signaling transmission protocol: HTTPS, HTTP, and UDP are supported. HTTP listening port 80 is enabled. HTTP and UDP are insecure. – Media transmission protocol: UDP and TCP are supported. Media streams can be encrypted. It is recommended that DTLS be used for signaling negotiation, as UDP is insecure. • Encoding format requirements – Audience: The supported video encoding format is H.264 without B frames, and the supported audio encoding format is OPUS. – Streamer: The supported video encoding format is H.264 without B frames, and the supported audio encoding format is AAC (LC/HE). **NOTE** • If the format of the streaming end does not meet the requirements, you need to **create a transcoding template**. LLL supports real-time transcoding, and you will be billed for using this function. By default, the system supports the conversion from AAC to OPUS, and no fee is generated. • To achieve lower latency, you are advised to set the GOP at the streaming device to 2s. • The audio-only or video-only mode is not supported.
Streaming management	This function is available only in the **AP-Singapore** and **CN North-Beijing4** regions.
Recording	This function is unavailable in the **AP-Bangkok** region.
Transcoding	In the **AP-Bangkok** region, **submit a service ticket** for review after configuring a template. The configuration takes effect only after it is approved.
Snapshot capturing	
Stream status notifications	

Item	Description
Content compliance	Live does not support the access of websites that violate related laws and regulations, including but not limited to: • Websites that contain pornographic content or content related to gambling, illegal drugs, frauds, or infringement • Gaming websites that run on illegal private servers • Websites that provide pirated games/software/videos • P2P lending websites • Unofficial lottery websites • Unlicensed hospital and pharmaceutical websites • Inaccessible websites or websites that do not contain any substantial information **NOTE** • If your acceleration domain name violates related laws and regulations, you shall bear the related risks. • If any pornographic content or content related to gambling, illegal drugs, or frauds is found on your domain name, the domain name and other domain names that use the same origin server will be deleted from Live and can no longer access Live. Acceleration domain name quota of the account will be reduced to 0.

API Constraints

The Live service sets a limit on the number of API calls to prevent service interruption caused by repeated API calls in a short period of time.

Table 3-2 API request throttling

API Category	API Name	Max. User Requests	Max. API Requests
Domain name management	• Creating a domain name • Querying domain names	300 times/ minute	3000 times/minute

API Category	API Name	Max. User Requests	Max. API Requests
	• Deleting a domain name • Modifying a domain name • Mapping domain names • Deleting a domain name mapping • Configuring the domain name IPv6 switch	100 times/ minute	1000 times/minute
Transcoding template management	• Creating a transcoding template • Deleting a transcoding template • Modifying a transcoding template • Querying transcoding templates	100 times/ minute	1000 times/minute
Stream management	• Disabling a push stream • Modifying the attribute of a disabled stream	4000 times/ minute	12,000 times/ minute
	• Resuming a push stream • Querying disabled streams	3000 times/ minute	6000 times/minute
	Querying ongoing streams	1000 times/ minute	2000 times/minute

API Category	API Name	Max. User Requests	Max. API Requests
Access control	• Querying the URL validation configuration of a specified domain name • Modifying the URL validation configuration of a specified domain name • Deleting the URL validation configuration of a specified domain name	150 times/ minute	300 times/minute
Snapshot management	• Creating a snapshot capturing template • Modifying a snapshot capturing template • Querying snapshot capturing templates • Deleting a snapshot capturing template	150 times/ minute	300 times/minute
Log management	Obtaining livestreaming logs	300 times/ minute	3000 times/minute

API Category	API Name	Max. User Requests	Max. API Requests
Recording management	• Creating a recording template • Querying recording templates • Modifying a recording template • Deleting a recording template • Querying recording templates • Submitting a recording command	300 times/ minute	3000 times/minute
	Creating a video recording index	1200 times/ minute	3000 times/minute
Recording callback management	• Creating a recording callback • Querying recording callbacks • Modifying a recording callback • Querying recording callbacks • Deleting a recording callback	300 times/ minute	300 times/minute

API Category	API Name	Max. User Requests	Max. API Requests
HTTPS certificate management	• Modifying the HTTPS certificate configuration of a specified domain name • Querying the HTTPS certificate configuration of a specified domain name • Deleting the HTTPS certificate configuration of a specified domain name	150 times/ minute	300 times/minute
OBS bucket management	Granting or canceling authorization of accessing OBS buckets	150 times/ minute	300 times/minute
Statistical analysis	• Querying the duration of transcoded outputs • Querying the number of recording channels • Querying the number of snapshots • Querying playback profiles	60 times/minute	5000 times/minute

API Category	API Name	Max. User Requests	Max. API Requests
	• Querying the peak bandwidth • Querying the total playback traffic • Querying HTTP status codes • Querying upstream bandwidth • Querying the number of stream push channels • Querying historical streams	20 times/minute	5000 times/minute
	Querying the distribution of livestreaming metrics by region	50 times/second	150 times/second
Stream analytics	• Querying the stream frame rate • Querying the stream bitrate	20 times/minute	5000 times/minute
	Querying stream analytics	Once per second	5 times/second
	Querying CDN upstream streaming quality data	60 times/second	300 times/second

4 Security

4.1 Shared Responsibilities

Shared Responsibilities on Huawei Cloud

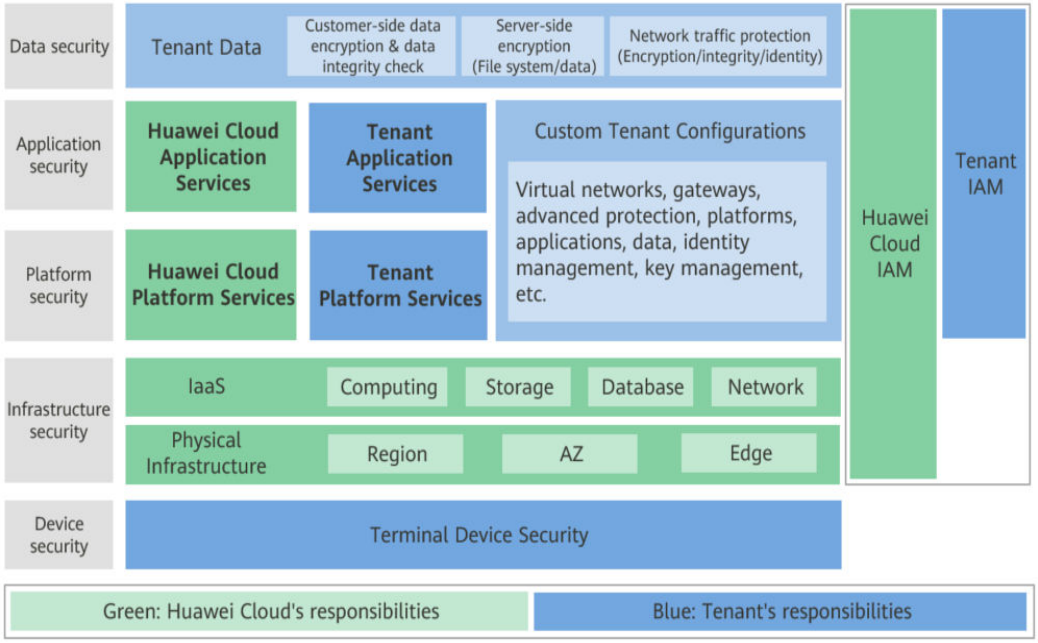
Huawei Cloud guarantees that its commitment to cyber security will never be outweighed by the consideration of commercial interests. To tackle emerging cloud security challenges and pervasive cloud security threats and attacks, Huawei Cloud builds a comprehensive cloud service security assurance system for different regions and industries based on Huawei's unique software and hardware advantages, laws, regulations, industry standards, and security ecosystem.

Figure 4-1 illustrates the responsibilities shared by Huawei Cloud and users.

- Huawei Cloud: ensures the security of cloud services and provides secure clouds. Huawei Cloud's security responsibilities include ensuring the security of our IaaS, PaaS, and SaaS services, as well as the physical environments of the Huawei Cloud data centers where our IaaS, PaaS, and SaaS services operate. Huawei Cloud is responsible for not only the security functions and performance of our infrastructure, cloud services, and technologies, but also for the overall cloud O&M security and, in the broader sense, the security compliance of our infrastructure and services.
- Tenant: uses the cloud securely. Tenants of Huawei Cloud are responsible for the secure and effective management of the internal security as well as the tenant-customized configurations of cloud services, including IaaS, PaaS, and SaaS. This includes but is not limited to operating systems of virtual networks, virtual machine (VM) hosts and guest VMs, virtual firewalls, API Gateway and advanced security services, all types of cloud services, tenant data, identity accounts, and key management.

Huawei Cloud Security White Paper introduces in detail the building ideas and measures of Huawei cloud security, including cloud security strategy, responsibility sharing model, compliance and privacy, security organization and personnel, infrastructure security, tenant service and tenant security, engineering security, O&M and operation security, and ecosystem security.

Figure 4-1 Huawei Cloud shared security responsibility model



Shared Responsibilities on Huawei Cloud Live

Live requires the participation and responsibility sharing of the following roles. The security responsibility boundary of each role is as follows:

- **Huawei Cloud tenant**

  Responsible for **livestreaming management**, including the following security responsibilities:

  - Application and data security of the livestreaming platform and apps
  - Security of livestreaming activities
  - End user (streamers or viewers) security management, including security supervision of live video content
  - Response to regulators

- **Huawei Cloud Live**

  The security responsibilities of **Live** are as follows:

  - Transmission network security, which is essential to the transmission and processing of video content
  - Tenant data security
  - Providing technologies, such as snapshot capturing and recording, to support tenants' video content monitoring
  - Response to regulators

- **End user**

  Streamers and viewers are responsible for the security of video production and video content.

4.2 Identity Authentication and Access Control

Identity Authentication

You can access Live through the Live console, APIs, and SDKs. Regardless of the access method, requests are sent through REST APIs provided by Live.

Live APIs can be accessed only after requests are authenticated. You can use either of the following authentication methods to call APIs:

- Token authentication: Requests are authenticated using tokens.
- AK/SK authentication: Requests are encrypted using AK/SK pairs. AK/SK authentication is recommended because it is more secure than token authentication.

For details about authentication and authorization, see **Authentication**.

Access Control

Live supports access control based on IAM permissions and URL validation.

Table 4-1 Live access control

Method	Description	Details
IAM permission control for Live	IAM permissions define which actions on your cloud resources are allowed or denied. After creating an IAM user, the administrator needs to add it to a user group and grant the permissions required by Live to the user group. Then, all users in this group automatically inherit the granted permissions.	**Live Permissions Management**
URL validation	To prevent your data on Live from being stolen, Live provides referer validation, URL validation, and access control list (ACL) to identify and filter out malicious visitors. Only authorized visitors can use Live.	**Overview**

4.3 Data Protection

Live takes different measures to keep data stored in Live secure and reliable.

Table 4-2 Live data protection methods and features

Measure	Description	Details
Transmission encryption (HTTPS)	Live supports HTTP and HTTPS, but HTTPS is recommended to enhance the security of data transmission.	**HTTPS Configuration Methods**
Sensitive data encryption and protection	Sensitive data configured by tenants, such as URL validation keys, is stored using secure encryption algorithms.	-

4.4 Resilience

Live provides a four-level reliability architecture. It ensures data durability and reliability through technical solutions such as cross-region/AZ data DR, intelligent scheduling at edge nodes, and automatic microservice scale-out.

Reliability Level	Measure
Level 1 Service reliability	Automatic microservice scale-out
Level 2 Access reliability	Scheduling at multiple edge nodes
Level 3 Data center reliability	Multi-AZ
Level 4 Region reliability	Multi-region

4.5 Certificates

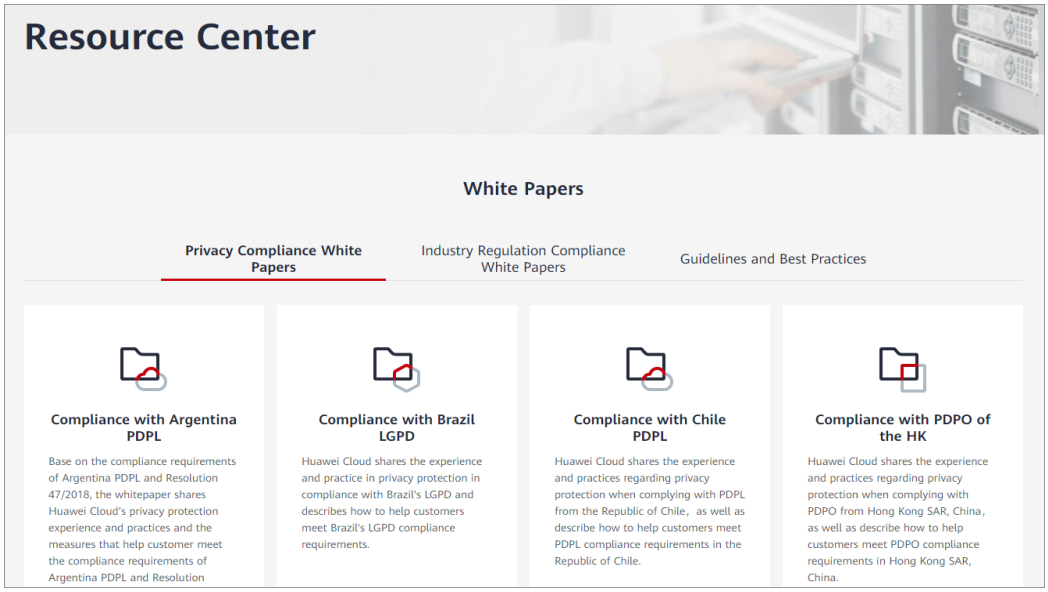
Compliance Certificates

Huawei Cloud services and platforms have obtained security compliance certificates of multiple authoritative organizations (such as ISO, SOC, and PCI) inside and outside China. You can **apply for and download** compliance certificates.

Resource Center

Huawei Cloud also provides the following resources to help you meet compliance requirements. For details, see **Resource Center**.

Figure 4-2 Resource Center



5 Personal Data

Personal Data Use Scenario	Live stream push and playback	Recordings and snapshot generation and their storage in OBS buckets (available only when you have configured recording and snapshot capture templates)	Fault locating and live stream statistics
Collected Personnel Data	Live audio and video	Recordings and snapshots	IP addresses of user devices
Collection Source and Method	Live collects live audio and video when users watch live content.	Live obtains recordings and snapshots from live streams during live streaming.	Live collects and saves IP addresses of user devices in logs when users watch live content.
Purpose and Security Measure	Live audio and video are used for playback. They are encrypted during transmission.	Recordings and snapshots are stored in your OBS buckets. You can configure the security mechanism of the OBS buckets as required.	IP addresses are used for user identification, fault locating, and statistical analysis. IP addresses are anonymized before being written into logs.
Retention Period and Policy	The data is not saved. It is only processed by Live.	You can determine the retention period and policy.	The data is stored in logs for three months after the live streaming ends.

Destruction Method	The data is not saved so data destruction is not involved.	You can delete the data as required.	The system automatically deletes expired logs.
Export Method	No export is involved.	You can export and download the data from OBS buckets.	You can download logs.
Export Guide	No export is involved.	See **Downloading an Object**.	See **Log Management**.

6 Related Services

Before using live recording and snapshot capturing, you must enable the dependent service listed in **Table 6-1**.

Table 6-1 Related services

Interactive Function	Service Name	Reference
Saving live snapshots or recordings in OBS buckets	OBS	**Creating a Bucket** **Uploading an Object**

7 Permissions Management

If you need to assign different permissions to employees in your enterprise to access your Live resources, Identity and Access Management (IAM) is a good choice for refined permissions management. IAM provides identity authentication, permissions management, and access control to ensure secure access to your Huawei Cloud resources.

With IAM, you can use your Huawei Cloud account to create IAM users, and assign permissions to the users to control their access to specific resources. For example, some software developers in your enterprise need to use Live but are not allowed to delete Live resources or perform any high-risk operations. To this end, you can create IAM users for the software developers and assign them only the permissions for using Live.

If your Huawei Cloud account does not require individual IAM users for permissions management, skip this section.

IAM is free. You pay only for the resources in your account. For more information about IAM, see **IAM Service Overview**.

Live Permissions

By default, new IAM users do not have any permissions. You need to add them to one or more groups, and then add permissions policies or roles to these groups. The users inherit permissions from their groups and can then perform specified operations on cloud services.

Live is a project-level service deployed in different physical regions. To assign permissions to a user group, specify the scope as region-specific projects and select projects for the permissions to take effect. If **All projects** is selected, the permissions will take effect for the user group in all region-specific projects. When accessing Live, the users need to switch to a region where they have been authorized to use Live.

NOTE

When assigning permissions to a user group in IAM, you cannot select **Enterprise projects** when setting **Specify the authorization scope** on the **Select Scope** page.

You can grant users permissions by using roles and policies.

- Roles: A coarse-grained authorization mechanism provided by IAM to define permissions based on users' job responsibilities. This mechanism provides a limited number of service-level roles for authorization. If one role has a dependency role required for accessing Live, assign both roles to the users. However, roles are not an ideal choice for fine-grained authorization and secure access control.
- Policies: Policy-based permissions management is a type of fine-grained authorization mechanism that grants permissions for performing operations on specific cloud resources. This mechanism allows for more flexible policy-based authorization and meets secure access control requirements. For example, you can grant Live users the permissions for managing only a certain type of resources.

Table 7-1 lists all system-defined permissions on Live.

NOTICE

After granting an IAM user the **Live FullAccess** permission, you need to add the following CES permissions to the user to implement metric monitoring of Live:

- **CES ReadOnlyAccess**: On the CES console, choose **Cloud Service Monitoring** > **Live** to view resource monitoring metrics of Live.
- **CES FullAccess**: On the CES console, choose **Cloud Service Monitoring** > **Live** to view resource monitoring metrics of Live and perform corresponding operations.

Table 7-1 System-defined permissions on Live

Name	Description	Category	Dependency
Live FullAccess	Has all permissions on Live.	System-defined policy	None
Live ReadOnlyAccess	Has the read-only permission on Live.	System-defined policy	None

Table 7-2 lists the common operations supported by each system-defined policy of Live. Select the policies as required.

Table 7-2 Common operations supported by each system-defined policy

Operation	Live FullAccess	Live ReadOnlyAccess
Creating a domain name	√	x

Operation	Live FullAccess	Live ReadOnlyAccess
Modifying a domain name	√	x
Deleting a domain name	√	x
Querying domain names	√	√
Mapping domain names	√	x
Deleting a domain name mapping	√	x
Adding or overwriting stream notification configurations	√	x
Querying stream notification configurations	√	√
Deleting stream notification configurations	√	x
Creating a domain name configuration item	√	x
Modifying a domain name configuration item	√	x
Querying domain name configuration items	√	√
Deleting a domain name configuration item	√	x
Querying IP ACLs	√	√
Modifying an IP ACL	√	x
Obtaining the list of regions where Live is available	√	√
Modifying the list of regions where Live is available	√	x
Configuring a referer validation ACL	√	x
Deleting a referer validation ACL	√	x
Querying referer validation ACLs	√	√

Operation	Live FullAccess	Live ReadOnlyAccess
Querying HTTPS certificate information	√	√
Obtaining the link for downloading playback logs	√	√
Creating a recording template	√	x
Querying recording templates	√	√
Modifying a recording template	√	x
Deleting a recording template	√	x
Querying recording templates	√	√
Querying recorded content	√	√
Submitting a recording command	√	x
Creating a recording callback	√	x
Querying recording callbacks	√	√
Modifying a recording callback	√	x
Querying recording callbacks	√	√
Deleting a recording callback	√	x
Configuring a snapshot capturing template	√	x
Modifying a snapshot capturing template	√	x
Querying snapshot capturing templates	√	√
Deleting a snapshot capturing template	√	x
Disabling a stream	√	x

Operation	Live FullAccess	Live ReadOnlyAccess
Querying disabled streams	√	√
Resuming a stream	√	x
Modifying the attribute of a disabled stream	√	x
Disconnecting a stream	√	x
Querying ongoing streams	√	√
Creating a task for ingesting streams from external networks	√	x
Deleting a task for ingesting streams from external networks	√	x
Querying tasks for ingesting streams from external networks	√	√
Configuring the billing mode	√	x
Querying tenant information	√	√
Creating a transcoding template	√	x
Deleting a transcoding template	√	x
Modifying a transcoding template	√	x
Querying transcoding templates	√	√
Adding transcoding SEI	√	x
Querying HTTP status codes for pulling streams	√	√
Querying the stream frame rate	√	√
Querying the stream bitrate	√	√
Querying the real-time stream bitrate	√	√

Operation	Live FullAccess	Live ReadOnlyAccess
Querying the real-time stream frame rate	√	√
Querying the duration of recordings	√	√
Querying the number of snapshots	√	√
Querying the number of streams by domain name	√	√
Querying historical streams	√	√
Querying playback profiles	√	√
Querying the number of online streamers	√	√
Querying the playback bandwidth trend	√	√
Querying the playback traffic trend	√	√
Querying the peak playback bandwidth	√	√
Querying the total playback traffic	√	√
Querying the upstream bandwidth	√	√
Querying the distribution of metrics in each region	√	√
Querying the playback bandwidth trend	√	√
Querying the playback traffic trend	√	√
Querying the real-time upstream bandwidth	√	√
Querying the real-time downstream bandwidth	√	√
Querying the real-time stream bandwidth	√	√

Operation	Live FullAccess	Live ReadOnlyAccess
Querying details about the real-time downstream bandwidth	√	√
Querying the bandwidth trend by stream	√	√
Querying the duration of transcoded outputs	√	√
Querying the number of transcoding tasks	√	√
Querying the number of streams for real-time transcoding	√	√
Querying the viewer trend by stream	√	√
Querying the number of online viewers by stream	√	√
Querying the number of online viewers	√	√
Querying details about the number of online viewers	√	√

Helpful Links

- IAM Service Overview
- Creating a User and Assigning Live Permissions

Live FullAccess Policy

```
{
    "Version": "1.1",
    "Statement": [
        {
            "Effect": "Allow",
            "Action": [
                "live:*:*"
            ]
        }
    ]
}
```

Live ReadOnlyAccess Policy

```
{
    "Version": "1.1",
    "Statement": [
        {
            "Effect": "Allow",
```



```
                "Action": [
                    "live:*:get*",
                    "live:*:list*"
                ]
            }
        ]
}
```


8 Regions and AZs

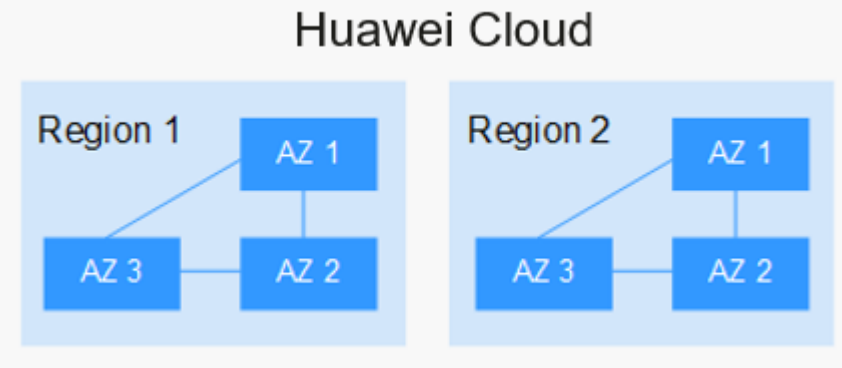
Concepts

A region or an availability zone (AZ) identifies the location of a data center. You can create resources in a specific region or an AZ.

- Regions are divided from the dimensions of geographical location and network latency. Public services, such as Elastic Cloud Server (ECS), Elastic Volume Service (EVS), Object Storage Service (OBS), Virtual Private Cloud (VPC), Elastic IP (EIP), and Image Management Service (IMS), are shared within the same region. Regions are classified as universal regions and dedicated regions. A universal region provides universal cloud services for common tenants. A dedicated region provides services of the same type only or for specific tenants.
- An AZ contains one or multiple physical data centers. Each AZ has independent cooling, fire extinguishing, moisture-proof, and electricity facilities. Within an AZ, computing, network, storage, and other resources are logically divided into multiple clusters. AZs within a region are interconnected using high-speed optical fibers to allow you to build cross-AZ high-availability systems.

Figure 8-1 shows the relationship between regions and AZs.

Figure 8-1 Regions and AZs



HUAWEI CLOUD provides services in many regions around the world. You can select a region and AZ as needed. For more information, see **Huawei Cloud Global Regions**.

Regions and Endpoints

Before using an API to call resources, specify its region and endpoint. For details, see **Regions and Endpoints**.

9 Concepts

Stream Pushing

A process of transmitting collected, encoded, and packaged live content to the Live center

Stream Pulling

A process of pulling live content from the Live center to a specific address for play

Edge Streaming

A video stream is pushed to a nearby edge node. Then, the scheduling system of HUAWEI CLOUD transmits the live stream to the origin server for processing and distribution. This ensures users access the optimal uplink network and reduces lag during uplink transmission.

Streaming Domain Name

Domain name for playing live streams. You must register a streaming domain name before using Live. After a streaming domain name is configured, the system generates a streaming URL. For details, see **Assembling a Streaming URL**.

Ingest Domain Name

Domain name for pushing live streams. You must register an ingest domain name before using Live. After an ingest domain name is configured, the system generates an ingest URL. For details, see **Assembling an Ingest URL**.

CNAME Record

After ingest and streaming domain names are configured, the system assigns a respective CNAME record to the ingest and streaming domain names. You must add the records to your domains' DNS records for live streaming acceleration to take effect.

H.264

H.264 or MPEG-4 Part 10, a video compression standard developed by the ITU-T Video Coding Experts Group (VCEG) and ISO/IEC JTC1 Moving Picture Experts Group (MPEG).

H.265

H.265 is a video compression standard, designed as a successor to H.264. Based on the video coding standard H.264, H.265 keeps some of the original technologies, while improves some relevant techniques. H.265 adopts the advanced techniques to improve the bit-stream, promote the coding quality, and better the relationship between time delay and algorithm complexity, to achieve best possible optimization. H.264 can transmit SD (lower than 1280 x 720 pixels) digital images at a rate lower than 1 Mbit/s, whereas H.265 can transmit standard HD (1280 x 720 pixels) audio and video at a rate of 1 Mbit/s to 2 Mbit/s.

Low Bitrate HD

Based on the human visual system model and Huawei's transcoding technology, Live analyzes each scenario, action, content, and texture in a video to deliver lower bitrate while keeping the bandwidth costs down but without compromising the video quality.

Real-time Transcoding

A process of transcoding one live stream into another or more in real time to meet different bandwidth, device, and user requirements

Weak Network

The QoS of a weak network is not stable.

95th Percentile Bandwidth

A billing option. Within a calendar month, the bandwidth is measured and recorded every 5 minutes on each valid day. At the end of the month, the records are sorted from the highest to the lowest, and the top 5% of the recorded bandwidth values are thrown away. Then the highest bandwidth value in the remaining records is the billable bandwidth of the month.

StreamName

This is used to identify a live stream with the domain name and **AppName**. **StreamName** can be customized.

AppName

Path for storing streaming media files. The default value is **live**.

Live Broadcast URL

This includes an ingest URL and streaming URL. An original URL consists of the domain name, **AppName**, and **StreamName**. You can create multiple applications for each domain name, and create multiple live streams for each application.

