

SparkRTC

# API Reference

**Issue** 01  
**Date** 2026-04-27



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# 1 Before You Start

SparkRTC, built on Huawei's long-established video technologies and expertise, delivers a high-concurrency and high-definition (HD) experience in real time. It offers dependable security at low latency and is an ideal option for a broad array of real-time communication (RTC) scenarios, such as online education, cloud conferencing, social networking, and entertainment.

This document describes how to use APIs to perform operations such as managing applications and mixed stream recording jobs. For details about all supported operations, see [API Overview](#).

Before calling SparkRTC APIs, ensure that you have fully understood related concepts. For details, see [Service Overview](#).

SparkRTC provides Representational State Transfer (REST) APIs, allowing you to [call APIs](#) using HTTPS.

## Endpoints

An endpoint is the **request address** for calling an API. SparkRTC is a global service deployed for all physical regions. [Table 1-1](#) lists SparkRTC endpoints.

**Table 1-1** SparkRTC endpoints

Region	Detail	Endpoint
All	All	rtc-api.myhuaweicloud.com

## Constraints

API request throttling is configured for SparkRTC to prevent service interruption caused by repeated API calls in a short period.

**Table 1-2** API request throttling

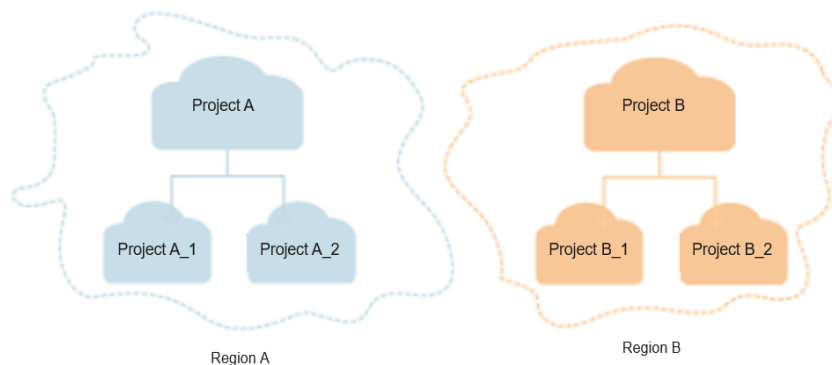
API Category	API Name	Request Throttling
Application management	<ul style="list-style-type: none"> <li>• Creating an application</li> <li>• Querying applications</li> <li>• Querying an application</li> <li>• Deleting an application</li> <li>• Enabling an application</li> <li>• Disabling an application</li> </ul>	60 times/minute
Recording template management	<ul style="list-style-type: none"> <li>• Creating or updating a recording template</li> <li>• Querying recording templates</li> <li>• Querying a recording template</li> <li>• Updating a recording template</li> <li>• Deleting a recording template</li> </ul>	
Automatic recording configuration	<ul style="list-style-type: none"> <li>• Updating the automatic recording configuration</li> <li>• Querying the automatic recording configuration</li> </ul>	
Application callback management	<ul style="list-style-type: none"> <li>• Configuring a recording event callback</li> <li>• Querying a recording event callback</li> </ul>	
Mixed stream recording job management	<ul style="list-style-type: none"> <li>• Starting a mixed stream recording job</li> <li>• Querying a mixed stream recording job</li> <li>• Modifying a mixed stream recording job</li> <li>• Stopping a mixed stream recording job</li> </ul>	

API Category	API Name	Request Throttling
Single stream recording job management	<ul style="list-style-type: none"> <li>● Starting a single stream recording job</li> <li>● Querying a single stream recording job</li> <li>● Stopping a single stream recording job</li> <li>● Updating a single stream recording job</li> </ul>	
Room management	<ul style="list-style-type: none"> <li>● Removing an online user</li> <li>● Dismissing a room</li> </ul>	60 times/minute
OBS bucket management	<ul style="list-style-type: none"> <li>● Querying OBS buckets</li> <li>● Querying objects in an OBS bucket</li> <li>● Granting or canceling authorization of accessing OBS buckets</li> </ul>	Twice per second
Statistical analysis	<ul style="list-style-type: none"> <li>● Querying rooms</li> <li>● Querying users</li> <li>● Querying real-time scale data</li> <li>● Querying real-time scale data distribution</li> <li>● Querying real-time quality data</li> <li>● Querying real-time network data</li> <li>● Querying usage</li> <li>● Querying historical scale data</li> <li>● Querying historical quality data</li> <li>● Querying user call indicators</li> <li>● Querying event details</li> <li>● Querying abnormal user experience events of a specified project</li> <li>● Querying exceptions</li> <li>● Querying exception distribution</li> </ul>	30 times/minute

## Concepts

- Account  
An account is created upon successful registration with the cloud platform. The account has full access permissions for all of its cloud services and resources. It can be used to reset user passwords and grant user permissions. An account is a payment entity. Accounts should not be used directly to perform routine management. For security purposes, create IAM users and grant them permissions for routine management.
- IAM user  
An IAM user is created using an account to use cloud services. Each IAM user has its own identity credentials (password and access keys).  
An IAM user can view the account ID and user ID on the My Credentials page of the console. The account, username, and password will be required for API authentication.
- Region  
A region is a physical location where cloud resources are deployed. Availability zones (AZs) in the same region can communicate with each other over an intranet, but AZs in different regions cannot. Deploying cloud resources in different regions can better suit certain user requirements or comply with local laws or regulations.
- AZ  
An AZ contains one or more physical data centers equipped with independent ventilation, fire, water, and electricity facilities. Compute, networking, storage, and other resources in an AZ 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.
- Project  
Projects group and isolate resources (including compute, storage, and networking resources) across physical regions. A default project is provided for each region, and subprojects can be created under each default project. Users can be granted permissions to access all resources in a specific project. For more refined access control, create subprojects under a project and purchase resources in the subprojects. Users can then be assigned permissions to access only specific resources in the subprojects.

**Figure 1-1** Project isolating model



# 2 API Overview

The following tables list the SparkRTC APIs. Before calling a SparkRTC API, you need to obtain a user token, which can then be used to authenticate the calling of other APIs. For details about how to call a SparkRTC API, see [Example 1: Creating a Single Stream Recording Job](#).

## Application Management APIs

Table 2-1 Application management APIs

API	Description
POST /v2/apps	<a href="#">Creating an Application</a>
GET /v2/apps	<a href="#">Querying Applications</a>
GET /v2/apps/{app_id}	<a href="#">Querying an Application</a>
DELETE /v2/apps/{app_id}	<a href="#">Deleting an Application</a>
POST /v2/apps/{app_id}/enable	<a href="#">Enabling an Application</a>
POST /v2/apps/{app_id}/disable	<a href="#">Disabling an Application</a>

## Recording Template Management APIs

Table 2-2 Recording template management APIs

API	Description
POST /v2/apps/{app_id}/record-rules	<a href="#">Creating or Updating a Recording Template</a>
GET /v2/apps/{app_id}/record-rules	<a href="#">Querying Recording Templates</a>
GET /v2/apps/{app_id}/record-rules/{rule_id}	<a href="#">Querying a Recording Template</a>

API	Description
PUT /v2/apps/{app_id}/record-rules/{rule_id}	<a href="#">Updating a Recording Template</a>
DELETE /v2/apps/{app_id}/record-rules/{rule_id}	<a href="#">Deleting a Recording Template</a>

## Automatic Recording Configuration APIs

**Table 2-3** Automatic recording configuration APIs

API	Description
PUT /v2/apps/{app_id}/auto-record-mode	<a href="#">Updating the Automatic Recording Configuration</a>
GET /v2/apps/{app_id}/auto-record-mode	<a href="#">Querying the Automatic Recording Configuration</a>

## Application Callback Management APIs

**Table 2-4** Application callback management APIs

API	Description
PUT /v2/apps/{app_id}/record-callback	<a href="#">Configuring a Recording Event Callback</a>
GET /v2/apps/{app_id}/record-callback	<a href="#">Querying a Recording Event Callback</a>

## Mixed Stream Recording Job Management APIs

**Table 2-5** Mixed stream recording job management APIs

API	Description
POST /v2/apps/{app_id}/mix-stream-jobs	<a href="#">Starting a Mixed Stream Recording Job</a>
GET /v2/apps/{app_id}/mix-stream-jobs/{job_id}	<a href="#">Querying a Mixed Stream Recording Job</a>
PUT /v2/apps/{app_id}/mix-stream-jobs/{job_id}	<a href="#">Modifying a Mixed Stream Recording Job</a>
DELETE /v2/apps/{app_id}/mix-stream-jobs/{job_id}	<a href="#">Stopping a Mixed Stream Recording Job</a>

## Single Stream Recording Job Management APIs

**Table 2-6** Single stream recording job management APIs

API	Description
POST /v2/apps/{app_id}/individual-stream-jobs	<a href="#">Starting a Single Stream Recording Job</a>
GET /v2/apps/{app_id}/individual-stream-jobs/{job_id}	<a href="#">Querying a Single Stream Recording Job</a>
DELETE /v2/apps/{app_id}/individual-stream-jobs/{job_id}	<a href="#">Stopping a Single Stream Recording Job</a>
PUT /v2/apps/{app_id}/individual-stream-jobs/{job_id}	<a href="#">Updating a Single Stream Recording Job</a>

## Room Management

**Table 2-7** Room management APIs

API	Description
POST /v2/apps/{app_id}/rooms/{room_id}/batch-remove-users	<a href="#">Removing an online user</a>
POST /v2/apps/{app_id}/rooms/{room_id}/dismiss	<a href="#">Dismissing a Room</a>

## OBS Bucket Management

**Table 2-8** OBS bucket management APIs

API	Description
GET /v2/rtc-ops/buckets	<a href="#">Querying OBS Buckets</a>
GET /v2/rtc-ops/buckets/objects	<a href="#">Querying Objects in an OBS Bucket</a>
PUT /v2/rtc-ops/buckets/authentication	<a href="#">Granting or Canceling Authorization of Accessing OBS Buckets</a>

## Statistical Analysis APIs

**Table 2-9** Statistical analysis APIs

API	Description
GET /v1/{project_id}/rtc/rooms	<a href="#">Querying Rooms</a>
GET /v1/{project_id}/rtc/users	<a href="#">Querying Users</a>
GET /v1/{project_id}/rtc/realtime/scale	<a href="#">Querying Real-time Scale Data</a>
GET /v1/{project_id}/rtc/realtime/scale/dimension	<a href="#">Querying Real-time Scale Data Distribution</a>
GET /v1/{project_id}/rtc/realtime/quality	<a href="#">Querying Real-time Quality Data</a>
GET /v1/{project_id}/rtc/realtime/network	<a href="#">Querying Real-time Network Data</a>
GET /v1/{project_id}/rtc/history/usage	<a href="#">Querying Usage</a>
GET /v1/{project_id}/rtc/history/scale	<a href="#">Querying Historical Scale Data</a>
GET /v1/{project_id}/rtc/history/quality	<a href="#">Querying Historical Quality Data</a>
GET /v1/{project_id}/rtc/client/qos/details	<a href="#">Querying User Call Indicators</a>
GET /v1/rtc/data/abnormal-events	<a href="#">Querying Exceptions</a>
GET /v1/rtc/data/abnormal-event/dimension	<a href="#">Querying Exception Distribution</a>

# 3 Calling APIs

## 3.1 Making an API Request

This section describes the structure of a REST API request, and uses the IAM API for [creating an IAM user](#) as an example to demonstrate how to call an API.

### Request URI

A request URI is in the following format:

**{URI-scheme}://{Endpoint}/{resource-path}?{query-string}**

Although a request URI is included in the request header, most programming languages or frameworks require the request URI to be transmitted separately.

**Table 3-1** URI parameter description

Parameter	Description
URI-scheme	Protocol used to transmit requests. All APIs use HTTPS.
Endpoint	Domain name or IP address of the server bearing the REST service. The endpoint varies between services in different regions. It can be obtained from <a href="#">Regions and Endpoints</a> . For example, the endpoint of IAM in region <b>CN-Hong Kong</b> is <b>iam.ap-southeast-1.myhuaweicloud.com</b> .
resource-path	Access path of an API for performing a specified operation. Obtain the path from the URI of an API. For example, the <b>resource-path</b> of the API used to obtain a user token is <b>/v3/auth/tokens</b> .
query-string	Query parameter, which is optional. Ensure that a question mark (?) is included before each query parameter that is in the format of <i>Parameter name=Parameter value</i> . For example, <b>?limit=10</b> indicates that a maximum of 10 data records will be displayed.

IAM is a global service. You can create an IAM user using the endpoint of IAM in any region. For example, to create an IAM user in the **CN-Hong Kong** region, obtain the endpoint of IAM (**iam.ap-southeast-1.myhuaweicloud.com**) for this region and the **resource-path** (**/v3.0/OS-USER/users**) in the URI of the API for **creating an IAM user**. Then construct the URI as follows:

```
https://iam.ap-southeast-1.myhuaweicloud.com/v3.0/OS-USER/users
```

**Figure 3-1** Example URI



**NOTE**

To simplify the URI display in this document, each API is provided only with a **resource-path** and a request method. The **URI-scheme** of all APIs is **HTTPS**, and the endpoints of all APIs in the same region are identical.

## Request Methods

The HTTP protocol defines the following request methods that can be used to send a request to the server.

**Table 3-2** HTTP methods

Method	Description
GET	Requests the server to return specified resources.
PUT	Requests the server to update specified resources.
POST	Requests the server to add resources or perform special operations.
DELETE	Requests the server to delete specified resources, for example, an object.
HEAD	Same as GET except that the server must return only the response header.
PATCH	Requests the server to update partial content of a specified resource. If the resource does not exist, a new resource will be created.

For example, in the case of the API for **creating an IAM user**, the request method is **POST**. An example request is as follows:

```
POST https://iam.ap-southeast-1.myhuaweicloud.com/v3.0/OS-USER/users
```

## Request Header

You can also add additional header fields to a request, such as the fields required by a specified URI or HTTP method. For example, to request for the authentication information, add **Content-Type**, which specifies the request body type.

Common request header fields are as follows.

**Table 3-3** Common request header fields

Parameter	Description	Mandatory	Example Value
Host	Specifies the server domain name and port number of the resources being requested. The value can be obtained from the URL of the service API. The value is in the format of <i>Hostname:Port number</i> . If the port number is not specified, the default port is used. The default port number for <b>https</b> is <b>443</b> .	No This field is mandatory for AK/SK authentication.	code.test.com or code.test.com:443
Content-Type	Specifies the type (or format) of the message body. The default value <b>application/json</b> is recommended. Other values of this field will be provided for specific APIs if any.	Yes	application/json
Content-Length	Specifies the length of the request body. The unit is byte.	No	3495
X-Project-Id	Specifies the project ID. Obtain the project ID by following the instructions in <a href="#">Obtaining a Project ID</a> .	No This field is mandatory for requests that use AK/SK authentication in the Dedicated Cloud (DeC) scenario or multi-project scenario.	e9993fc787d94b6c886cbaa340f9c0f4

Parameter	Description	Mandatory	Example Value
X-Auth-Token	Specifies the user token. It is a response to the API for <b>obtaining a user token</b> (This is the only API that does not require authentication). After the request is processed, the value of <b>X-Subject-Token</b> in the response header is the token value.	No This field is mandatory for token authentication.	The following is part of an example token: MIIPAgYJKoZlhvc NAQcCo...ggg1B BIINPXsidG9rZ

 **NOTE**

In addition to supporting authentication using tokens, APIs support authentication using AK/SK, which uses SDKs to sign a request. During the signature, the **Authorization** (signature authentication) and **X-Sdk-Date** (time when a request is sent) headers are automatically added in the request.

For more details, see "Authentication Using AK/SK" in [Authentication](#).

The following shows an example request of the API for **creating an IAM user** when AK/SK authentication is used:

```
POST https://iam.ap-southeast-1.myhuaweicloud.com/v3.0/OS-USER/users
Content-Type: application/json
X-Sdk-Date: 20240416T095341Z
Authorization: SDK-HMAC-SHA256 Access=*****, SignedHeaders=content-type;host;x-sdk-date,
Signature=*****
```

## (Optional) Request Body

This part is optional. A request body is generally sent in a structured format (for example, JSON or XML), which is specified by **Content-Type** in the request header. It is used to transfer content other than the request header. If the request body contains full-width characters, these characters must be coded in UTF-8.

The request body varies depending on APIs. Certain APIs do not require the request body, such as the APIs requested using the GET and DELETE methods.

The following shows an example request (a request body included) of the API for **creating an IAM user**. You can learn about request parameters and related description from this example. The bold parameters need to be replaced for a real request.

- **accountid**: account ID of an IAM user
- **username**: name of an IAM user
- **email**: email of an IAM user
- **\*\*\*\*\***: login password of an IAM user

```
POST https://iam.ap-southeast-1.myhuaweicloud.com/v3.0/OS-USER/users
Content-Type: application/json
X-Sdk-Date: 20240416T095341Z
```

```
Authorization: SDK-HMAC-SHA256 Access=*****, SignedHeaders=content-type;host;x-sdk-date,
Signature=*****

{
  "user": {
    "domain_id": "accountid",
    "name": "username",
    "password": "*****",
    "email": "email",
    "description": "IAM User Description"
  }
}
```

If all data required for the API request is available, you can send the request to call the API through [curl](#), [Postman](#), or coding.

## 3.2 Authentication

Requests for calling an API can be authenticated using either of the following methods:

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

### AK/SK Authentication

#### NOTE

- AK/SK authentication supports API requests with a body not larger than 12 MB. For API requests with a larger body, token authentication is recommended.
- An AK/SK pair can either be permanent or temporary. If it is temporary, the **X-Security-Token** field must be included in the request header. The value is the security token of the temporary AK/SK pair.
- API Gateway checks the time format and compares the request time with the time when API Gateway received the request. If the time difference exceeds 15 minutes, API Gateway will reject the request. So, the local time on the client must be synchronized with the clock server to avoid a large offset in the value of **X-Sdk-Date** in the request header.

In AK/SK authentication, an AK/SK pair is used to sign requests and the signature is then added to the requests for authentication.

- AK: access key ID, which is a unique identifier used in conjunction with a secret access key to sign requests cryptographically.
- SK: secret access key, which is used in conjunction with an AK to sign requests cryptographically. It identifies a request sender and prevents the request from being modified.

In AK/SK authentication, you can use an AK/SK pair to sign requests based on the signature algorithm or using the signing SDK. For details about how to sign requests and use the signing SDK, see [API Request Signing Guide](#).

#### NOTE

The signing SDK is only used for signing requests and is different from the SDKs provided by services.

## Token Authentication

### NOTE

- A token remains valid for 24 hours after it is generated. You can cache a token and reuse it for authentication instead of generating a new one each time.
- Before using a token, ensure that it has sufficient time remaining before expiration. Using a near-expiry token may cause API call failures.

A token specifies temporary permissions in a computer system. During API authentication using a token, the token is added to requests to get permissions for calling the API. You can obtain a token by calling the [Obtaining a User Token](#) API.

IMS is a project-level service. When you call the API, set **auth.scope** in the request body to **project**.

```
{
  "auth": {
    "identity": {
      "methods": [
        "password"
      ],
      "password": {
        "user": {
          "name": "username", // IAM user name
          "password": SADMIN_PASS, // IAM user password. You are advised to store it in ciphertext in
the configuration file or an environment variable and decrypt it when needed to ensure security.
          "domain": {
            "name": "domainname" // Name of the account that the IAM user belongs to
          }
        }
      }
    },
    "scope": {
      "project": {
        "name": "xxxxxxxx" // Project name
      }
    }
  }
}
```

After a token is obtained, the **X-Auth-Token** header field must be added to requests to specify the token when calling other APIs. For example, if the token is **ABCDEFGH....**, **X-Auth-Token: ABCDEFGH....** can be added to a request as follows:

```
POST https://iam.ap-southeast-1.myhuaweicloud.com/v3.0/OS-USER/users
Content-Type: application/json
X-Auth-Token: ABCDEFGH....
```

## 3.3 Response

### Status Code

After sending a request, you will receive a response, including a status code, response header, and response body.

A status code is a group of digits, ranging from 1xx to 5xx. It indicates the status of a request. For more information, see [Status Codes](#).

For example, if status code **201** is returned for calling the API used to **create an IAM user**, the request is successful.

## Response Header

Similar to a request, a response also has a header, for example, **Content-Type**.

**Figure 3-2** shows the response header for the API used to **create an IAM user**.

### NOTE

For security purposes, you are advised to set the token in ciphertext in configuration files or environment variables and decrypt it when using it.

**Figure 3-2** Header fields of the response to the request for creating an IAM user

```
"X-Frame-Options": "SAMEORIGIN",
"X-IAM-ETag-id": "2562365939-d8f6f12921974cb097338ac11fcec8a",
"Transfer-Encoding": "chunked",
"Strict-Transport-Security": "max-age=31536000; includeSubdomains;",
"Server": "api-gateway",
"X-Request-Id": "af2953f2bcc67a42325a69a19e6c32a2",
"X-Content-Type-Options": "nosniff",
"Connection": "keep-alive",
"X-Download-Options": "noopen",
"X-XSS-Protection": "1; mode=block;",
"X-IAM-Trace-Id": "token_██████████_null_af2953f2bcc67a42325a69a19e6c32a2",
"Date": "Tue, 21 May 2024 09:03:40 GMT",
"Content-Type": "application/json; charset=utf8"
```

## (Optional) Response Body

The body of a response is often returned in a structured format (for example, JSON or XML) as specified in the **Content-Type** header field. The response body transfers content except the response header.

The following shows part of the response body for the API used to **create an IAM user**.

```
{
  "user": {
    "id": "c131886aec...",
    "name": "IAMUser",
    "description": "IAM User Description",
    "areacode": "",
    "phone": "",
    "email": "***@**.com",
    "status": null,
    "enabled": true,
    "pwd_status": false,
    "access_mode": "default",
    "is_domain_owner": false,
    "xuser_id": "",
    "xuser_type": "",
    "password_expires_at": null,
    "create_time": "2024-05-21T09:03:41.000000",
    "domain_id": "d78cbac1.....",
    "xdomain_id": "30086000.....",
    "xdomain_type": ""
  }
}
```

```
    "default_project_id": null  
  }  
}
```

If an error occurs during API calling, an error code and a message will be displayed. The following shows an error response body.

```
{  
  "error_msg": "The request message format is invalid.",  
  "error_code": "IMG.0001"  
}
```

In the response body, **error\_code** is an error code, and **error\_msg** provides information about the error.

# 4 Examples

---

## 4.1 Example 1: Creating a Single Stream Recording Job

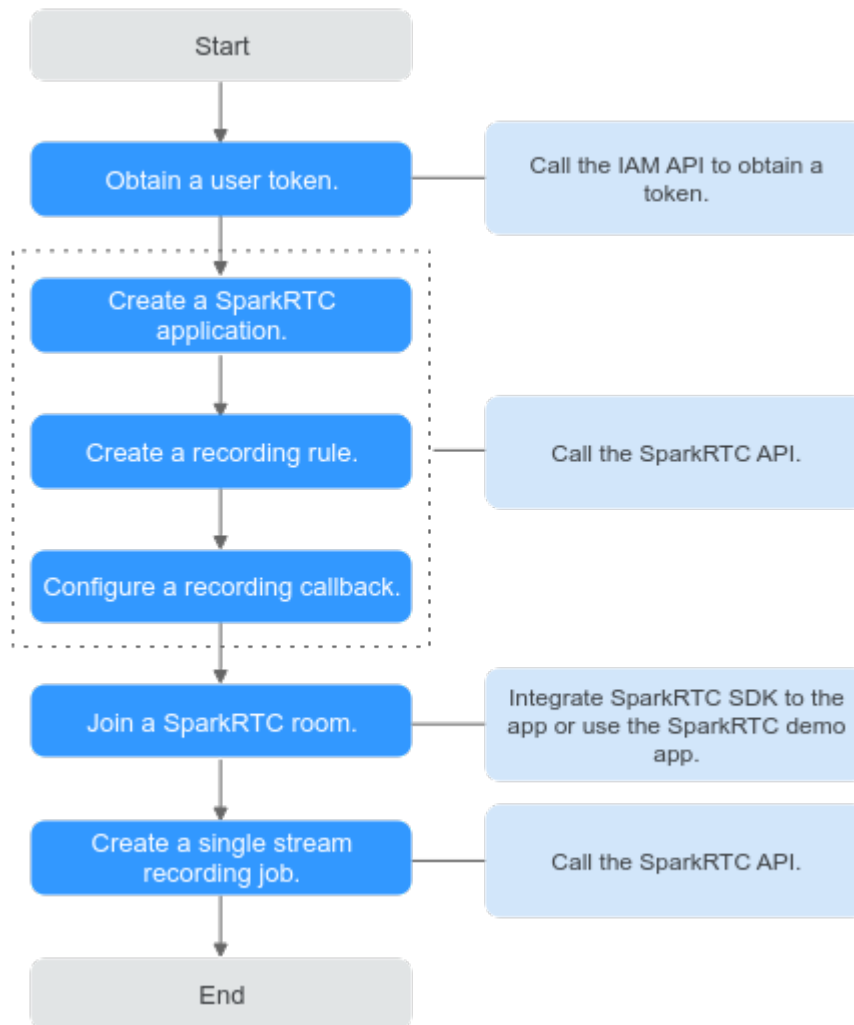
### Scenarios

If you need to record real-time audios and videos in a room, join the room and call the recording API to create a single stream recording job.

### Prerequisites

- You have obtained the SparkRTC endpoint **rtc-api.myhuaweicloud.com**.
- You have created an OBS bucket for storing recording files and authorized SparkRTC to access the OBS bucket.

## General Process



1. **Obtain a user token.**
2. **Create a SparkRTC application.**
3. **Create a recording template.**
4. **Configure a recording callback.**
5. **Join a SparkRTC room.**
6. **Create a single stream recording job.**

## Procedure

**Step 1 Obtain a user token** for authenticating the calling of SparkRTC APIs.

Obtain *username*, *password*, and *domainname* in **My Credentials** and call the following API to obtain the token. For details, see **Making an API Request**.

POST <https://iam.myhuaweicloud.com/v3/auth/tokens>  
Content-Type: application/json

```
{
  "auth": {
    "identity": {
      "methods": [
        "password"
      ],

```

```

"password": {
  "user": {
    "name": "username", //Username
    "password": "password", //Login password
    "domain": {
      "name": "domainname" //Name of the account to which the user belongs
    }
  }
},
"scope": {
  "domain": {
    "name": "domainname" //Name of the account to which the user belongs
  }
}
}

```

Information in the red box in **Figure 4-1** indicates the obtained user token.

**Figure 4-1** Obtaining a user token

```

cache-control → no-cache, no-store, must-revalidate
connection → keep-alive
content-length → 15185
content-type → application/json; charset=UTF-8
date → Wed, 29 May 2019 08:02:38 GMT
expires → Thu, 01 Jan 1970 00:00:00 GMT
pragma → no-cache
server → api-gateway
strict-transport-security → max-age=31536000; includeSubdomains;
via → proxy.A
x-content-type-options → nosniff
x-download-options → noopen
x-frame-options → SAMEORIGIN
x-iam-trace-id → token_global_null_2fed19b42067d0b94ae73dbe0b8b7841
x-request-id → fd8e4d01ae9caf9f58af20cbdb2c88e2
x-subject-token
→ MIYdsvVikZzhvcNAQc:CoIIYdDCCGGQCAQe:DTALBgIghkgBZQMEAgEwghbfBgkqhkiG9w0BBwGgghaZ8BllWnsidG9:ZW4:OmszZXhwaXUk19hdCl6JwMTkMDUhmz:BUIMDg6MDI6MzguNTgxMDAwWldldm1ldGhvZHMlOicGFzc3dvcmQXSwYzF0YWwzJz:
wN-yN0wpsWyrGIV3upfYOauVL-E275QpmEOPG4qKzPv4Yeo2H8ZdfptB6AZt-
RgdrolWLe95InegpR0PGKzgbuRWYAtQkL3xGxVvC1Um8XJADmwO2TWgbmzrPwFBvhp3F20TK4v9XhwWHUxH2yfo+KScgoXhAzv6VURCIIWm4V+UeESwZa7vB2ZC77p289d8Syt3eQzQmTyrIaupZf6U4PX2J+rw4aplwEszdvRQLLYOzxinGG3Af
x-ssr-protection → 1; mode=block

```

**Step 2** Call the API for **creating a SparkRTC application**.

1. Select the POST request method and enter the URI.  
https://rtc-api.myhuaweicloud.com/v2/apps
2. In the request header, add **X-Auth-Token** and set its value to the token obtained in **Step 1**.
3. Specify the following parameter in the request body:  

```

{
  "app_name": "rtctest"
}

```
4. If the request is successful, the ID of the created application is returned.  

```

{
  "app_id": "5ff9701f2346968bb306cb43",
}

```

**Step 3** Call the API for **creating or updating a recording template** to create a recording template.

1. Select the POST request method and enter the URI.  
https://rtc-api.myhuaweicloud.com/v2/apps/{app\_id}/record-rules
2. In the request header, add **X-Auth-Token** and set its value to the token obtained in **Step 1**.

3. Specify the following parameters in the request body:

```
{
  "obs_addr": {
    "bucket": "obsName",
    "location": "cn-north-4",
    "object": "Record/",
    "project_id": "01234567890123456789012345678901"
  },
  "record_formats": ["MP4"],
  "mp4_config": {}
}
```

4. If the request is successful, the created recording template is returned.

```
{
  "app_id": "5ff9701f2346968bb306cb43",
  "rule_id": "5d0ec2c53a2c15625017adb8bbbcd9ab",
  "create_time": "2021-04-21T10:29:33Z",
  "hls_config": {
    "record_cycle": 0,
    "record_max_duration_to_merge_file": 0
  },
  "mp4_config": {
    "record_cycle": 7200,
    "record_max_duration_to_merge_file": 0,
    "record_prefix": "Record/{publish_domain}/{app}/{record_type}/{record_format}/
{stream}_{file_start_time}/{stream}_{file_start_time}"
  },
  "obs_addr": {
    "bucket": "obsName",
    "location": "cn-north-4",
    "object": "Record/",
    "project_id": "01234567890123456789012345678901"
  },
  "record_formats": [
    "MP4"
  ],
  "update_time": "2021-04-21T10:29:33Z"
}
```

#### Step 4 Call the API for [configuring a SparkRTC recording event callback](#).

1. Select the PUT request method and enter the URI.  
`https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/record-callback`
2. In the request header, add **X-Auth-Token** and set its value to the token obtained in [Step 1](#).

3. Specify the following parameters in the request body:

```
{
  "url": "http://mydomain.com/callback",
  "auth_key": "8923ab8c2dcef4538923ab8c2dcef453"
}
```

4. If the request is successful, information about the created callback is returned.

```
{
  "app_id": "5ff9701f2346968bb306cb43",
  "record_callback": {
    "auth_key": "8923ab8c2dcef4538923ab8c2dcef453",
    "update_time": "2021-04-07T12:05:18.0718Z",
    "url": "http://mydomain.com/callback",
    "notify_event_subscription": [
      "RECORD_NEW_FILE_START",
      "RECORD_FILE_COMPLETE",
      "CLOUD_RECORD_OVER"
    ]
  }
}
```

#### Step 5 An end user joins a SparkRTC room using the SparkRTC app. For details about the integration development of the SparkRTC app, see [Client SDK](#).

**Step 6** Call the API for [starting a single stream recording job](#) to create a recording job.

1. Select the POST request method and enter the URI.  
`https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/individual-stream-jobs`
2. In the request header, add **X-Auth-Token** and set its value to the token obtained in [Step 1](#).
3. Specify the following parameters in the request body:

```
{
  "room_id": "room001",
  "user_id": "user001",
  "is_record_audio": true,
  "video_type": "CAMERASTREAM",
  "resolution": "1280*720",
  "resolution_policy": "DOWNWARD",
  "max_idle_time": 30,
  "record_param": {
    "record_rule_id": "5d0ec2c53a2c15625017adb8bbbcd9ab"
  }
}
```

4. If the request is successful, information about the recording job is returned.

```
{
  "app_id": "5ff9701f2346968bb306cb43",
  "create_time": "2021-04-21T10:51:55Z",
  "is_record_audio": true,
  "job_id": "607f87cf00d861eeefffa6c88054cdab",
  "job_unique_id": "a77bb33dbdc948d8",
  "max_idle_time": 30,
  "push_param": {
    "rtmp_urls": null
  },
  "record_files": null,
  "record_param": {
    "record_rule_id": "5d0ec2c53a2c15625017adb8bbbcd9ab"
  },
  "resolution_policy": "DOWNWARD",
  "resolution": "1280*720",
  "room_id": "room001",
  "start_time": "2021-04-21T10:51:55Z",
  "state": "INIT",
  "stop_time": "0001-01-01T00:00:00Z",
  "stream_name": "s_607f87cf00d861eeefffa6c88054cdab_room001_user001",
  "update_time": "2021-04-21T10:51:55Z",
  "user_id": "user001",
  "video_type": "CAMERASTREAM"
}
```

**Step 7** After the audio or video interaction is complete in the SparkRTC room, obtain the recording files from the configured OBS bucket.

----End

## 4.2 Example 2: Creating a Mixed Stream Recording Job

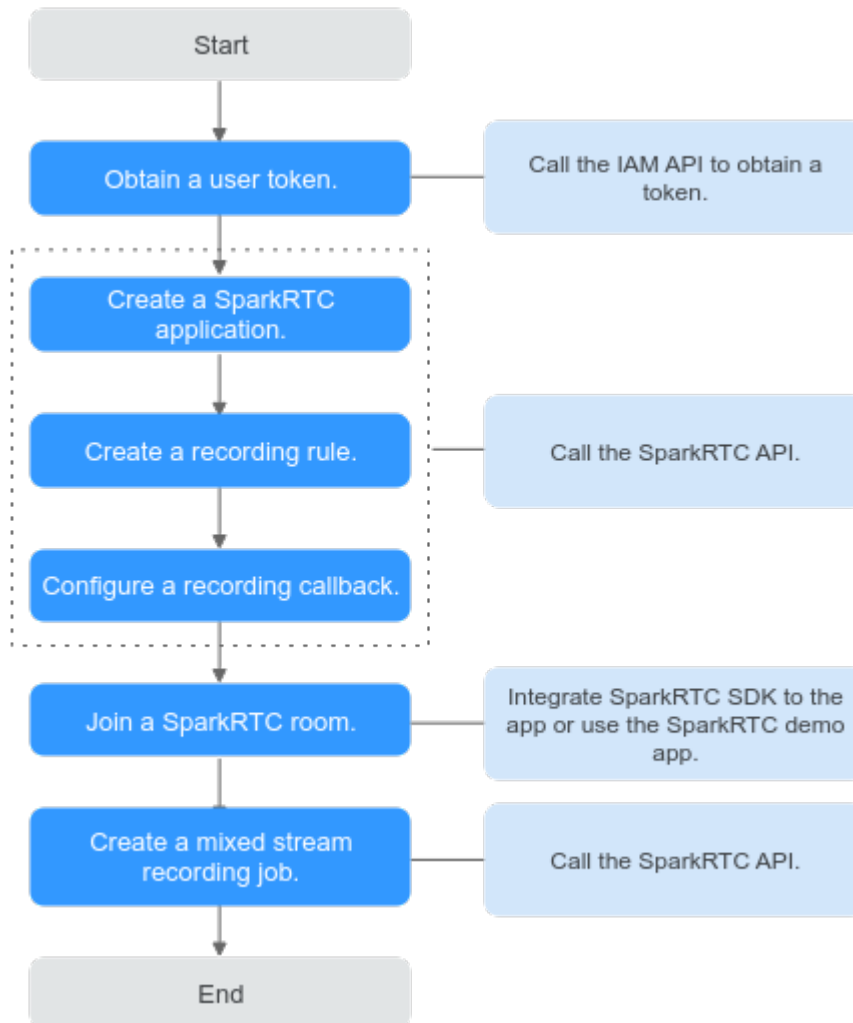
### Scenarios

[Example 1: Creating a Single Stream Recording Job](#) describes how to record audio and video streams of each user in a room and save them into independent files. This section describes how to record multiple streams of users in a room and save them into one file by calling the SparkRTC APIs.

## Prerequisites

- You have obtained the SparkRTC endpoint **rtc-api.myhuaweicloud.com**.
- You have created an OBS bucket for storing recording files and authorized SparkRTC to access the OBS bucket.

## General Process



1. **Obtain a token.**
2. **Create an application.**
3. **Create a recording template.**
4. **Configure a recording callback.**
5. **Join a room.**
6. **Create a mixed stream recording job.**

## Procedure

**Step 1 Obtain a user token** for authenticating the calling of SparkRTC APIs.

Obtain *username*, *password*, and *domainname* in **My Credentials** and call the following API to obtain the token. For details, see **Making an API Request**.

```
POST https://iam.myhuaweicloud.com/v3/auth/tokens
Content-Type: application/json
{
  "auth": {
    "identity": {
      "methods": [
        "password"
      ],
      "password": {
        "user": {
          "name": "username", //Username
          "password": "password", //Login password
          "domain": {
            "name": "domainname" //Name of the account to which the user belongs
          }
        }
      }
    },
    "scope": {
      "domain": {
        "name": "domainname" //Name of the account to which the user belongs
      }
    }
  }
}
```

Information in the red box in **Figure 4-2** indicates the obtained user token.

**Figure 4-2** Obtaining a user token

```
cache-control → no-cache, no-store, must-revalidate
connection → keep-alive
content-length → 15185
content-type → application/json; charset=UTF-8
date → Wed, 29 May 2019 08:02:38 GMT
expires → Thu, 01 Jan 1970 00:00:00 GMT
pragma → no-cache
server → api-gateway
strict-transport-security → max-age=31536000; includeSubdomains;
via → proxy A
x-content-type-options → nosniff
x-download-options → noopen
x-frame-options → SAMEORIGIN
x-iam-trace-id → token_global_null_2fed19b42067d0b94ae73dbe0b8b7841
x-request-id → fd8e4d01ae9ca9f5af20cbb2c88e2
x-subject-token → MIIVdWVJKozZlhcNAQzCollYdCCGGQCAQeDTALBglhkgBZQMEAgEwghbfBgkqhkG9w0BbwGggha2BllWnsidG9Zw4;OmsiZxhwaXlc19hdCl6JwMTktMDUHMzBUMDg6MDI6MzguNTgxMDAwWlslm1ldGhvZHMlOicGFzc3dvcmQXSwYzF0YWwvZy9N-yN0wpSwyRGT3upffOauVL-E275QpmEOPG4qKzPv8YeoZHz8Zdfpt86AZt-RGdrowLwE5fmgpR0PQK9ggbuRWYAtaQ2L3GvVc1Um8XIADmwOZTWjgbmzPwFbWp3F20TK4v9XhwWHUxH2fo+KSgpXHAzv6VURCtWMMV+Ue5wZs7R22C7p2B9d8lyb3oQsZmTylaupZf6U4PX2J+H4aplWEsczhrRQLLYOzeinGG3Af
x-xss-protection → 1; mode=block
```

**Step 2** Call the API for **creating a SparkRTC application**.

1. Select the POST request method and enter the URI.  
https://rtc-api.myhuaweicloud.com/v2/apps
2. In the request header, add **X-Auth-Token** and set its value to the token obtained in **Step 1**.
3. Specify the following parameter in the request body:  
{  
  "app\_name": "rtctest"  
}
4. If the request is successful, the ID of the created application is returned.  
{  
  "app\_id": "5ff9701f2346968bb306cb43",  
}

**Step 3** Call the API for [creating or updating a recording template](#) to create a recording template.

1. Select the POST request method and enter the URI.  
`https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/record-rules`
2. In the request header, add **X-Auth-Token** and set its value to the token obtained in [Step 1](#).
3. Specify the following parameters in the request body:

```
{
  "obs_addr": {
    "bucket": "obsName",
    "location": "cn-north-4",
    "object": "Record/",
    "project_id": "01234567890123456789012345678901"
  },
  "record_formats": ["MP4"],
  "mp4_config": {}
}
```

4. If the request is successful, the created recording template is returned.

```
{
  "app_id": "5ff9701f2346968bb306cb43",
  "rule_id": "5d0ec2c53a2c15625017adb8bbcd9ab",
  "create_time": "2021-04-21T10:29:33Z",
  "hls_config": {
    "record_cycle": 0,
    "record_max_duration_to_merge_file": 0
  },
  "mp4_config": {
    "record_cycle": 7200,
    "record_max_duration_to_merge_file": 0,
    "record_prefix": "Record/{publish_domain}/{app}/{record_type}/{record_format}/
{stream}_{file_start_time}/{stream}_{file_start_time}"
  },
  "obs_addr": {
    "bucket": "obsName",
    "location": "cn-north-4",
    "object": "Record/",
    "project_id": "01234567890123456789012345678901"
  },
  "record_formats": [
    "MP4"
  ],
  "update_time": "2021-04-21T10:29:33Z"
}
```

**Step 4** Call the API for [configuring a SparkRTC recording event callback](#).

1. Select the PUT request method and enter the URI.  
`https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/record-callback`
2. In the request header, add **X-Auth-Token** and set its value to the token obtained in [Step 1](#).
3. Specify the following parameters in the request body:

```
{
  "url": "http://mydomain.com/callback",
  "auth_key": "8923ab8c2dcef4538923ab8c2dcef453"
}
```

4. If the request is successful, information about the created callback is returned.

```
{
  "app_id": "5ff9701f2346968bb306cb43",
  "record_callback": {
    "auth_key": "8923ab8c2dcef4538923ab8c2dcef453",
    "update_time": "2021-04-07T12:05:18.0718Z",
    "url": "http://mydomain.com/callback",
    "notify_event_subscription": [

```

```

    "RECORD_NEW_FILE_START",
    "RECORD_FILE_COMPLETE",
    "CLOUD_RECORD_OVER"
  ]
}
}

```

**Step 5** An end user joins a SparkRTC room using the SparkRTC app. For details about the integration development of the SparkRTC app, see [Client SDK](#).

**Step 6** Call the API for [starting a mixed stream recording job](#) to create a recording job.

1. Select the POST request method and enter the URI.  
`https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/mix-stream-jobs`
2. In the request header, add **X-Auth-Token** and set its value to the token obtained in [Step 1](#).
3. Specify the following parameters in the request body:

```

{
  "mix_param": {
    "room_id": "room001",
    "encode_template": "1920x1080_30_4620",
    "max_idle_time": 30,
    "layout_template": "nine_grids_view" //If the video layout is in screen sharing mode, set this
parameter to screen_share_left or screen_share_right.
  },
  "record_param": {
    "record_rule_id": "5d0ec2c53a2c15625017adb8bbbcd9ab"
  }
}

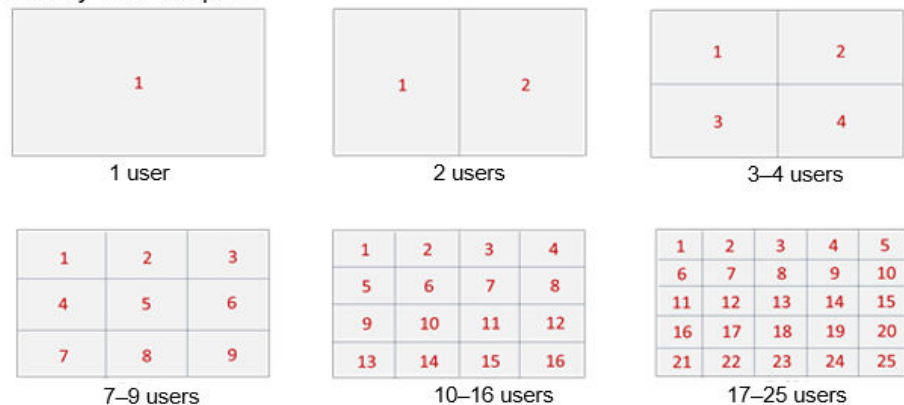
```

**layout\_template:** video layout template.

- **nine\_grids\_view:** adaptive gallery view template.

Images of each user are tiled and have the same size. The size and position of each image are dynamically adjusted based on the number of users. A maximum of 25 images are supported. The following figure shows the layouts with different numbers of users.

Gallery view template

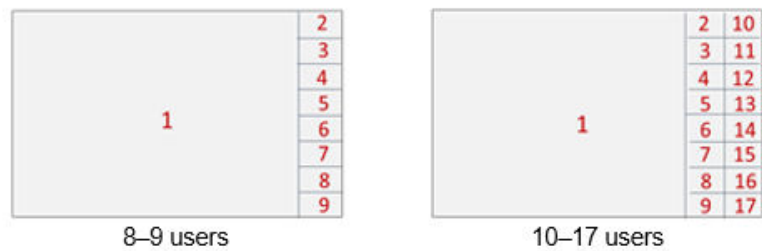
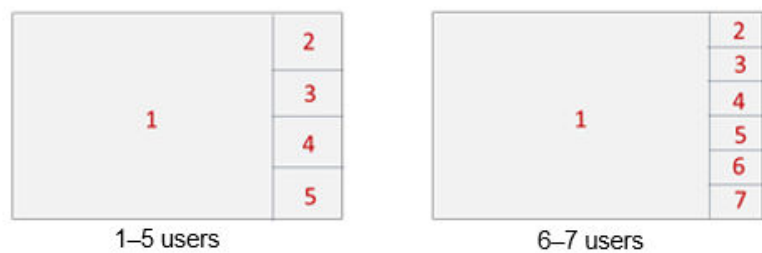


- If the aspect ratio of the actual video stream is different from that of the screen, a video image will be cropped to adapt to the screen size.
- If a user exits the room, the image of this user will be replaced by the next user who enters the room.
- If there are not enough users in the room, the rest of the screen displays a background color.

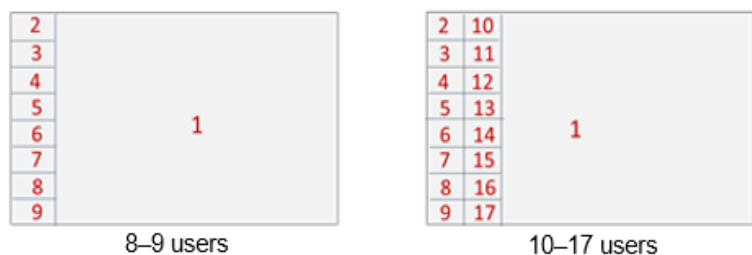
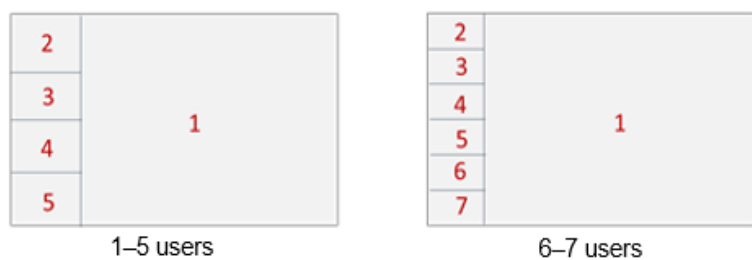
- A user who only sends audio still occupies a screen.
- A background image is supported. If there are not enough users in the room, the rest of the screen displays a background image.
- **screen\_share\_left** and **screen\_share\_right**: adaptive screen sharing templates with the main screen on the left or right.

A shared screen or a presenter view is displayed in the main screen on the right or left. Other users are arranged vertically on the side of the main screen. A maximum of 17 screens are supported. The following figures show the layouts with different numbers of users.

**screen\_share\_left**: screen sharing template (main screen on the left)



**screen\_share\_right**: screen sharing template (main screen on the right)



- The main screen displays a presenter view or a shared screen.

- The main screen displays the video of a specific user. If no user is specified or the specified user does not enter the room, the main screen displays the background color.
  - Images in the main screen on the left are zoomed in or out to display the complete content. Images in the small screens on the right are cropped to adapt to the screen size.
  - The small screens of users on the right are sorted by the time when they enter the room.
  - If a user in the right small screen exits the room, the image of this user will be replaced by the next user who enters the room.
  - If there are not enough users in the room, the rest of the screen displays a background color.
  - A user who only sends audio still occupies a screen.
  - A background image is supported. If there are not enough users in the room, the rest of the screen displays a background image.
4. If the request is successful, information about the mixed stream recording job is returned.

```
{
  "app_id": "5ff9701f2346968bb306cb43",
  "create_time": "2021-04-21T11:47:32Z",
  "job_id": "607f9fc100d861eefff9b300b388dab",
  "job_unique_id": "87b1f2b8da9c44cd",
  "mix_param": {
    "room_id": "room001",
    "layout_template": "nine_grids_view",
    "encode_template": "1920x1080_30_4620",
    "max_idle_time": 30
  },
  "push_param": {
    "rtmp_urls": null
  },
  "record_param": {
    "record_rule_id": "5d0ec2c53a2c15625017adb8bbbcd9ab"
  },
  "room_id": "room001",
  "start_time": "2021-04-21T11:47:32Z",
  "state": "INIT",
  "stop_time": "0001-01-01T00:00:00Z",
  "stream_name": "m_607f9fc100d861eefff9b300b388dab_room001",
  "update_time": "2021-04-21T11:47:32Z"
}
```

**Step 7** After the audio or video interaction is complete in the SparkRTC room, obtain the recording files from the configured OBS bucket.

----End

# 5 Application Management

---

## 5.1 Creating an Application

### Function

This API is used to create an application.

### Constraints

A tenant cannot create multiple applications with the same app\_name.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

POST /v2/apps

### Request Parameters

**Table 5-1** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

**Table 5-2** Request body parameters

Parameter	Mandatory	Type	Description
app_name	Yes	String	Application name. Only the UTF-8 format is supported.

## Response Parameters

**Status code: 201**

**Table 5-3** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-4** Response body parameters

Parameter	Type	Description
app_id	String	Application ID.

**Status code: 400****Table 5-5** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-6** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500****Table 5-7** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-8** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Create an application named **rtc**.

```
POST https://rtc-api.myhuaweicloud.com/v2/apps
{
  "app_name": "rtc"
}
```

## Example Responses

**Status code: 201**

The application is created, and `app_id` is returned.

```
{
  "app_id" : "60d539ba00d861ef0802742ce404400c"
}
```

**Status code: 400**

The request cannot be understood by the server or parameters are incorrect.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

**Status code: 500**

Request failed due to server error.

```
{
  "error_code" : "RTC.00002xxx",
  "error_msg" : "InternalError"
}
```

**Status Codes**

Status Code	Description
201	The application is created, and app_id is returned.
400	The request cannot be understood by the server or parameters are incorrect.
500	Request failed due to server error.

**Error Codes**

See [Error Codes](#).

**5.2 Listing Applications**

**Function**

This API is used to list applications.

**Authorization Information**

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

**URI**

GET /v2/apps

**Table 5-9** Query Parameters

Parameter	Mandatory	Type	Description
state	No	String	Application status. The options are as follows: <ul style="list-style-type: none"> <li>• ACTIVATION: The application is enabled.</li> <li>• DEACTIVATION: The application is disabled.</li> <li>• ARREARS: The application is in arrears.</li> </ul>
offset	No	Integer	Start number of the query result, indicating the page number. The default value is 0.
limit	No	Integer	Number of records on each page. The value ranges from 1 to 100. The default value is 100.

## Request Parameters

**Table 5-10** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.

Parameter	Mandatory	Type	Description
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

Status code: 200

Table 5-11 Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

Table 5-12 Response body parameters

Parameter	Type	Description
count	Integer	Total number of applications.
apps	Array of <b>App</b> objects	Application list.

Table 5-13 App

Parameter	Type	Description
app_name	String	Application name.
app_id	String	Application ID.
state	<b>AppState</b> object	Application status.
scope	String	RTC coverage range. The options are as follows: <ul style="list-style-type: none"> <li>• DOMESTIC: inside the Chinese mainland</li> <li>• OVERSEA: outside the Chinese mainland</li> <li>• GLOBAL: global</li> </ul>
tenant_name	String	Account name.
domain	String	Domain name corresponding to the application.

Parameter	Type	Description
create_time	String	Creation time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
authentication	<b>AppAuth</b> object	Authentication configuration.
callbacks	<b>AppCallbacks</b> object	Callback configuration.
auto_record_mode	<b>AppAutoRecord Mode</b> object	Automatic recording configuration.

**Table 5-14** AppState

Parameter	Type	Description
state	String	Status <ul style="list-style-type: none"> <li>• ACTIVATION: enabled</li> <li>• DEACTIVATION: disabled</li> <li>• ARREARS: outstanding amount</li> <li>• DELETED: The task has been deleted.</li> </ul>
update_time	String	Update time of the application authentication, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 5-15** AppAuth

Parameter	Type	Description
enable	Boolean	Whether to enable or disable URL authentication.
expire	Integer	Validity period of the signature for authenticating the connection to RTC. Unit: second. The default value is 300. The signature is generated based on app_key.
app_key	String	Application authentication key.
update_time	String	Update time of the application authentication, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 5-16** AppCallbacks

Parameter	Type	Description
push_callback	<a href="#">AppCallbackUrl</a> object	Forwarding callback.
record_callback	<a href="#">AppCallbackUrl</a> object	Recording callback.

**Table 5-17** AppCallbackUrl

Parameter	Type	Description
url	String	Callback notification URL, which must start with http:// or https:// and support POST.
auth_key	String	Callback key, which is used for authentication. If this parameter is not set or left empty, no authentication header field will be added to the callback.
notify_event_subscription	Array of strings	Cloud recording notification subscription message. The options are as follows: <ul style="list-style-type: none"><li>● <b>RECORD_NEW_FILE_START:</b> Recording started.</li><li>● <b>RECORD_FILE_COMPLETE:</b> Recording file generated.</li></ul>
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 5-18** AppAutoRecordMode

Parameter	Type	Description
mode	String	Recording mode. <ul style="list-style-type: none"><li>● <b>AUTO_RECORD_OFF:</b> Automatic recording is disabled.</li><li>● <b>AUTO_INDIVIDUAL_RECORD:</b> Automatic recording is enabled for single streams. In this case, record_rule_id must not be left empty.</li></ul>
record_rule_id	String	Recording rule ID.

Parameter	Type	Description
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Status code: 400**

**Table 5-19** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-20** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 5-21** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-22** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Queries all applications of the current tenant.

```
GET https://rtc-api.myhuaweicloud.com/v2/apps
```

## Example Responses

### Status code: 200

#### Listing Applications

```
{
  "count" : 1,
  "apps" : [ {
    "app_name" : "example",
    "app_id" : "123456789abcdefghijklmno",
    "state" : {
      "state" : "ACTIVATION",
      "update_time" : "2020-07-26T07:03:05.075Z"
    },
    "scope" : "DOMESTIC",
    "tenant_name" : "hwstaff_pub_videortc",
    "domain" : "123456789abcdefghijklmno.rtc.huawei.com",
    "create_time" : "2020-07-26T07:03:05.075Z",
    "authentication" : {
      "enable" : true,
      "expire" : 300,
      "app_key" : "12345ABCDEF12345",
      "update_time" : "2020-07-26T07:03:05.075Z"
    },
    "callbacks" : {
      "push_callback" : {
        "url" : "",
        "auth_key" : "",
        "update_time" : ""
      },
      "record_callback" : {
        "url" : "http://mydomain.com",
        "auth_key" : "78912374ae8cdb38",
        "update_time" : "2020-07-26T07:53:05.075Z"
      }
    },
    "auto_record_mode" : {
      "mode" : "AUTO_RECORD_OFF",
      "update_time" : "2020-07-26T07:53:05.075Z"
    }
  } ]
}
```

### Status code: 400

The request cannot be understood by the server or parameters are incorrect.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

### Status code: 500

Query failed due to server error.

```
{
  "error_code" : "RTC.00002xxx",
  "error_msg" : "InternalError"
}
```

## Status Codes

Status Code	Description
200	Listing Applications
400	The request cannot be understood by the server or parameters are incorrect.
500	Query failed due to server error.

## Error Codes

See [Error Codes](#).

## 5.3 Querying an Application

### Function

This API is used to query details about an application.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

GET /v2/apps/{app\_id}

**Table 5-23** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.

### Request Parameters

**Table 5-24** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

Status code: 200

Table 5-25 Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

Table 5-26 Response body parameters

Parameter	Type	Description
app_name	String	Application name.
app_id	String	Application ID.
state	<b>AppState</b> object	Application status.

Parameter	Type	Description
scope	String	RTC coverage range. The options are as follows: <ul style="list-style-type: none"> <li>• DOMESTIC: inside the Chinese mainland</li> <li>• OVERSEA: outside the Chinese mainland</li> <li>• GLOBAL: global</li> </ul>
tenant_name	String	Account name.
domain	String	Domain name corresponding to the application.
create_time	String	Creation time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
authentication	<a href="#">AppAuth</a> object	Authentication configuration.
callbacks	<a href="#">AppCallbacks</a> object	Callback configuration.
auto_record_mode	<a href="#">AppAutoRecord Mode</a> object	Automatic recording configuration.

**Table 5-27** AppState

Parameter	Type	Description
state	String	Status <ul style="list-style-type: none"> <li>• ACTIVATION: enabled</li> <li>• DEACTIVATION: disabled</li> <li>• ARREARS: outstanding amount</li> <li>• DELETED: The task has been deleted.</li> </ul>
update_time	String	Update time of the application authentication, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 5-28** AppAuth

Parameter	Type	Description
enable	Boolean	Whether to enable or disable URL authentication.

Parameter	Type	Description
expire	Integer	Validity period of the signature for authenticating the connection to RTC. Unit: second. The default value is 300. The signature is generated based on app_key.
app_key	String	Application authentication key.
update_time	String	Update time of the application authentication, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 5-29** AppCallbacks

Parameter	Type	Description
push_callback	<a href="#">AppCallbackUrl</a> object	Forwarding callback.
record_callback	<a href="#">AppCallbackUrl</a> object	Recording callback.

**Table 5-30** AppCallbackUrl

Parameter	Type	Description
url	String	Callback notification URL, which must start with http:// or https:// and support POST.
auth_key	String	Callback key, which is used for authentication. If this parameter is not set or left empty, no authentication header field will be added to the callback.
notify_event_subscription	Array of strings	Cloud recording notification subscription message. The options are as follows: <ul style="list-style-type: none"> <li>● <b>RECORD_NEW_FILE_START:</b> Recording started.</li> <li>● <b>RECORD_FILE_COMPLETE:</b> Recording file generated.</li> </ul>
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 5-31** AppAutoRecordMode

Parameter	Type	Description
mode	String	Recording mode. <ul style="list-style-type: none"> <li>AUTO_RECORD_OFF: Automatic recording is disabled.</li> <li>AUTO_INDIVIDUAL_RECORD: Automatic recording is enabled for single streams. In this case, record_rule_id must not be left empty.</li> </ul>
record_rule_id	String	Recording rule ID.
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Status code: 400**

**Table 5-32** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-33** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404**

**Table 5-34** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-35** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 5-36** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-37** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Queries details about an application with a specified ID.

```
GET https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}
```

## Example Responses

**Status code: 200**

Details about an application.

```
{
  "app_name" : "example",
  "app_id" : "123456789abcdefghijklmno",
  "state" : {
    "state" : "ACTIVATION",
    "update_time" : "2020-07-26T07:03:05.075Z"
  },
  "scope" : "DOMESTIC",
  "tenant_name" : "hwstaff_pub_videortc",
  "domain" : "123456789abcdefghijklmno.rtc.huawei.com",
  "create_time" : "2020-07-26T07:03:05.075Z",
  "authentication" : {
    "enable" : true,
    "expire" : 300,
    "app_key" : "12345ABCDEF12345",
    "update_time" : "2020-07-26T07:03:05.075Z"
  },
  "callbacks" : {
    "record_callback" : {
```

```
"url" : "http://mydomain.com",
"auth_key" : "78912374ae8cdb38",
"update_time" : "2020-07-26T07:53:05.075Z"
},
"auto_record_mode" : {
"mode" : "AUTO_RECORD_OFF",
"update_time" : "2020-07-26T07:53:05.075Z"
}
}
```

**Status code: 400**

The request cannot be understood by the server or parameters are incorrect.

```
{
"error_code" : "RTC.00001003",
"error_msg" : "InvalidParameterValue"
}
```

**Status code: 404**

The application ID does not exist.

```
{
"error_code" : "RTC.00001003",
"error_msg" : "InvalidParameterValue"
}
```

**Status code: 500**

Query failed due to server error.

```
{
"error_code" : "RTC.00002xxx",
"error_msg" : "InternalError"
}
```

## Status Codes

Status Code	Description
200	Details about an application.
400	The request cannot be understood by the server or parameters are incorrect.
404	The application ID does not exist.
500	Query failed due to server error.

## Error Codes

See [Error Codes](#).

## 5.4 Deleting an Application

### Function

This API is used to delete an application.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

DELETE /v2/apps/{app\_id}

**Table 5-38** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.

### Request Parameters

**Table 5-39** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.

Parameter	Mandatory	Type	Description
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 204**

**Table 5-40** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Status code: 400**

**Table 5-41** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-42** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404**

**Table 5-43** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-44** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 5-45** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-46** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Deletes an application with a specified ID.

```
DELETE https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}
```

## Example Responses

**Status code: 400**

Deletion failed because the deletion condition is not met.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

**Status code: 404**

Deletion failed because the application ID does not exist.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

**Status code: 500**

Deletion failed due to server error.

```
{
  "error_code" : "RTC.00002xxx",
}
```

```
"error_msg" : "InternalError"  
}
```

## Status Codes

Status Code	Description
204	The deletion succeeded.
400	Deletion failed because the deletion condition is not met.
404	Deletion failed because the application ID does not exist.
500	Deletion failed due to server error.

## Error Codes

See [Error Codes](#).

# 5.5 Enabling an Application

## Function

This API is used to enable an application.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

POST /v2/apps/{app\_id}/enable

**Table 5-47** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.

## Request Parameters

**Table 5-48** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 200**

**Table 5-49** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-50** Response body parameters

Parameter	Type	Description
app_id	String	Application ID.
state	<b>AppState</b> object	Application status

**Table 5-51** AppState

Parameter	Type	Description
state	String	Status <ul style="list-style-type: none"> <li>ACTIVATION: enabled</li> <li>DEACTIVATION: disabled</li> <li>ARREARS: outstanding amount</li> <li>DELETED: The task has been deleted.</li> </ul>
update_time	String	Update time of the application authentication, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Status code: 404**

**Table 5-52** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-53** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 5-54** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-55** Response body parameters

Parameter	Type	Description
error_code	String	Error code.

Parameter	Type	Description
error_msg	String	Description.

## Example Requests

Enables an application with a specified ID.

POST https://rtc-api.myhuaweicloud.com/v2/apps/{app\_id}/enable

## Example Responses

### Status code: 200

The application is enabled.

```
{
  "app_id": "123456789abcdefghijklmno",
  "state": {
    "state": "ACTIVATION",
    "update_time": "2020-07-26T07:03:05.075Z"
  }
}
```

### Status code: 404

The application ID does not exist.

```
{
  "error_code": "RTC.00001003",
  "error_msg": "InvalidParameterValue"
}
```

### Status code: 500

Configuration failed due to server error.

```
{
  "error_code": "RTC.00002xxx",
  "error_msg": "InternalError"
}
```

## Status Codes

Status Code	Description
200	The application is enabled.
404	The application ID does not exist.
500	Configuration failed due to server error.

## Error Codes

See [Error Codes](#).

## 5.6 Disabling an Application

### Function

Disables an application.

After the application is disabled, new rooms cannot be added or joined, and rooms that have been joined can still be used. The stream mixing and recording functions are also unavailable.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

POST /v2/apps/{app\_id}/disable

**Table 5-56** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.

### Request Parameters

**Table 5-57** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.

Parameter	Mandatory	Type	Description
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 200**

**Table 5-58** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-59** Response body parameters

Parameter	Type	Description
app_id	String	Application ID.
state	<b>AppState</b> object	Application status

**Table 5-60** AppState

Parameter	Type	Description
state	String	Status <ul style="list-style-type: none"> <li>ACTIVATION: enabled</li> <li>DEACTIVATION: disabled</li> <li>ARREARS: outstanding amount</li> <li>DELETED: The task has been deleted.</li> </ul>
update_time	String	Update time of the application authentication, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Status code: 404**

**Table 5-61** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-62** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 5-63** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 5-64** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Disables an application with a specified ID.

POST [https://rtc-api.myhuaweicloud.com/v2/apps/{app\\_id}/disable](https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/disable)

## Example Responses

**Status code: 200**

The application is disabled.

```
{
  "app_id": "123456789abcdefghijklmno",
  "state": {
    "state": "DEACTIVATION",
    "update_time": "2020-07-26T07:03:05.075Z"
  }
}
```

**Status code: 404**

The application ID does not exist.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

**Status code: 500**

Configuration failed due to server error.

```
{
  "error_code" : "RTC.00002xxx",
  "error_msg" : "InternalError"
}
```

## Status Codes

Status Code	Description
200	The application is disabled.
404	The application ID does not exist.
500	Configuration failed due to server error.

## Error Codes

See [Error Codes](#).

# 6 Recording rule management

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## 6.1 Creating or Updating a Recording Rule

### Function

Creates or updates a recording rule.

- If the current application does not have a recording rule in the requested location, a new recording rule will be created.
- If the current application has a recording rule in the requested location, the recording rule will be replaced with the new one.

### Constraints

Only one recording rule can be created for each application in a location.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

POST /v2/apps/{app\_id}/record-rules

**Table 6-1** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.

## Request Parameters

**Table 6-2** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

**Table 6-3** Request body parameters

Parameter	Mandatory	Type	Description
obs_addr	Yes	<b>RecordObsFileAddr</b> object	Bucket where recording files are stored.
record_formats	Yes	Array of strings	Recording format: The HLS and MP4 formats are supported. <ul style="list-style-type: none"> <li>• If HLS is configured, the HLSRecordConfig parameter must be carried.</li> <li>• If MP4 is configured, the MP4RecordConfig parameter must be carried.</li> </ul>
hls_config	No	<b>HLSRecordConfig</b> object	HLS recording rule configuration.

Parameter	Mandatory	Type	Description
mp4_config	No	<b>MP4RecordConfig</b> object	MP4 recording rule configuration.

**Table 6-4** RecordObsFileAddr

Parameter	Mandatory	Type	Description
location	Yes	String	ID of the region where the OBS bucket resides. <ul style="list-style-type: none"><li>• cn-north-4</li></ul>
project_id	Yes	String	Project ID of the region where the OBS bucket resides.
bucket	Yes	String	OBS bucket name.
object	No	String	OBS object path, which complies with the OBS Object definition. If this parameter is left empty, recordings will be saved to the root directory.

**Table 6-5** HLSRecordConfig

Parameter	Mandatory	Type	Description
record_cycle	Yes	Integer	Duration of periodic recording. Value range: [60,43200] or 0. If the value is 0, the entire stream is recorded as a file. Unit: second

Parameter	Mandatory	Type	Description
record_prefix	No	String	<p>Prefix of the M3U8 recording file containing the path and file name.</p> <p>Default value: {app_id}/ {record_format}/ {stream}_{file_start_time}/ {stream}_{file_start_time}</p> <p>The following special variables can be customized:</p> <ul style="list-style-type: none"> <li>• <i>app_id</i>: application ID</li> <li>• <i>record_format</i>: recording format</li> <li>• <i>stream</i>: stream name</li> <li>• <i>file_start_time</i>: file generation time</li> </ul>
record_slice_duration	No	Integer	<p>TS slice duration for HLS recording, which is optional.</p> <p>The value ranges from 2 to 60. The default value is 10.</p> <p>Unit: second</p>
record_max_duration_to_merge_file	No	Integer	<p>Interval threshold for combining HLS chunks. If the stream interruption duration exceeds this threshold, a new file will be generated.</p> <p>The value ranges from -1 to 300. The default value is 0.</p> <p>Unit: second</p> <p>If the value is set to <b>0</b>, a new file will be generated once the stream is interrupted.</p> <ul style="list-style-type: none"> <li>• If the value is set to <b>-1</b>, the stream is appended to the original file after the stream is resumed (the interval does not exceed 30 days).</li> </ul>

**Table 6-6** MP4RecordConfig

Parameter	Mandatory	Type	Description
record_cycle	Yes	Integer	Duration of periodic recording. Value range: [60, 10800]. Unit: second
record_prefix	No	String	Prefix of the recording file containing the path and file name.  Default value: {app_id}/ {record_format}/ {stream}_{file_start_time}/ {stream}_{file_start_time}  The following special variables can be customized: <ul style="list-style-type: none"> <li>• <i>app_id</i>: application ID</li> <li>• <i>record_format</i>: recording format</li> <li>• <i>stream</i>: stream name</li> <li>• <i>file_start_time</i>: file generation time</li> </ul>
record_max_duration_to_merge_file	No	Integer	Interval threshold for combining MP4 chunks. If the stream interruption duration exceeds this threshold, a new file will be generated.  The value ranges from 0 to 300. The default value is 0. Unit: second  If the value is set to <b>0</b> , a new file will be generated once the stream is interrupted.

## Response Parameters

**Status code: 201**

**Table 6-7** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-8** Response body parameters

Parameter	Type	Description
rule_id	String	Rule ID, which is returned by the server. This parameter does not need to be carried during rule creation or modification.
app_id	String	Application ID.
obs_addr	<a href="#">RecordObsFileAddr</a> object	Bucket where recording files are stored.
record_formats	Array of strings	Recording format: HLS or MP4.
hls_config	<a href="#">HLSRecordConfig</a> object	HLS recording rule configuration.
mp4_config	<a href="#">MP4RecordConfig</a> object	MP4 recording rule configuration.
create_time	String	Creation time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 6-9** RecordObsFileAddr

Parameter	Type	Description
location	String	ID of the region where the OBS bucket resides. <ul style="list-style-type: none"> <li>cn-north-4</li> </ul>
project_id	String	Project ID of the region where the OBS bucket resides.
bucket	String	OBS bucket name.
object	String	OBS object path, which complies with the OBS Object definition. If this parameter is left empty, recordings will be saved to the root directory.

**Table 6-10** HLSRecordConfig

Parameter	Type	Description
record_cycle	Integer	Duration of periodic recording. Value range: [60,43200] or 0. If the value is 0, the entire stream is recorded as a file. Unit: second
record_prefix	String	Prefix of the M3U8 recording file containing the path and file name. Default value: {app_id}/ {record_format}/ {stream}_{file_start_time}/ {stream}_{file_start_time} The following special variables can be customized: <ul style="list-style-type: none"> <li>• <i>app_id</i>: application ID</li> <li>• <i>record_format</i>: recording format</li> <li>• <i>stream</i>: stream name</li> <li>• <i>file_start_time</i>: file generation time</li> </ul>
record_slice_duration	Integer	TS slice duration for HLS recording, which is optional. The value ranges from 2 to 60. The default value is 10. Unit: second
record_max_duration_to_merge_file	Integer	Interval threshold for combining HLS chunks. If the stream interruption duration exceeds this threshold, a new file will be generated. The value ranges from -1 to 300. The default value is 0. Unit: second If the value is set to <b>0</b> , a new file will be generated once the stream is interrupted. <ul style="list-style-type: none"> <li>• If the value is set to <b>-1</b>, the stream is appended to the original file after the stream is resumed (the interval does not exceed 30 days).</li> </ul>

**Table 6-11** MP4RecordConfig

Parameter	Type	Description
record_cycle	Integer	Duration of periodic recording. Value range: [60, 10800]. Unit: second
record_prefix	String	Prefix of the recording file containing the path and file name. Default value: {app_id}/ {record_format}/ {stream}_{file_start_time}/ {stream}_{file_start_time} The following special variables can be customized: <ul style="list-style-type: none"> <li>• <i>app_id</i>: application ID</li> <li>• <i>record_format</i>: recording format</li> <li>• <i>stream</i>: stream name</li> <li>• <i>file_start_time</i>: file generation time</li> </ul>
record_max_duration_to_merge_file	Integer	Interval threshold for combining MP4 chunks. If the stream interruption duration exceeds this threshold, a new file will be generated. The value ranges from 0 to 300. The default value is 0. Unit: second If the value is set to <b>0</b> , a new file will be generated once the stream is interrupted.

**Status code: 200**

**Table 6-12** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-13** Response body parameters

Parameter	Type	Description
rule_id	String	Rule ID, which is returned by the server. This parameter does not need to be carried during rule creation or modification.
app_id	String	Application ID.
obs_addr	<a href="#">RecordObsFileAddr</a> object	Bucket where recording files are stored.
record_formats	Array of strings	Recording format: HLS or MP4.
hls_config	<a href="#">HLSRecordConfig</a> object	HLS recording rule configuration.
mp4_config	<a href="#">MP4RecordConfig</a> object	MP4 recording rule configuration.
create_time	String	Creation time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 6-14** RecordObsFileAddr

Parameter	Type	Description
location	String	ID of the region where the OBS bucket resides. <ul style="list-style-type: none"> <li>cn-north-4</li> </ul>
project_id	String	Project ID of the region where the OBS bucket resides.
bucket	String	OBS bucket name.
object	String	OBS object path, which complies with the OBS Object definition. If this parameter is left empty, recordings will be saved to the root directory.

**Table 6-15** HLSRecordConfig

Parameter	Type	Description
record_cycle	Integer	Duration of periodic recording. Value range: [60,43200] or 0. If the value is 0, the entire stream is recorded as a file. Unit: second
record_prefix	String	Prefix of the M3U8 recording file containing the path and file name. Default value: {app_id}/ {record_format}/ {stream}_{file_start_time}/ {stream}_{file_start_time} The following special variables can be customized: <ul style="list-style-type: none"> <li>• <i>app_id</i>: application ID</li> <li>• <i>record_format</i>: recording format</li> <li>• <i>stream</i>: stream name</li> <li>• <i>file_start_time</i>: file generation time</li> </ul>
record_slice_duration	Integer	TS slice duration for HLS recording, which is optional. The value ranges from 2 to 60. The default value is 10. Unit: second
record_max_duration_to_merge_file	Integer	Interval threshold for combining HLS chunks. If the stream interruption duration exceeds this threshold, a new file will be generated. The value ranges from -1 to 300. The default value is 0. Unit: second If the value is set to 0, a new file will be generated once the stream is interrupted. <ul style="list-style-type: none"> <li>• If the value is set to -1, the stream is appended to the original file after the stream is resumed (the interval does not exceed 30 days).</li> </ul>

**Table 6-16** MP4RecordConfig

Parameter	Type	Description
record_cycle	Integer	Duration of periodic recording. Value range: [60, 10800]. Unit: second
record_prefix	String	Prefix of the recording file containing the path and file name. Default value: {app_id}/ {record_format}/ {stream}_{file_start_time}/ {stream}_{file_start_time} The following special variables can be customized: <ul style="list-style-type: none"> <li>• <i>app_id</i>: application ID</li> <li>• <i>record_format</i>: recording format</li> <li>• <i>stream</i>: stream name</li> <li>• <i>file_start_time</i>: file generation time</li> </ul>
record_max_duration_to_merge_file	Integer	Interval threshold for combining MP4 chunks. If the stream interruption duration exceeds this threshold, a new file will be generated. The value ranges from 0 to 300. The default value is 0. Unit: second If the value is set to <b>0</b> , a new file will be generated once the stream is interrupted.

**Status code: 400**

**Table 6-17** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-18** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404**

**Table 6-19** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-20** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 6-21** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-22** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Creates or updates a recording rule. The region is CN North-Beijing4. Recording files are saved in MP4 format to the bucket **obsName**, with the recording duration of 60 seconds.

POST https://rtc-api.myhuaweicloud.com/v2/apps/{app\_id}/record-rules

```
{
  "obs_addr": {
    "bucket": "obsName",
    "location": "cn-north-4",
    "object": "Record/",
    "project_id": "ad7456ce8ef89adf567"
  },
  "record_formats": [ "MP4" ],
  "mp4_config": {
    "record_cycle": 60,
    "record_max_duration_to_merge_file": 0
  }
}
```

```
}  
}
```

## Example Responses

### Status code: 201

Configuration succeeded.

```
{  
  "app_id" : "123456abc",  
  "rule_id" : "456789abc",  
  "create_time" : "2006-01-02T15:04:05.075Z",  
  "obs_addr" : {  
    "bucket" : "obsName",  
    "location" : "cn-north-4",  
    "object" : "Record/",  
    "project_id" : "ad7456ce8ef89adf567"  
  },  
  "record_formats" : [ "MP4" ],  
  "mp4_config" : {  
    "record_cycle" : 60,  
    "record_max_duration_to_merge_file" : 0  
  },  
  "update_time" : "2006-01-02T15:04:05.075Z"  
}
```

### Status code: 200

Configuration updated.

```
{  
  "app_id" : "123456abc",  
  "rule_id" : "456789abc",  
  "create_time" : "2006-01-02T15:04:05.075Z",  
  "obs_addr" : {  
    "bucket" : "obsName",  
    "location" : "cn-north-4",  
    "object" : "Record/",  
    "project_id" : "ad7456ce8ef89adf567"  
  },  
  "record_formats" : [ "MP4" ],  
  "mp4_config" : {  
    "record_cycle" : 60,  
    "record_max_duration_to_merge_file" : 0  
  },  
  "update_time" : "2006-01-02T15:04:05.075Z"  
}
```

### Status code: 400

Configuration failed because the request cannot be understood by the server or parameters are incorrect.

```
{  
  "error_code" : "RTC.00001003",  
  "error_msg" : "InvalidParameterValue"  
}
```

### Status code: 404

Configuration failed because the application does not exist.

```
{  
  "error_code" : "RTC.00001003",  
  "error_msg" : "InvalidParameterValue"  
}
```

**Status code: 500**

Configuration failed due to server error.

```
{
  "error_code" : "RTC.00002xxx",
  "error_msg" : "InternalError"
}
```

**Status Codes**

Status Code	Description
201	Configuration succeeded.
200	Configuration updated.
400	Configuration failed because the request cannot be understood by the server or parameters are incorrect.
404	Configuration failed because the application does not exist.
500	Configuration failed due to server error.

**Error Codes**

See [Error Codes](#).

**6.2 Listing Recording Rules**

**Function**

This API is used to list recording rules.

**Authorization Information**

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

**URI**

GET /v2/apps/{app\_id}/record-rules

**Table 6-23** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.

**Table 6-24** Query Parameters

Parameter	Mandatory	Type	Description
offset	No	Integer	Start number of the query result, indicating the page number.
limit	No	Integer	Number of records on each page.

## Request Parameters

**Table 6-25** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 200**

**Table 6-26** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-27** Response body parameters

Parameter	Type	Description
rules	Array of <b>RecordRule</b> objects	Recording rule list.

**Table 6-28** RecordRule

Parameter	Type	Description
rule_id	String	Rule ID, which is returned by the server. This parameter does not need to be carried during rule creation or modification.
app_id	String	Application ID.
obs_addr	<b>RecordObsFileAddr</b> object	Bucket where recording files are stored.
record_formats	Array of strings	Recording format: HLS or MP4.
hls_config	<b>HLSRecordConfig</b> object	HLS recording rule configuration.
mp4_config	<b>MP4RecordConfig</b> object	MP4 recording rule configuration.
create_time	String	Creation time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 6-29** RecordObsFileAddr

Parameter	Type	Description
location	String	ID of the region where the OBS bucket resides. <ul style="list-style-type: none"> <li>cn-north-4</li> </ul>
project_id	String	Project ID of the region where the OBS bucket resides.
bucket	String	OBS bucket name.
object	String	OBS object path, which complies with the OBS Object definition. If this parameter is left empty, recordings will be saved to the root directory.

**Table 6-30** HLSRecordConfig

Parameter	Type	Description
record_cycle	Integer	Duration of periodic recording. Value range: [60,43200] or 0. If the value is 0, the entire stream is recorded as a file. Unit: second
record_prefix	String	Prefix of the M3U8 recording file containing the path and file name. Default value: {app_id}/ {record_format}/ {stream}_{file_start_time}/ {stream}_{file_start_time} The following special variables can be customized: <ul style="list-style-type: none"> <li><i>app_id</i>: application ID</li> <li><i>record_format</i>: recording format</li> <li><i>stream</i>: stream name</li> <li><i>file_start_time</i>: file generation time</li> </ul>
record_slice_duration	Integer	TS slice duration for HLS recording, which is optional. The value ranges from 2 to 60. The default value is 10. Unit: second

Parameter	Type	Description
record_max_duration_to_merge_file	Integer	<p>Interval threshold for combining HLS chunks. If the stream interruption duration exceeds this threshold, a new file will be generated.</p> <p>The value ranges from -1 to 300. The default value is 0.</p> <p>Unit: second</p> <p>If the value is set to <b>0</b>, a new file will be generated once the stream is interrupted.</p> <ul style="list-style-type: none"> <li>If the value is set to <b>-1</b>, the stream is appended to the original file after the stream is resumed (the interval does not exceed 30 days).</li> </ul>

**Table 6-31** MP4RecordConfig

Parameter	Type	Description
record_cycle	Integer	<p>Duration of periodic recording.</p> <p>Value range: [60, 10800].</p> <p>Unit: second</p>
record_prefix	String	<p>Prefix of the recording file containing the path and file name.</p> <p>Default value: {app_id}/ {record_format}/ {stream}_{file_start_time}/ {stream}_{file_start_time}</p> <p>The following special variables can be customized:</p> <ul style="list-style-type: none"> <li><i>app_id</i>: application ID</li> <li><i>record_format</i>: recording format</li> <li><i>stream</i>: stream name</li> <li><i>file_start_time</i>: file generation time</li> </ul>

Parameter	Type	Description
record_max_duration_to_merge_file	Integer	Interval threshold for combining MP4 chunks. If the stream interruption duration exceeds this threshold, a new file will be generated. The value ranges from 0 to 300. The default value is 0. Unit: second If the value is set to <b>0</b> , a new file will be generated once the stream is interrupted.

**Status code: 400**

**Table 6-32** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-33** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404**

**Table 6-34** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-35** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 6-36** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-37** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Queries all recording rules for an application with a specified ID.

```
GET https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/record-rules
```

## Example Responses

**Status code: 200**

The configuration is successful.

```
{
  "rules": [ {
    "app_id": "123456789abcdefghijklmno",
    "rule_id": "456789abc",
    "create_time": "2006-01-02T15:04:05.075Z",
    "obs_addr": {
      "bucket": "obsName",
      "location": "cn-north-4",
      "object": "Record/",
      "project_id": "ad7456ce8ef89adf567"
    },
    "record_formats": [ "MP4" ],
    "mp4_config": {
      "record_cycle": 60,
      "record_max_duration_to_merge_file": 0
    },
    "update_time": "2006-01-02T15:04:05.075Z"
  } ]
}
```

**Status code: 400**

Configuration failed because the request cannot be understood by the server or parameters are incorrect.

```
{
  "error_code": "RTC.00001003",
  "error_msg": "InvalidParameterValue"
}
```

**Status code: 404**

Configuration failed because the application does not exist.

```
{
  "error_code": "RTC.00001003",
  "error_msg": "InvalidParameterValue"
}
```

**Status code: 500**

Configuration failed due to server error.

```
{
  "error_code": "RTC.00002xxx",
  "error_msg": "InternalError"
}
```

## Status Codes

Status Code	Description
200	The configuration is successful.
400	Configuration failed because the request cannot be understood by the server or parameters are incorrect.
404	Configuration failed because the application does not exist.
500	Configuration failed due to server error.

## Error Codes

See [Error Codes](#).

## 6.3 Querying a Recording Rule

### Function

This API is used to query a specified recording rule.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

GET /v2/apps/{app\_id}/record-rules/{rule\_id}

**Table 6-38** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.
rule_id	Yes	String	Rule ID.

## Request Parameters

**Table 6-39** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 200**

**Table 6-40** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-41** Response body parameters

Parameter	Type	Description
rule_id	String	Rule ID, which is returned by the server. This parameter does not need to be carried during rule creation or modification.
app_id	String	Application ID.
obs_addr	<a href="#">RecordObsFileAddr</a> object	Bucket where recording files are stored.
record_formats	Array of strings	Recording format: HLS or MP4.
hls_config	<a href="#">HLSRecordConfig</a> object	HLS recording rule configuration.
mp4_config	<a href="#">MP4RecordConfig</a> object	MP4 recording rule configuration.
create_time	String	Creation time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 6-42** RecordObsFileAddr

Parameter	Type	Description
location	String	ID of the region where the OBS bucket resides. <ul style="list-style-type: none"> <li>cn-north-4</li> </ul>
project_id	String	Project ID of the region where the OBS bucket resides.
bucket	String	OBS bucket name.
object	String	OBS object path, which complies with the OBS Object definition. If this parameter is left empty, recordings will be saved to the root directory.

**Table 6-43** HLSRecordConfig

Parameter	Type	Description
record_cycle	Integer	Duration of periodic recording. Value range: [60,43200] or 0. If the value is 0, the entire stream is recorded as a file. Unit: second
record_prefix	String	Prefix of the M3U8 recording file containing the path and file name. Default value: {app_id}/ {record_format}/ {stream}_{file_start_time}/ {stream}_{file_start_time} The following special variables can be customized: <ul style="list-style-type: none"> <li>• <i>app_id</i>: application ID</li> <li>• <i>record_format</i>: recording format</li> <li>• <i>stream</i>: stream name</li> <li>• <i>file_start_time</i>: file generation time</li> </ul>
record_slice_duration	Integer	TS slice duration for HLS recording, which is optional. The value ranges from 2 to 60. The default value is 10. Unit: second
record_max_duration_to_merge_file	Integer	Interval threshold for combining HLS chunks. If the stream interruption duration exceeds this threshold, a new file will be generated. The value ranges from -1 to 300. The default value is 0. Unit: second If the value is set to <b>0</b> , a new file will be generated once the stream is interrupted. <ul style="list-style-type: none"> <li>• If the value is set to <b>-1</b>, the stream is appended to the original file after the stream is resumed (the interval does not exceed 30 days).</li> </ul>

**Table 6-44** MP4RecordConfig

Parameter	Type	Description
record_cycle	Integer	Duration of periodic recording. Value range: [60, 10800]. Unit: second
record_prefix	String	Prefix of the recording file containing the path and file name. Default value: {app_id}/ {record_format}/ {stream}_{file_start_time}/ {stream}_{file_start_time} The following special variables can be customized: <ul style="list-style-type: none"> <li>• <i>app_id</i>: application ID</li> <li>• <i>record_format</i>: recording format</li> <li>• <i>stream</i>: stream name</li> <li>• <i>file_start_time</i>: file generation time</li> </ul>
record_max_duration_to_merge_file	Integer	Interval threshold for combining MP4 chunks. If the stream interruption duration exceeds this threshold, a new file will be generated. The value ranges from 0 to 300. The default value is 0. Unit: second If the value is set to <b>0</b> , a new file will be generated once the stream is interrupted.

**Status code: 400**

**Table 6-45** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-46** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404**

**Table 6-47** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-48** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 6-49** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-50** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Queries a specific recording rule by application ID and rule ID.

```
GET https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/record-rules/{rule_id}
```

## Example Responses

**Status code: 200**

The recording rule configuration is successfully obtained.

```
{
  "app_id": "123456abc",
  "rule_id": "456789abc",
  "create_time": "2006-01-02T15:04:05.075Z",
  "obs_addr": {
    "bucket": "obsName",
```

```
"location" : "cn-north-4",
"object" : "Record/",
"project_id" : "ad7456ce8ef89adf567"
},
"record_formats" : [ "MP4" ],
"mp4_config" : {
  "record_cycle" : 60,
  "record_max_duration_to_merge_file" : 0
},
"update_time" : "2006-01-02T15:04:05.075Z"
}
```

**Status code: 400**

Failed to obtain the configuration because the request cannot be understood by the server or parameters are incorrect.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

**Status code: 404**

Failed to obtain the configuration because the configuration does not exist.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

**Status code: 500**

Failed to obtain the configuration due to server error.

```
{
  "error_code" : "RTC.00002xxx",
  "error_msg" : "InternalError"
}
```

## Status Codes

Status Code	Description
200	The recording rule configuration is successfully obtained.
400	Failed to obtain the configuration because the request cannot be understood by the server or parameters are incorrect.
404	Failed to obtain the configuration because the configuration does not exist.
500	Failed to obtain the configuration due to server error.

## Error Codes

See [Error Codes](#).

## 6.4 Updating a Recording Rule

### Function

This API is used to update a recording rule.

### Constraints

If a rule is modified, the modified rule does not take effect for the stream that is being recorded.

The modification is valid for new streams and takes effect 5 minutes later. That is, the new rule can be used for recording tasks 5 minutes after being modified.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

PUT /v2/apps/{app\_id}/record-rules/{rule\_id}

**Table 6-51** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.
rule_id	Yes	String	Rule ID.

### Request Parameters

**Table 6-52** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.

Parameter	Mandatory	Type	Description
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

**Table 6-53** Request body parameters

Parameter	Mandatory	Type	Description
obs_addr	Yes	<a href="#">RecordObsFileAddr</a> object	Bucket where recording files are stored.
record_formats	Yes	Array of strings	Recording format: The HLS and MP4 formats are supported. <ul style="list-style-type: none"> <li>If HLS is configured, the <a href="#">HLSRecordConfig</a> parameter must be carried.</li> <li>If MP4 is configured, the <a href="#">MP4RecordConfig</a> parameter must be carried.</li> </ul>
hls_config	No	<a href="#">HLSRecordConfig</a> object	HLS recording rule configuration.
mp4_config	No	<a href="#">MP4RecordConfig</a> object	MP4 recording rule configuration.

**Table 6-54** RecordObsFileAddr

Parameter	Mandatory	Type	Description
location	Yes	String	ID of the region where the OBS bucket resides. <ul style="list-style-type: none"> <li>cn-north-4</li> </ul>
project_id	Yes	String	Project ID of the region where the OBS bucket resides.

Parameter	Mandatory	Type	Description
bucket	Yes	String	OBS bucket name.
object	No	String	OBS object path, which complies with the OBS Object definition. If this parameter is left empty, recordings will be saved to the root directory.

**Table 6-55** HLSRecordConfig

Parameter	Mandatory	Type	Description
record_cycle	Yes	Integer	Duration of periodic recording. Value range: [60,43200] or 0. If the value is 0, the entire stream is recorded as a file. Unit: second
record_prefix	No	String	Prefix of the M3U8 recording file containing the path and file name. Default value: {app_id}/ {record_format}/ {stream}_{file_start_time}/ {stream}_{file_start_time} The following special variables can be customized: <ul style="list-style-type: none"><li>• <i>app_id</i>: application ID</li><li>• <i>record_format</i>: recording format</li><li>• <i>stream</i>: stream name</li><li>• <i>file_start_time</i>: file generation time</li></ul>
record_slice_duration	No	Integer	TS slice duration for HLS recording, which is optional. The value ranges from 2 to 60. The default value is 10. Unit: second

Parameter	Mandatory	Type	Description
record_max_duration_to_merge_file	No	Integer	<p>Interval threshold for combining HLS chunks. If the stream interruption duration exceeds this threshold, a new file will be generated.</p> <p>The value ranges from -1 to 300. The default value is 0.</p> <p>Unit: second</p> <p>If the value is set to <b>0</b>, a new file will be generated once the stream is interrupted.</p> <ul style="list-style-type: none"> <li>If the value is set to <b>-1</b>, the stream is appended to the original file after the stream is resumed (the interval does not exceed 30 days).</li> </ul>

**Table 6-56** MP4RecordConfig

Parameter	Mandatory	Type	Description
record_cycle	Yes	Integer	<p>Duration of periodic recording.</p> <p>Value range: [60, 10800].</p> <p>Unit: second</p>
record_prefix	No	String	<p>Prefix of the recording file containing the path and file name.</p> <p>Default value: {app_id}/ {record_format}/ {stream}_{file_start_time}/ {stream}_{file_start_time}</p> <p>The following special variables can be customized:</p> <ul style="list-style-type: none"> <li><i>app_id</i>: application ID</li> <li><i>record_format</i>: recording format</li> <li><i>stream</i>: stream name</li> <li><i>file_start_time</i>: file generation time</li> </ul>

Parameter	Mandatory	Type	Description
record_max_duration_to_merge_file	No	Integer	Interval threshold for combining MP4 chunks. If the stream interruption duration exceeds this threshold, a new file will be generated. The value ranges from 0 to 300. The default value is 0. Unit: second If the value is set to <b>0</b> , a new file will be generated once the stream is interrupted.

## Response Parameters

Status code: 200

**Table 6-57** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-58** Response body parameters

Parameter	Type	Description
rule_id	String	Rule ID, which is returned by the server. This parameter does not need to be carried during rule creation or modification.
app_id	String	Application ID.
obs_addr	<a href="#">RecordObsFileAddr</a> object	Bucket where recording files are stored.
record_formats	Array of strings	Recording format: HLS or MP4.
hls_config	<a href="#">HLSRecordConfig</a> object	HLS recording rule configuration.
mp4_config	<a href="#">MP4RecordConfig</a> object	MP4 recording rule configuration.
create_time	String	Creation time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

Parameter	Type	Description
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 6-59** RecordObsFileAddr

Parameter	Type	Description
location	String	ID of the region where the OBS bucket resides. <ul style="list-style-type: none"> <li>cn-north-4</li> </ul>
project_id	String	Project ID of the region where the OBS bucket resides.
bucket	String	OBS bucket name.
object	String	OBS object path, which complies with the OBS Object definition. If this parameter is left empty, recordings will be saved to the root directory.

**Table 6-60** HLSRecordConfig

Parameter	Type	Description
record_cycle	Integer	Duration of periodic recording. Value range: [60,43200] or 0. If the value is 0, the entire stream is recorded as a file. Unit: second
record_prefix	String	Prefix of the M3U8 recording file containing the path and file name. Default value: {app_id}/ {record_format}/ {stream}_{file_start_time}/ {stream}_{file_start_time} The following special variables can be customized: <ul style="list-style-type: none"> <li><i>app_id</i>: application ID</li> <li><i>record_format</i>: recording format</li> <li><i>stream</i>: stream name</li> <li><i>file_start_time</i>: file generation time</li> </ul>

Parameter	Type	Description
record_slice_duration	Integer	TS slice duration for HLS recording, which is optional. The value ranges from 2 to 60. The default value is 10. Unit: second
record_max_duration_to_merge_file	Integer	Interval threshold for combining HLS chunks. If the stream interruption duration exceeds this threshold, a new file will be generated. The value ranges from -1 to 300. The default value is 0. Unit: second If the value is set to <b>0</b> , a new file will be generated once the stream is interrupted. <ul style="list-style-type: none"> <li>If the value is set to <b>-1</b>, the stream is appended to the original file after the stream is resumed (the interval does not exceed 30 days).</li> </ul>

**Table 6-61** MP4RecordConfig

Parameter	Type	Description
record_cycle	Integer	Duration of periodic recording. Value range: [60, 10800]. Unit: second
record_prefix	String	Prefix of the recording file containing the path and file name. Default value: {app_id}/ {record_format}/ {stream}_{file_start_time}/ {stream}_{file_start_time} The following special variables can be customized: <ul style="list-style-type: none"> <li><i>app_id</i>: application ID</li> <li><i>record_format</i>: recording format</li> <li><i>stream</i>: stream name</li> <li><i>file_start_time</i>: file generation time</li> </ul>

Parameter	Type	Description
record_max_duration_to_merge_file	Integer	Interval threshold for combining MP4 chunks. If the stream interruption duration exceeds this threshold, a new file will be generated. The value ranges from 0 to 300. The default value is 0. Unit: second If the value is set to <b>0</b> , a new file will be generated once the stream is interrupted.

**Status code: 400**

**Table 6-62** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-63** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404**

**Table 6-64** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-65** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500****Table 6-66** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-67** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Updates a recording rule by application ID and rule ID. The region is CN North-Beijing4, the OBS bucket name is **obsName**, the recording format is MP4, and the recording duration is 60 seconds.

```
PUT https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/record-rules/{rule_id}
```

```
{
  "obs_addr" : {
    "bucket" : "obsName",
    "location" : "cn-north-4",
    "object" : "Record/",
    "project_id" : "ad7456ce8ef89adf567"
  },
  "record_formats" : [ "MP4" ],
  "mp4_config" : {
    "record_cycle" : 60,
    "record_max_duration_to_merge_file" : 0
  }
}
```

## Example Responses

**Status code: 200**

The configuration is successful.

```
{
  "app_id" : "123456abc",
  "rule_id" : "456789abc",
  "create_time" : "2006-01-02T15:04:05.075Z",
  "obs_addr" : {
    "bucket" : "obsName",
    "location" : "cn-north-4",
    "object" : "Record/",
    "project_id" : "ad7456ce8ef89adf567"
  },
  "record_formats" : [ "MP4" ],
  "mp4_config" : {
    "record_cycle" : 60,
    "record_max_duration_to_merge_file" : 0
  },
}
```

```
"update_time" : "2006-01-02T15:04:05.075Z"  
}
```

**Status code: 400**

Configuration failed because the request cannot be understood by the server or parameters are incorrect.

```
{  
  "error_code" : "RTC.00001003",  
  "error_msg" : "InvalidParameterValue"  
}
```

**Status code: 404**

Configuration failed because the application does not exist.

```
{  
  "error_code" : "RTC.00001003",  
  "error_msg" : "InvalidParameterValue"  
}
```

**Status code: 500**

Configuration failed due to server error.

```
{  
  "error_code" : "RTC.00002xxx",  
  "error_msg" : "InternalError"  
}
```

## Status Codes

Status Code	Description
200	The configuration is successful.
400	Configuration failed because the request cannot be understood by the server or parameters are incorrect.
404	Configuration failed because the application does not exist.
500	Configuration failed due to server error.

## Error Codes

See [Error Codes](#).

## 6.5 Deleting a Recording Rule

### Function

This API is used to delete a recording rule. Recording rules that are being used cannot be deleted.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

DELETE /v2/apps/{app\_id}/record-rules/{rule\_id}

**Table 6-68** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.
rule_id	Yes	String	Rule ID.

## Request Parameters

**Table 6-69** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 204**

**Table 6-70** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Status code: 400**

**Table 6-71** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-72** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404**

**Table 6-73** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-74** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 6-75** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 6-76** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Deletes a recording rule by application ID and rule ID.

```
DELETE https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/record-rules/{rule_id}
```

## Example Responses

### Status code: 400

Failed to delete the recording rule because the request cannot be understood by the server or parameters are incorrect.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

### Status code: 404

Failed to delete the recording rule because the configuration does not exist.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

### Status code: 500

Failed to delete the recording rule due to server error.

```
{
  "error_code" : "RTC.00002xxx",
  "error_msg" : "InternalServerError"
}
```

## Status Codes

Status Code	Description
204	The recording rule is deleted.

Status Code	Description
400	Failed to delete the recording rule because the request cannot be understood by the server or parameters are incorrect.
404	Failed to delete the recording rule because the configuration does not exist.
500	Failed to delete the recording rule due to server error.

## Error Codes

See [Error Codes](#).

# 7 Automatic recording configuration

---

## 7.1 Updating the Automatic Recording Configuration

### Function

This API is used to update the automatic recording configuration. Tenants can enable or disable automatic single-stream recording on demands. (This operation supports only single-stream recording.)

### Constraints

After the automatic recording function is enabled, it takes effect only for newly created rooms and does not take effect for rooms that have been created before the automatic recording function is enabled.

The stream name of a single-stream automatic recording job is as follows:

`{appid}_{roomid}_{userid}_{media_type}_{video_type}`

The value of `{media_type}` can be `v` (video recording) or `av` (audio and video recording).

The value of `{video_type}` can be `m` (recording video streams) or `a` (recording presentation streams).

The possible combination can be `_av_m` (automatic recording of video and audio) or `_v_a` (automatic recording of presentation video without audio).

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

PUT `/v2/apps/{app_id}/auto-record-mode`

**Table 7-1** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.

## Request Parameters

**Table 7-2** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

**Table 7-3** Request body parameters

Parameter	Mandatory	Type	Description
mode	Yes	String	Recording mode. <ul style="list-style-type: none"> <li>AUTO_RECORD_OFF: Automatic recording is disabled.</li> <li>AUTO_INDIVIDUAL_RECORD: Enable single-stream automatic recording. In this case, record_rule_id must be not empty.</li> </ul>
record_rule_id	No	String	Recording rule ID.

## Response Parameters

Status code: 200

**Table 7-4** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 7-5** Response body parameters

Parameter	Type	Description
app_id	String	Application ID.
auto_record_mode	<b>AppAutoRecord Mode</b> object	Automatic recording configuration.

**Table 7-6** AppAutoRecordMode

Parameter	Type	Description
mode	String	Recording mode. <ul style="list-style-type: none"> <li>AUTO_RECORD_OFF: Automatic recording is disabled.</li> <li>AUTO_INDIVIDUAL_RECORD: Automatic recording is enabled for single streams. In this case, record_rule_id must not be left empty.</li> </ul>

Parameter	Type	Description
record_rule_id	String	Recording rule ID.
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Status code: 400****Table 7-7** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 7-8** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404****Table 7-9** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 7-10** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 7-11** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 7-12** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Updates the automatic recording configuration of an application with a specified ID to disable automatic recording for the application.

```
PUT https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/auto-record-mode
```

```
{  
  "mode" : "AUTO_RECORD_OFF"  
}
```

## Example Responses

### Status code: 200

The job is created, and the application summary information is returned, including app\_id.

```
{  
  "app_id" : "123456789abcdefghijklmno",  
  "auto_record_mode" : {  
    "mode" : "AUTO_RECORD_OFF",  
    "update_time" : "2020-07-26T07:53:05.075Z"  
  }  
}
```

### Status code: 400

Failed to update the automatic recording job because the request cannot be understood by the server or parameters are incorrect.

```
{  
  "error_code" : "RTC.00001003",  
  "error_msg" : "InvalidParameterValue"  
}
```

### Status code: 404

Failed to update the automatic recording job because the application does not exist.

```
{  
  "error_code" : "RTC.00001003",  
  "error_msg" : "InvalidParameterValue"  
}
```

**Status code: 500**

Failed to update the automatic recording job due to server error.

```
{  
  "error_code" : "RTC.00002xxx",  
  "error_msg" : "InternalError"  
}
```

**Status Codes**

Status Code	Description
200	The job is created, and the application summary information is returned, including app_id.
400	Failed to update the automatic recording job because the request cannot be understood by the server or parameters are incorrect.
404	Failed to update the automatic recording job because the application does not exist.
500	Failed to update the automatic recording job due to server error.

**Error Codes**

See [Error Codes](#).

## 7.2 Querying the Automatic Recording Configuration

**Function**

This API is used to query the automatic recording configuration.

**Authorization Information**

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

**URI**

GET /v2/apps/{app\_id}/auto-record-mode

**Table 7-13** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.

## Request Parameters

**Table 7-14** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 200**

**Table 7-15** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 7-16** Response body parameters

Parameter	Type	Description
app_id	String	Application ID.
auto_record_mode	<b>AppAutoRecord Mode</b> object	Automatic recording configuration.

**Table 7-17** AppAutoRecordMode

Parameter	Type	Description
mode	String	Recording mode. <ul style="list-style-type: none"> <li>AUTO_RECORD_OFF: Automatic recording is disabled.</li> <li>AUTO_INDIVIDUAL_RECORD: Automatic recording is enabled for single streams. In this case, record_rule_id must not be left empty.</li> </ul>
record_rule_id	String	Recording rule ID.
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Status code: 400**

**Table 7-18** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 7-19** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404**

**Table 7-20** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 7-21** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 7-22** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 7-23** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Queries the automatic recording configuration of an application with a specified ID.

GET [https://rtc-api.myhuaweicloud.com/v2/apps/{app\\_id}/auto-record-mode](https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/auto-record-mode)

## Example Responses

**Status code: 200**

Details about an application.

```
{
  "app_id" : "123456789abcdefghijklmno",
  "auto_record_mode" : {
    "mode" : "AUTO_RECORD_OFF",
    "update_time" : "2020-07-26T07:53:05.075Z"
  }
}
```

**Status code: 400**

The request cannot be understood by the server or parameters are incorrect.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

**Status code: 404**

The application ID does not exist.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

**Status code: 500**

Query failed due to server error.

```
{
  "error_code" : "RTC.00002xxx",
  "error_msg" : "InternalError"
}
```

## Status Codes

Status Code	Description
200	Details about an application.
400	The request cannot be understood by the server or parameters are incorrect.
404	The application ID does not exist.
500	Query failed due to server error.

## Error Codes

See [Error Codes](#).

# 8 Application callback management

---

## 8.1 Configuring a Recording Event Callback

### Function

Configures a recording event callback.

When a subscribed event occurs in a task, the callback address configured through this API is used to receive a notification.

For details about the callback content, see [Value-added \(Recording\) Event Callback Notification Content](#).

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

PUT /v2/apps/{app\_id}/record-callback

**Table 8-1** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.

## Request Parameters

**Table 8-2** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

**Table 8-3** Request body parameters

Parameter	Mandatory	Type	Description
url	Yes	String	Callback notification URL, which must start with http:// or https:// and support POST.
auth_key	No	String	Callback key, which is used for authentication.

## Response Parameters

Status code: 200

**Table 8-4** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 8-5** Response body parameters

Parameter	Type	Description
app_id	String	Application ID.
record_callback	<a href="#">AppCallbackUrl</a> object	Callback information.

**Table 8-6** AppCallbackUrl

Parameter	Type	Description
url	String	Callback notification URL, which must start with http:// or https:// and support POST.
auth_key	String	Callback key, which is used for authentication. If this parameter is not set or left empty, no authentication header field will be added to the callback.
notify_event_subscription	Array of strings	Cloud recording notification subscription message. The options are as follows: <ul style="list-style-type: none"><li>● <b>RECORD_NEW_FILE_START:</b> Recording started.</li><li>● <b>RECORD_FILE_COMPLETE:</b> Recording file generated.</li></ul>
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Status code: 400****Table 8-7** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 8-8** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404**

**Table 8-9** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 8-10** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 8-11** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 8-12** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Configures the callback for reporting value-added (recording) events for an application with a specified ID. The callback address is `http://mydomain.com/callback`, and the callback key is `8923ab*****cef453`.

```
PUT https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/record-callback
```

```
{
  "url" : "http://mydomain.com/callback",
  "auth_key" : "8923ab*****cef453"
}
```

## Example Responses

### Status code: 200

The configuration is successful.

```
{
  "app_id" : "123456789abcdefghijklmno",
  "record_callback" : {
    "url" : "http://mydomain.com",
    "auth_key" : "78912374ae8cdb38",
    "notify_event_subscription" : [ "RECORD_NEW_FILE_START", "RECORD_FILE_COMPLETE",
    "RTC_USER_ROLE_CHANGED", "RTC_AUDIO_STREAM_OPEN", "RTC_AUDIO_STREAM_CLOSE",
    "RTC_VIDEO_STREAM_OPEN", "RTC_VIDEO_STREAM_CLOSE" ],
    "update_time" : "2020-07-26T07:53:05.075Z"
  }
}
```

### Status code: 400

Configuration failed because the request cannot be understood by the server or parameters are incorrect.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

### Status code: 404

Configuration failed because the application does not exist.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

### Status code: 500

Configuration failed due to server error.

```
{
  "error_code" : "RTC.00002xxx",
  "error_msg" : "InternalError"
}
```

## Status Codes

Status Code	Description
200	The configuration is successful.
400	Configuration failed because the request cannot be understood by the server or parameters are incorrect.
404	Configuration failed because the application does not exist.
500	Configuration failed due to server error.

## Error Codes

See [Error Codes](#).

# 8.2 Querying a Recording Event Callback

## Function

This API is used to query the recording event callback configuration.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

GET /v2/apps/{app\_id}/record-callback

**Table 8-13** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.

## Request Parameters

**Table 8-14** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.

Parameter	Mandatory	Type	Description
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

Status code: 200

**Table 8-15** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 8-16** Response body parameters

Parameter	Type	Description
app_id	String	Application ID.
record_callback	<a href="#">AppCallbackUrl</a> object	Callback information.

**Table 8-17** AppCallbackUrl

Parameter	Type	Description
url	String	Callback notification URL, which must start with http:// or https:// and support POST.
auth_key	String	Callback key, which is used for authentication. If this parameter is not set or left empty, no authentication header field will be added to the callback.

Parameter	Type	Description
notify_event_subscription	Array of strings	Cloud recording notification subscription message. The options are as follows: <ul style="list-style-type: none"><li>• <b>RECORD_NEW_FILE_START:</b> Recording started.</li><li>• <b>RECORD_FILE_COMPLETE:</b> Recording file generated.</li></ul>
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Status code: 400****Table 8-18** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 8-19** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404****Table 8-20** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 8-21** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 8-22** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 8-23** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Queries the value-added (recording) event callback configuration of an application with a specified ID.

```
GET https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/record-callback
```

## Example Responses

**Status code: 200**

Details about an application.

```
{
  "app_id": "123456789abcdefghijklmno",
  "record_callback": {
    "url": "http://mydomain.com",
    "auth_key": "78912374ae8cdb38",
    "notify_event_subscription": [ "RECORD_NEW_FILE_START", "RECORD_FILE_COMPLETE" ],
    "update_time": "2020-07-26T07:53:05.075Z"
  }
}
```

**Status code: 400**

The request cannot be understood by the server or parameters are incorrect.

```
{
  "error_code": "RTC.00001003",
  "error_msg": "InvalidParameterValue"
}
```

**Status code: 404**

The application ID does not exist.

```
{
  "error_code": "RTC.00001003",
  "error_msg": "InvalidParameterValue"
}
```

**Status code: 500**

Query failed due to server error.

```
{  
  "error_code" : "RTC.00002xxx",  
  "error_msg" : "InternalError"  
}
```

## Status Codes

Status Code	Description
200	Details about an application.
400	The request cannot be understood by the server or parameters are incorrect.
404	The application ID does not exist.
500	Query failed due to server error.

## Error Codes

See [Error Codes](#).

# 9 Mixed stream recording job management

---

## 9.1 Starting a Mixed Stream Recording Job

### Function

Creates and starts a mixed stream recording job.

Both audio-only recording and audio & video recording are supported.

- Audio-only recording

If `encode_template` is set to `audio_only`, the three parties with the loudest voices are dynamically selected during audio stream mixing.

Leave `layout_template`, `layout_panes`, and other video-related parameters empty.

- Audio & video recording (including desktop sharing)

If `encode_template` is not `audio_only`, `layout_template` and `layout_panes` must not be left empty.

The three parties with the loudest voices are dynamically selected during audio stream mixing.

The name of the stream mixing recording triggered by the API is in the format of `{jobtype}_{jobid}_{roomid}`, in which the value of `jobtype` is **m**, indicating that the stream mixing recording is triggered.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

POST `/v2/apps/{app_id}/mix-stream-jobs`

**Table 9-1** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.

## Request Parameters

**Table 9-2** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

**Table 9-3** Request body parameters

Parameter	Mandatory	Type	Description
mix_param	Yes	<b>MixParam</b> object	Mixed stream parameters.
record_param	No	<b>RecordParam</b> object	Recording parameters.

**Table 9-4** MixParam

Parameter	Mandatory	Type	Description
room_id	Yes	String	Room ID.

Parameter	Mandatory	Type	Description
encode_template	Yes	String	<p>Name of the encoding template.</p> <ul style="list-style-type: none"> <li>1920*1080_30_4620: The output stream is 1080p, the frame rate is 30 FPS, and the bitrate is 4.62 Mbit/s.</li> <li>1920*1080_30_3150: The output stream is 1080p, the frame rate is 30 FPS, and the bitrate is 3.15 Mbit/s.</li> <li>1920*1080_15_3460: The output stream is 1080p, the frame rate is 15 FPS, and the bitrate is 3.46 Mbit/s.</li> <li>1920*1080_15_2080: The output stream is 1080p, the frame rate is 15 FPS, and the bitrate is 2.08 Mbit/s.</li> <li>1280*720_30_3420: The output stream is 720p, the frame rate is 30 FPS, and the bitrate is 3.42 Mbit/s.</li> <li>1280*720_30_1710: The output stream is 720p, the frame rate is 30 FPS, and the bitrate is 1.71 Mbit/s.</li> <li>1280*720_15_2260: The output stream is 720p, the frame rate is 15 FPS, and the bitrate is 2.26 Mbit/s.</li> <li>1280*720_15_1130: The output stream is 720p, the frame rate is 15 FPS, and the bitrate is 1.13 Mbit/s.</li> <li>640*480_30_1500: The output stream is 480p, the frame rate is 30 FPS, and the bitrate is 1.50 Mbit/s.</li> <li>640*480_15_500: The output stream is 480p, the frame rate is 15 FPS, and the bitrate is 500 kbit/s.</li> <li>640*480_30_1000: The output stream is 480p, the frame rate is 30 FPS, and the bitrate is 1000 kbit/s.</li> </ul>

Parameter	Mandatory	Type	Description
			<ul style="list-style-type: none"><li>• 480*360_30_490: The output stream is 360p, the frame rate is 30 FPS, and the bitrate is 490 kbit/s.</li><li>• 480*360_15_320: The output stream is 360p, the frame rate is 15 FPS, and the bitrate is 320 kbit/s.</li></ul>
max_idle_time	No	Integer	<p>Maximum duration of an idle channel.</p> <p>The value ranges from 5 to 43200. The default value is 30.</p> <p>Unit: second</p> <p>If the channel is not connected for a period longer than the value of this parameter, the recording program automatically exits. If the start request is called again after the exit, a new recording task is generated.</p> <p>The co-host refers to a joiner or publisher.</p>
layout_template	No	String	<p>Video layout template ID. If mixed video is not required, this parameter does not need to be transferred.</p> <ul style="list-style-type: none"><li>• nine_grids_view: adaptive gallery view template.</li><li>• screen_share_left: adaptive screen sharing templates with the main screen on the left</li><li>• screen_share_right: adaptive screen sharing templates with the main screen on the right</li><li>• custom: customized layout</li></ul>

Parameter	Mandatory	Type	Description
default_user_background_image	No	String	Address of the default user background image. Upload the image to OBS first. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg. By default, proportional scaling and cropping is used to ensure full display.
screen_background_image	No	String	Address of the background image of the shared screen. Upload the image to OBS first. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg.  In the one-large-multiple-small layout scenario, this parameter is used to specify the background image regardless of whether the large window displays the desktop of a non-specified user (desktop sharer) or the shared desktop of a specified user.
background_image	No	String	Address of the canvas background image. To use the background image function, you need to upload the image to OBS first. The format is s3://bucket/object, where bucket and object indicate the bucket and path where the image is located, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg. By default, proportional scaling and cropping is used to ensure full display.
layout_panes	No	Array of <a href="#">MixLayoutPane</a> objects	List of videos that require mixed streams. If mixed video is not required, this parameter does not need to be transferred.  You do not need to set this parameter for the nine_grids_view template.

Parameter	Mandatory	Type	Description
user_background_images	No	Array of <b>MixUserBackgroundImage</b> objects	Background image of a user. The priority is higher than that of default_user_background_image.

**Table 9-5** MixLayoutPanel

Parameter	Mandatory	Type	Description
id	No	Integer	Window ID, which starts from 1.
user_id	No	String	ID of the user who joins the room.
video_type	No	String	Video stream type, which can be camera stream or screen sharing stream. <ul style="list-style-type: none"> <li>● CAMERASTREAM: camera video stream</li> <li>● SCREENSTREAM: screen sharing video stream</li> </ul> The default value is CAMERASTREAM.
x	No	Float	X coordinate (normalized percentage), which is a relative value of the horizontal coordinate at the upper left corner of an image on the canvas. The value range is [0.0,1.0]. Left-to-right layout. 0.0 is at the leftmost and 1.0 is at the rightmost. The decimal value range is within float. Set this parameter in custom layout scenarios.

Parameter	Mandatory	Type	Description
y	No	Float	Y coordinate (normalized percentage), which is a relative value of the vertical coordinate at the upper left corner of an image on the canvas. The value range is [0.0,1.0]. Top-to-bottom layout. 0.0 is at the top and 1.0 is at the bottom. The decimal value range is within float. Set this parameter in custom layout scenarios.
width	No	Float	Pane width (normalized percentage). The decimal value range is within float. Set this parameter in custom layout scenarios.
height	No	Float	Pane height (normalized percentage). The decimal value range is within float. Set this parameter in custom layout scenarios.
zorder	No	Integer	Stacking sequence. A maximum of 25 floors are supported, with 0 at the bottom. Set this parameter in custom layout scenarios.
crop_mode	No	String	Tailoring mode. Set this parameter in custom layout scenarios. Two modes are supported: <ul style="list-style-type: none"> <li>KEEP_RATIO_PADDING: padding at a fixed ratio</li> <li>KEEP_RATIO_CROP: cropping at a fixed ratio</li> </ul>
filling_policy	No	String	Filling policy. This parameter is mandatory only in screen sharing templates (including screen_share_right and screen_share_left). The options are as follows: <ul style="list-style-type: none"> <li>FIXED_USER: This field is filled for fixed users.</li> <li>SHARED_SCREEN: Fill in the shared screen.</li> </ul>

**Table 9-6** MixUserBackgroundImage

Parameter	Mandatory	Type	Description
user_id	Yes	String	ID of the user for whom the background image needs to be configured.
image_uri	Yes	String	You need to set the address of the default user background image. Upload the image to OBS first. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg.

**Table 9-7** RecordParam

Parameter	Mandatory	Type	Description
record_rule_id	Yes	String	Recording rule ID.

## Response Parameters

**Status code: 201**

**Table 9-8** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 9-9** Response body parameters

Parameter	Type	Description
job_id	String	Job ID, which can be used to modify, view, and stop a mixed stream recording job.
stream_name	String	Stream name.
app_id	String	Application ID.
room_id	String	Room ID.
mix_param	<b>MixParam</b> object	Mixed stream parameters.

Parameter	Type	Description
record_param	<a href="#">RecordParam</a> object	Recording parameters.
create_time	String	Time when a job is created, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
update_time	String	Time when the layout of a job is updated, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
state	String	Job status. <ul style="list-style-type: none"> <li>• INIT: The job is being initialized.</li> <li>• RUNNING: The job is running.</li> <li>• STOPPED: The job has been stopped.</li> </ul>
stop_reason	String	Cause why a task is terminated. <ul style="list-style-type: none"> <li>• TENANT_STOP</li> <li>• EXCEED_MAX_IDLE_TIME</li> <li>• INTERNAL_ERROR</li> </ul>
description	String	Status description, which is the supplementary description of the state field and can be used for manual query.
start_time	String	Time when a job starts, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
stop_time	String	Time when a job ends, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 9-10** MixParam

Parameter	Type	Description
room_id	String	Room ID.

Parameter	Type	Description
encode_template	String	<p>Name of the encoding template.</p> <ul style="list-style-type: none"> <li>● 1920*1080_30_4620: The output stream is 1080p, the frame rate is 30 FPS, and the bitrate is 4.62 Mbit/s.</li> <li>● 1920*1080_30_3150: The output stream is 1080p, the frame rate is 30 FPS, and the bitrate is 3.15 Mbit/s.</li> <li>● 1920*1080_15_3460: The output stream is 1080p, the frame rate is 15 FPS, and the bitrate is 3.46 Mbit/s.</li> <li>● 1920*1080_15_2080: The output stream is 1080p, the frame rate is 15 FPS, and the bitrate is 2.08 Mbit/s.</li> <li>● 1280*720_30_3420: The output stream is 720p, the frame rate is 30 FPS, and the bitrate is 3.42 Mbit/s.</li> <li>● 1280*720_30_1710: The output stream is 720p, the frame rate is 30 FPS, and the bitrate is 1.71 Mbit/s.</li> <li>● 1280*720_15_2260: The output stream is 720p, the frame rate is 15 FPS, and the bitrate is 2.26 Mbit/s.</li> <li>● 1280*720_15_1130: The output stream is 720p, the frame rate is 15 FPS, and the bitrate is 1.13 Mbit/s.</li> <li>● 640*480_30_1500: The output stream is 480p, the frame rate is 30 FPS, and the bitrate is 1.50 Mbit/s.</li> <li>● 640*480_15_500: The output stream is 480p, the frame rate is 15 FPS, and the bitrate is 500 kbit/s.</li> <li>● 640*480_30_1000: The output stream is 480p, the frame rate is 30 FPS, and the bitrate is 1000 kbit/s.</li> <li>● 480*360_30_490: The output stream is 360p, the frame rate is 30 FPS, and the bitrate is 490 kbit/s.</li> <li>● 480*360_15_320: The output stream is 360p, the frame rate is 15 FPS, and the bitrate is 320 kbit/s.</li> </ul>

Parameter	Type	Description
max_idle_time	Integer	<p>Maximum duration of an idle channel. The value ranges from 5 to 43200. The default value is 30.</p> <p>Unit: second</p> <p>If the channel is not connected for a period longer than the value of this parameter, the recording program automatically exits. If the start request is called again after the exit, a new recording task is generated.</p> <p>The co-host refers to a joiner or publisher.</p>
layout_template	String	<p>Video layout template ID. If mixed video is not required, this parameter does not need to be transferred.</p> <ul style="list-style-type: none"> <li>• nine_grids_view: adaptive gallery view template.</li> <li>• screen_share_left: adaptive screen sharing templates with the main screen on the left</li> <li>• screen_share_right: adaptive screen sharing templates with the main screen on the right</li> <li>• custom: customized layout</li> </ul>
default_user_background_image	String	<p>Address of the default user background image. Upload the image to OBS first. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg. By default, proportional scaling and cropping is used to ensure full display.</p>
screen_background_image	String	<p>Address of the background image of the shared screen. Upload the image to OBS first. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg.</p> <p>In the one-large-multiple-small layout scenario, this parameter is used to specify the background image regardless of whether the large window displays the desktop of a non-specified user (desktop sharer) or the shared desktop of a specified user.</p>

Parameter	Type	Description
background_image	String	Address of the canvas background image. To use the background image function, you need to upload the image to OBS first. The format is s3://bucket/object, where bucket and object indicate the bucket and path where the image is located, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg. By default, proportional scaling and cropping is used to ensure full display.
layout_panes	Array of <b>MixLayoutPanel</b> objects	List of videos that require mixed streams. If mixed video is not required, this parameter does not need to be transferred.  You do not need to set this parameter for the nine_grids_view template.
user_background_images	Array of <b>MixUserBackgroundImage</b> objects	Background image of a user. The priority is higher than that of default_user_background_image.

**Table 9-11** MixLayoutPanel

Parameter	Type	Description
id	Integer	Window ID, which starts from 1.
user_id	String	ID of the user who joins the room.
video_type	String	Video stream type, which can be camera stream or screen sharing stream. <ul style="list-style-type: none"> <li>• CAMERASTREAM: camera video stream</li> <li>• SCREENSTREAM: screen sharing video stream</li> </ul> The default value is CAMERASTREAM.
x	Float	X coordinate (normalized percentage), which is a relative value of the horizontal coordinate at the upper left corner of an image on the canvas. The value range is [0.0,1.0]. Left-to-right layout. 0.0 is at the leftmost and 1.0 is at the rightmost. The decimal value range is within float. Set this parameter in custom layout scenarios.

Parameter	Type	Description
y	Float	Y coordinate (normalized percentage), which is a relative value of the vertical coordinate at the upper left corner of an image on the canvas. The value range is [0.0,1.0]. Top-to-bottom layout. 0.0 is at the top and 1.0 is at the bottom. The decimal value range is within float. Set this parameter in custom layout scenarios.
width	Float	Pane width (normalized percentage). The decimal value range is within float. Set this parameter in custom layout scenarios.
height	Float	Pane height (normalized percentage). The decimal value range is within float. Set this parameter in custom layout scenarios.
zorder	Integer	Stacking sequence. A maximum of 25 floors are supported, with 0 at the bottom. Set this parameter in custom layout scenarios.
crop_mode	String	Tailoring mode. Set this parameter in custom layout scenarios. Two modes are supported: <ul style="list-style-type: none"> <li>KEEP_RATIO_PADDING: padding at a fixed ratio</li> <li>KEEP_RATIO_CROP: cropping at a fixed ratio</li> </ul>
filling_policy	String	Filling policy. This parameter is mandatory only in screen sharing templates (including screen_share_right and screen_share_left). The options are as follows: <ul style="list-style-type: none"> <li>FIXED_USER: This field is filled for fixed users.</li> <li>SHARED_SCREEN: Fill in the shared screen.</li> </ul>

**Table 9-12** MixUserBackgroundImage

Parameter	Type	Description
user_id	String	ID of the user for whom the background image needs to be configured.
image_uri	String	You need to set the address of the default user background image. Upload the image to OBS first. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg.

**Table 9-13** RecordParam

Parameter	Type	Description
record_rule_id	String	Recording rule ID.

**Status code: 400****Table 9-14** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 9-15** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404****Table 9-16** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 9-17** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 9-18** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 9-19** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

- Creates a mixed stream recording task. Room ID: **room001**; output stream: 720p; frame rate: 15 fps; bitrate: 2.26 Mbit/s; video layout: 9-grid; maximum idle channel duration: 30s; recording rule ID: **5f5e172b9016ed5b0961a43**

POST [https://rtc-api.myhuaweicloud.com/v2/apps/{app\\_id}/mix-stream-jobs](https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/mix-stream-jobs)

```
{
  "mix_param" : {
    "room_id" : "room001",
    "encode_template" : "1280x720_15_2260",
    "max_idle_time" : 30,
    "layout_template" : "nine_grids_view"
  },
  "record_param" : {
    "record_rule_id" : "5f5e172b9016ed5b0961a43"
  }
}
```

- Creates a mixed stream recording task. The video layout is in the screen sharing mode. The main view is on the right and displays the shared screen.

POST [https://rtc-api.myhuaweicloud.com/v2/apps/{app\\_id}/mix-stream-jobs](https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/mix-stream-jobs)

```
{
  "mix_param" : {
    "room_id" : "room001",
    "encode_template" : "1280x720_15_2260",
    "max_idle_time" : 30,
    "layout_template" : "screen_share_right",
    "layout_panes" : [ {
      "id" : 1,

```

```
"user_id" : "",
"video_type" : "SCREENSTREAM",
"filling_policy" : "SHARED_SCREEN"
}]
},
"record_param" : {
"record_rule_id" : "5f5e172b9016ed5b0961a43"
}
}
```

- Creates a mixed stream recording task. The video layout is in the screen sharing mode. The main view is on the right and displays the camera feed.

POST [https://rtc-api.myhuaweicloud.com/v2/apps/{app\\_id}/mix-stream-jobs](https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/mix-stream-jobs)

```
{
"mix_param" : {
"room_id" : "room001",
"encode_template" : "1280x720_15_2260",
"max_idle_time" : 30,
"layout_template" : "screen_share_right",
"layout_panes" : [ {
"id" : 1,
"user_id" : "user1",
"video_type" : "CAMERASTREAM",
"filling_policy" : "FIXED_USER"
} ]
},
"record_param" : {
"record_rule_id" : "5f5e172b9016ed5b0961a43"
}
}
```

- Creates a mixed stream recording task. The video layout is in the custom mode.

POST [https://rtc-api.myhuaweicloud.com/v2/apps/{app\\_id}/mix-stream-jobs](https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/mix-stream-jobs)

```
{
"mix_param" : {
"room_id" : "room001",
"encode_template" : "1280x720_15_2260",
"max_idle_time" : 30,
"layout_template" : "custom",
"layout_panes" : [ {
"id" : 1,
"user_id" : "user1",
"video_type" : "CAMERASTREAM",
"x" : 0,
"y" : 0,
"width" : 0.666,
"height" : 0.333,
"crop_mode" : "KEEP_RATIO_CROP"
}, {
"id" : 2,
"user_id" : "user2",
"video_type" : "CAMERASTREAM",
"x" : 0.666,
"y" : 0,
"width" : 0.333,
"height" : 0.666,
"crop_mode" : "KEEP_RATIO_CROP"
} ]
},
"record_param" : {
"record_rule_id" : "5f5e172b9016ed5b0961a43"
}
}
```

## Example Responses

### Status code: 201

The job is created, and the job summary information is returned.

```
{
  "job_id": "607824b4fa163e19fe301cc817dda855",
  "stream_name": "m_607824b4fa163e19fe301cc817dda855_gigu",
  "app_id": "123456789abcdefghijklmno",
  "room_id": "gigu",
  "mix_param": {
    "room_id": "gigu",
    "encode_template": "1920x1080_30_4620",
    "max_idle_time": 0,
    "layout_template": "nine_grids_view"
  },
  "record_param": {
    "record_rule_id": "5f5e172b9016ed5b0961a43"
  },
  "create_time": "2021-04-16T16:22:44Z",
  "update_time": "2021-04-16T16:22:44Z",
  "state": "INIT",
  "start_time": "2021-04-16T16:22:44Z",
  "stop_time": "0001-01-01T00:00:00Z"
}
```

### Status code: 400

Failed to create the mixed stream recording job because the request cannot be understood by the server or parameters are incorrect.

```
{
  "error_code": "RTC.00001003",
  "error_msg": "InvalidParameterValue"
}
```

### Status code: 404

The application ID does not exist.

```
{
  "error_code": "RTC.00001003",
  "error_msg": "InvalidParameterValue"
}
```

### Status code: 500

Failed to create the mixed stream recording job due to server error.

```
{
  "error_code": "RTC.00002xxx",
  "error_msg": "InternalError"
}
```

## Status Codes

Status Code	Description
201	The job is created, and the job summary information is returned.
400	Failed to create the mixed stream recording job because the request cannot be understood by the server or parameters are incorrect.

Status Code	Description
404	The application ID does not exist.
500	Failed to create the mixed stream recording job due to server error.

## Error Codes

See [Error Codes](#).

# 9.2 Querying a Mixed Stream Recording Job

## Function

This API is used to query a mixed stream recording job.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

GET /v2/apps/{app\_id}/mix-stream-jobs/{job\_id}

**Table 9-20** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.
job_id	Yes	String	Job ID.

## Request Parameters

**Table 9-21** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

Status code: 200

Table 9-22 Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

Table 9-23 Response body parameters

Parameter	Type	Description
job_id	String	Job ID, which can be used to modify, view, and stop a mixed stream recording job.
stream_name	String	Stream name.
app_id	String	Application ID.
room_id	String	Room ID.
mix_param	<b>MixParam</b> object	Mixed stream parameters.

Parameter	Type	Description
record_param	<a href="#">RecordParam</a> object	Recording parameters.
create_time	String	Time when a job is created, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
update_time	String	Time when the layout of a job is updated, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
state	String	Job status. <ul style="list-style-type: none"> <li>INIT: The job is being initialized.</li> <li>RUNNING: The job is running.</li> <li>STOPPED: The job has been stopped.</li> </ul>
stop_reason	String	Cause why a task is terminated. <ul style="list-style-type: none"> <li>TENANT_STOP</li> <li>EXCEED_MAX_IDLE_TIME</li> <li>INTERNAL_ERROR</li> </ul>
description	String	Status description, which is the supplementary description of the state field and can be used for manual query.
start_time	String	Time when a job starts, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
stop_time	String	Time when a job ends, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 9-24** MixParam

Parameter	Type	Description
room_id	String	Room ID.

Parameter	Type	Description
encode_template	String	<p>Name of the encoding template.</p> <ul style="list-style-type: none"> <li>● 1920*1080_30_4620: The output stream is 1080p, the frame rate is 30 FPS, and the bitrate is 4.62 Mbit/s.</li> <li>● 1920*1080_30_3150: The output stream is 1080p, the frame rate is 30 FPS, and the bitrate is 3.15 Mbit/s.</li> <li>● 1920*1080_15_3460: The output stream is 1080p, the frame rate is 15 FPS, and the bitrate is 3.46 Mbit/s.</li> <li>● 1920*1080_15_2080: The output stream is 1080p, the frame rate is 15 FPS, and the bitrate is 2.08 Mbit/s.</li> <li>● 1280*720_30_3420: The output stream is 720p, the frame rate is 30 FPS, and the bitrate is 3.42 Mbit/s.</li> <li>● 1280*720_30_1710: The output stream is 720p, the frame rate is 30 FPS, and the bitrate is 1.71 Mbit/s.</li> <li>● 1280*720_15_2260: The output stream is 720p, the frame rate is 15 FPS, and the bitrate is 2.26 Mbit/s.</li> <li>● 1280*720_15_1130: The output stream is 720p, the frame rate is 15 FPS, and the bitrate is 1.13 Mbit/s.</li> <li>● 640*480_30_1500: The output stream is 480p, the frame rate is 30 FPS, and the bitrate is 1.50 Mbit/s.</li> <li>● 640*480_15_500: The output stream is 480p, the frame rate is 15 FPS, and the bitrate is 500 kbit/s.</li> <li>● 640*480_30_1000: The output stream is 480p, the frame rate is 30 FPS, and the bitrate is 1000 kbit/s.</li> <li>● 480*360_30_490: The output stream is 360p, the frame rate is 30 FPS, and the bitrate is 490 kbit/s.</li> <li>● 480*360_15_320: The output stream is 360p, the frame rate is 15 FPS, and the bitrate is 320 kbit/s.</li> </ul>

Parameter	Type	Description
max_idle_time	Integer	<p>Maximum duration of an idle channel. The value ranges from 5 to 43200. The default value is 30.</p> <p>Unit: second</p> <p>If the channel is not connected for a period longer than the value of this parameter, the recording program automatically exits. If the start request is called again after the exit, a new recording task is generated.</p> <p>The co-host refers to a joiner or publisher.</p>
layout_template	String	<p>Video layout template ID. If mixed video is not required, this parameter does not need to be transferred.</p> <ul style="list-style-type: none"> <li>• nine_grids_view: adaptive gallery view template.</li> <li>• screen_share_left: adaptive screen sharing templates with the main screen on the left</li> <li>• screen_share_right: adaptive screen sharing templates with the main screen on the right</li> <li>• custom: customized layout</li> </ul>
default_user_background_image	String	<p>Address of the default user background image. Upload the image to OBS first. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg. By default, proportional scaling and cropping is used to ensure full display.</p>
screen_background_image	String	<p>Address of the background image of the shared screen. Upload the image to OBS first. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg.</p> <p>In the one-large-multiple-small layout scenario, this parameter is used to specify the background image regardless of whether the large window displays the desktop of a non-specified user (desktop sharer) or the shared desktop of a specified user.</p>

Parameter	Type	Description
background_image	String	Address of the canvas background image. To use the background image function, you need to upload the image to OBS first. The format is s3://bucket/object, where bucket and object indicate the bucket and path where the image is located, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg. By default, proportional scaling and cropping is used to ensure full display.
layout_panes	Array of <b>MixLayoutPanel</b> objects	List of videos that require mixed streams. If mixed video is not required, this parameter does not need to be transferred.  You do not need to set this parameter for the nine_grids_view template.
user_background_images	Array of <b>MixUserBackgroundImage</b> objects	Background image of a user. The priority is higher than that of default_user_background_image.

**Table 9-25** MixLayoutPanel

Parameter	Type	Description
id	Integer	Window ID, which starts from 1.
user_id	String	ID of the user who joins the room.
video_type	String	Video stream type, which can be camera stream or screen sharing stream. <ul style="list-style-type: none"> <li>● CAMERASTREAM: camera video stream</li> <li>● SCREENSTREAM: screen sharing video stream</li> </ul> The default value is CAMERASTREAM.
x	Float	X coordinate (normalized percentage), which is a relative value of the horizontal coordinate at the upper left corner of an image on the canvas. The value range is [0.0,1.0]. Left-to-right layout. 0.0 is at the leftmost and 1.0 is at the rightmost. The decimal value range is within float. Set this parameter in custom layout scenarios.

Parameter	Type	Description
y	Float	Y coordinate (normalized percentage), which is a relative value of the vertical coordinate at the upper left corner of an image on the canvas. The value range is [0.0,1.0]. Top-to-bottom layout. 0.0 is at the top and 1.0 is at the bottom. The decimal value range is within float. Set this parameter in custom layout scenarios.
width	Float	Pane width (normalized percentage). The decimal value range is within float. Set this parameter in custom layout scenarios.
height	Float	Pane height (normalized percentage). The decimal value range is within float. Set this parameter in custom layout scenarios.
zorder	Integer	Stacking sequence. A maximum of 25 floors are supported, with 0 at the bottom. Set this parameter in custom layout scenarios.
crop_mode	String	Tailoring mode. Set this parameter in custom layout scenarios. Two modes are supported: <ul style="list-style-type: none"> <li>KEEP_RATIO_PADDING: padding at a fixed ratio</li> <li>KEEP_RATIO_CROP: cropping at a fixed ratio</li> </ul>
filling_policy	String	Filling policy. This parameter is mandatory only in screen sharing templates (including screen_share_right and screen_share_left). The options are as follows: <ul style="list-style-type: none"> <li>FIXED_USER: This field is filled for fixed users.</li> <li>SHARED_SCREEN: Fill in the shared screen.</li> </ul>

**Table 9-26** MixUserBackgroundImage

Parameter	Type	Description
user_id	String	ID of the user for whom the background image needs to be configured.
image_uri	String	You need to set the address of the default user background image. Upload the image to OBS first. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg.

**Table 9-27** RecordParam

Parameter	Type	Description
record_rule_id	String	Recording rule ID.

**Status code: 404**

**Table 9-28** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 9-29** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 9-30** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 9-31** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Queries the status of a mixed stream recording task by application ID and task ID.

```
GET https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/mix-stream-jobs/{job_id}
```

## Example Responses

### Status code: 200

The mixed stream recording job is successfully queried. The query result is as follows:

```
{
  "job_id": "607824b4fa163e19fe301cc817dda855",
  "stream_name": "m_607824b4fa163e19fe301cc817dda855_gigu",
  "app_id": "123456789abcdefghijklmno",
  "room_id": "gigu",
  "mix_param": {
    "room_id": "gigu",
    "encode_template": "1920x1080_30_4620",
    "max_idle_time": 0,
    "layout_template": "nine_grids_view"
  },
  "record_param": {
    "record_rule_id": "5f5e172b9016ed5b0961a43"
  },
  "create_time": "2021-04-16T16:22:44Z",
  "update_time": "2021-04-16T16:22:44Z",
  "state": "INIT",
  "start_time": "2021-04-16T16:22:44Z",
  "stop_time": "0001-01-01T00:00:00Z"
}
```

### Status code: 404

Failed to query the mixed stream recording job because the job ID does not exist.

```
{
  "error_code": "RTC.00001003",
  "error_msg": "InvalidParameterValue"
}
```

### Status code: 500

Failed to query the mixed stream recording job due to server error.

```
{
  "error_code": "RTC.00002xxx",
  "error_msg": "InternalError"
}
```

## Status Codes

Status Code	Description
200	The mixed stream recording job is successfully queried. The query result is as follows:
404	Failed to query the mixed stream recording job because the job ID does not exist.
500	Failed to query the mixed stream recording job due to server error.

## Error Codes

See [Error Codes](#).

# 9.3 Modifying a Mixed Stream Recording Job

## Function

This API is used to update the layout of a mixed stream recording job.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

PUT /v2/apps/{app\_id}/mix-stream-jobs/{job\_id}

**Table 9-32** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.
job_id	Yes	String	Job ID.

## Request Parameters

**Table 9-33** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

**Table 9-34** Request body parameters

Parameter	Mandatory	Type	Description
mix_param	Yes	<a href="#">UpdateMixParam</a> object	Mixed stream parameters.

**Table 9-35** UpdateMixParam

Parameter	Mandatory	Type	Description
layout_template	No	String	ID of a video layout template. Only custom templates can be updated.

Parameter	Mandatory	Type	Description
background_image	No	String	Address of the canvas background image. Upload the image to OBS first. By default, proportional scaling and cropping is used to ensure full display. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg.
default_user_background_image	No	String	Address of the default user background image. Upload the image to OBS first. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg. By default, proportional scaling and cropping is used to ensure full display.
screen_background_image	No	String	Address of the background image of the shared screen. Upload the image to OBS first. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg.  In the one-large-multiple-small layout scenario, this parameter is used to specify the background image regardless of whether the large window displays the desktop of a non-specified user (desktop sharer) or the shared desktop of a specified user.

Parameter	Mandatory	Type	Description
max_idle_time	No	Integer	<p>Maximum duration of an idle channel.</p> <p>The value ranges from 5 to 43200. The default value is 30.</p> <p>Unit: second</p> <p>If the channel is not connected for a period longer than the value of this parameter, the recording program automatically exits. If the start request is called again after the exit, a new recording task is generated.</p> <p>The co-host refers to a joiner or publisher.</p>
layout_panes	No	Array of <a href="#">MixLayoutPane</a> objects	List of videos that require mixed streams. If mixed video streams are not required, this parameter does not need to be transferred.
user_background_images	No	Array of <a href="#">MixUserBackgroundImage</a> objects	Background image of a user. The priority is higher than that of default_user_background_image.

**Table 9-36** MixLayoutPane

Parameter	Mandatory	Type	Description
id	No	Integer	Window ID, which starts from 1.
user_id	No	String	ID of the user who joins the room.
video_type	No	String	<p>Video stream type, which can be camera stream or screen sharing stream.</p> <ul style="list-style-type: none"> <li>● CAMERASTREAM: camera video stream</li> <li>● SCREENSTREAM: screen sharing video stream</li> </ul> <p>The default value is CAMERASTREAM.</p>

Parameter	Mandatory	Type	Description
x	No	Float	X coordinate (normalized percentage), which is a relative value of the horizontal coordinate at the upper left corner of an image on the canvas. The value range is [0.0,1.0]. Left-to-right layout. 0.0 is at the leftmost and 1.0 is at the rightmost. The decimal value range is within float. Set this parameter in custom layout scenarios.
y	No	Float	Y coordinate (normalized percentage), which is a relative value of the vertical coordinate at the upper left corner of an image on the canvas. The value range is [0.0,1.0]. Top-to-bottom layout. 0.0 is at the top and 1.0 is at the bottom. The decimal value range is within float. Set this parameter in custom layout scenarios.
width	No	Float	Pane width (normalized percentage). The decimal value range is within float. Set this parameter in custom layout scenarios.
height	No	Float	Pane height (normalized percentage). The decimal value range is within float. Set this parameter in custom layout scenarios.
zorder	No	Integer	Stacking sequence. A maximum of 25 floors are supported, with 0 at the bottom. Set this parameter in custom layout scenarios.

Parameter	Mandatory	Type	Description
crop_mode	No	String	Tailoring mode. Set this parameter in custom layout scenarios. Two modes are supported: <ul style="list-style-type: none"> <li>KEEP_RATIO_PADDING: padding at a fixed ratio</li> <li>KEEP_RATIO_CROP: cropping at a fixed ratio</li> </ul>
filling_policy	No	String	Filling policy. This parameter is mandatory only in screen sharing templates (including screen_share_right and screen_share_left). The options are as follows: <ul style="list-style-type: none"> <li>FIXED_USER: This field is filled for fixed users.</li> <li>SHARED_SCREEN: Fill in the shared screen.</li> </ul>

**Table 9-37** MixUserBackgroundImage

Parameter	Mandatory	Type	Description
user_id	Yes	String	ID of the user for whom the background image needs to be configured.
image_uri	Yes	String	You need to set the address of the default user background image. Upload the image to OBS first. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg.

## Response Parameters

**Status code: 200**

**Table 9-38** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 9-39** Response body parameters

Parameter	Type	Description
job_id	String	Job ID, which can be used to modify, view, and stop a mixed stream recording job.
stream_name	String	Stream name.
app_id	String	Application ID.
room_id	String	Room ID.
mix_param	<b>MixParam</b> object	Mixed stream parameters.
record_param	<b>RecordParam</b> object	Recording parameters.
create_time	String	Time when a job is created, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
update_time	String	Time when the layout of a job is updated, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
state	String	Job status. <ul style="list-style-type: none"><li>• INIT: The job is being initialized.</li><li>• RUNNING: The job is running.</li><li>• STOPPED: The job has been stopped.</li></ul>
stop_reason	String	Cause why a task is terminated. <ul style="list-style-type: none"><li>• TENANT_STOP</li><li>• EXCEED_MAX_IDLE_TIME</li><li>• INTERNAL_ERROR</li></ul>
description	String	Status description, which is the supplementary description of the state field and can be used for manual query.
start_time	String	Time when a job starts, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
stop_time	String	Time when a job ends, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 9-40** MixParam

Parameter	Type	Description
room_id	String	Room ID.

Parameter	Type	Description
encode_template	String	<p>Name of the encoding template.</p> <ul style="list-style-type: none"> <li>● 1920*1080_30_4620: The output stream is 1080p, the frame rate is 30 FPS, and the bitrate is 4.62 Mbit/s.</li> <li>● 1920*1080_30_3150: The output stream is 1080p, the frame rate is 30 FPS, and the bitrate is 3.15 Mbit/s.</li> <li>● 1920*1080_15_3460: The output stream is 1080p, the frame rate is 15 FPS, and the bitrate is 3.46 Mbit/s.</li> <li>● 1920*1080_15_2080: The output stream is 1080p, the frame rate is 15 FPS, and the bitrate is 2.08 Mbit/s.</li> <li>● 1280*720_30_3420: The output stream is 720p, the frame rate is 30 FPS, and the bitrate is 3.42 Mbit/s.</li> <li>● 1280*720_30_1710: The output stream is 720p, the frame rate is 30 FPS, and the bitrate is 1.71 Mbit/s.</li> <li>● 1280*720_15_2260: The output stream is 720p, the frame rate is 15 FPS, and the bitrate is 2.26 Mbit/s.</li> <li>● 1280*720_15_1130: The output stream is 720p, the frame rate is 15 FPS, and the bitrate is 1.13 Mbit/s.</li> <li>● 640*480_30_1500: The output stream is 480p, the frame rate is 30 FPS, and the bitrate is 1.50 Mbit/s.</li> <li>● 640*480_15_500: The output stream is 480p, the frame rate is 15 FPS, and the bitrate is 500 kbit/s.</li> <li>● 640*480_30_1000: The output stream is 480p, the frame rate is 30 FPS, and the bitrate is 1000 kbit/s.</li> <li>● 480*360_30_490: The output stream is 360p, the frame rate is 30 FPS, and the bitrate is 490 kbit/s.</li> <li>● 480*360_15_320: The output stream is 360p, the frame rate is 15 FPS, and the bitrate is 320 kbit/s.</li> </ul>

Parameter	Type	Description
max_idle_time	Integer	<p>Maximum duration of an idle channel. The value ranges from 5 to 43200. The default value is 30.</p> <p>Unit: second</p> <p>If the channel is not connected for a period longer than the value of this parameter, the recording program automatically exits. If the start request is called again after the exit, a new recording task is generated.</p> <p>The co-host refers to a joiner or publisher.</p>
layout_template	String	<p>Video layout template ID. If mixed video is not required, this parameter does not need to be transferred.</p> <ul style="list-style-type: none"> <li>• nine_grids_view: adaptive gallery view template.</li> <li>• screen_share_left: adaptive screen sharing templates with the main screen on the left</li> <li>• screen_share_right: adaptive screen sharing templates with the main screen on the right</li> <li>• custom: customized layout</li> </ul>
default_user_background_image	String	<p>Address of the default user background image. Upload the image to OBS first. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg. By default, proportional scaling and cropping is used to ensure full display.</p>
screen_background_image	String	<p>Address of the background image of the shared screen. Upload the image to OBS first. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg.</p> <p>In the one-large-multiple-small layout scenario, this parameter is used to specify the background image regardless of whether the large window displays the desktop of a non-specified user (desktop sharer) or the shared desktop of a specified user.</p>

Parameter	Type	Description
background_image	String	Address of the canvas background image. To use the background image function, you need to upload the image to OBS first. The format is s3://bucket/object, where bucket and object indicate the bucket and path where the image is located, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg. By default, proportional scaling and cropping is used to ensure full display.
layout_panes	Array of <b>MixLayoutPanel</b> objects	List of videos that require mixed streams. If mixed video is not required, this parameter does not need to be transferred.  You do not need to set this parameter for the nine_grids_view template.
user_background_images	Array of <b>MixUserBackgroundImage</b> objects	Background image of a user. The priority is higher than that of default_user_background_image.

**Table 9-41** MixLayoutPanel

Parameter	Type	Description
id	Integer	Window ID, which starts from 1.
user_id	String	ID of the user who joins the room.
video_type	String	Video stream type, which can be camera stream or screen sharing stream. <ul style="list-style-type: none"> <li>• CAMERASTREAM: camera video stream</li> <li>• SCREENSTREAM: screen sharing video stream</li> </ul> The default value is CAMERASTREAM.
x	Float	X coordinate (normalized percentage), which is a relative value of the horizontal coordinate at the upper left corner of an image on the canvas. The value range is [0.0,1.0]. Left-to-right layout. 0.0 is at the leftmost and 1.0 is at the rightmost. The decimal value range is within float. Set this parameter in custom layout scenarios.

Parameter	Type	Description
y	Float	Y coordinate (normalized percentage), which is a relative value of the vertical coordinate at the upper left corner of an image on the canvas. The value range is [0.0,1.0]. Top-to-bottom layout. 0.0 is at the top and 1.0 is at the bottom. The decimal value range is within float. Set this parameter in custom layout scenarios.
width	Float	Pane width (normalized percentage). The decimal value range is within float. Set this parameter in custom layout scenarios.
height	Float	Pane height (normalized percentage). The decimal value range is within float. Set this parameter in custom layout scenarios.
zorder	Integer	Stacking sequence. A maximum of 25 floors are supported, with 0 at the bottom. Set this parameter in custom layout scenarios.
crop_mode	String	Tailoring mode. Set this parameter in custom layout scenarios. Two modes are supported: <ul style="list-style-type: none"> <li>KEEP_RATIO_PADDING: padding at a fixed ratio</li> <li>KEEP_RATIO_CROP: cropping at a fixed ratio</li> </ul>
filling_policy	String	Filling policy. This parameter is mandatory only in screen sharing templates (including screen_share_right and screen_share_left). The options are as follows: <ul style="list-style-type: none"> <li>FIXED_USER: This field is filled for fixed users.</li> <li>SHARED_SCREEN: Fill in the shared screen.</li> </ul>

**Table 9-42** MixUserBackgroundImage

Parameter	Type	Description
user_id	String	ID of the user for whom the background image needs to be configured.
image_uri	String	You need to set the address of the default user background image. Upload the image to OBS first. The format is s3://bucket/object, for example, s3://rtc-bucket-cn-north-4/img/testImg.jpg.

**Table 9-43** RecordParam

Parameter	Type	Description
record_rule_id	String	Recording rule ID.

**Status code: 400**

**Table 9-44** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 9-45** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404**

**Table 9-46** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 9-47** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 9-48** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 9-49** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Modifies a mixed stream recording task by application ID and task ID. After the modification, the layout is displayed in nine-grid mode.

PUT [https://rtc-api.myhuaweicloud.com/v2/apps/{app\\_id}/mix-stream-jobs/{job\\_id}](https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/mix-stream-jobs/{job_id})

```
{
  "mix_param": {
    "layout_template": "nine_grids_view"
  }
}
```

## Example Responses

**Status code: 200**

Modified successfully.

```
{
  "job_id": "607824b4fa163e19fe301cc817dda855",
  "stream_name": "m_607824b4fa163e19fe301cc817dda855_gigu",
  "app_id": "123456789abcdefghijklmno",
  "room_id": "gigu",
  "mix_param": {
    "room_id": "gigu",
    "encode_template": "1920x1080_30_4620",
    "max_idle_time": 0,
    "layout_template": "nine_grids_view"
  },
  "record_param": {
```

```

    "record_rule_id" : "5f5e172b9016ed5b0961a43"
  },
  "create_time" : "2021-04-16T16:22:44Z",
  "update_time" : "2021-04-16T16:22:44Z",
  "state" : "INIT",
  "start_time" : "2021-04-16T16:22:44Z",
  "stop_time" : "0001-01-01T00:00:00Z"
}

```

**Status code: 400**

Modification failed because the request cannot be understood by the server or parameters are incorrect.

```

{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}

```

**Status code: 404**

Modification failed because the application does not exist.

```

{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}

```

**Status code: 500**

Modification failed due to server error.

```

{
  "error_code" : "RTC.00002xxx",
  "error_msg" : "InternalError"
}

```

## Status Codes

Status Code	Description
200	Modified successfully.
400	Modification failed because the request cannot be understood by the server or parameters are incorrect.
404	Modification failed because the application does not exist.
500	Modification failed due to server error.

## Error Codes

See [Error Codes](#).

## 9.4 Stopping a Mixed Stream Recording Job

### Function

This API is used to stop a delivered mixed stream recording job.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

DELETE /v2/apps/{app\_id}/mix-stream-jobs/{job\_id}

**Table 9-50** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.
job_id	Yes	String	Job ID.

## Request Parameters

**Table 9-51** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 204**

**Table 9-52** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Status code: 404**

**Table 9-53** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 9-54** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 9-55** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 9-56** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Stops a mixed stream recording task by application ID and task ID.

```
DELETE https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/mix-stream-jobs/{job_id}
```

## Example Responses

### Status code: 404

Failed to stop the mixed stream recording job because the job ID does not exist.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

### Status code: 500

Failed to stop the mixed stream recording job due to server error.

```
{
  "error_code" : "RTC.00002xxx",
  "error_msg" : "InternalError"
}
```

## Status Codes

Status Code	Description
204	The mixed stream recording job is stopped.
404	Failed to stop the mixed stream recording job because the job ID does not exist.
500	Failed to stop the mixed stream recording job due to server error.

## Error Codes

See [Error Codes](#).

# 10 Single stream recording job management

---

## 10.1 Starting a Single Stream Recording Job

### Function

Starts a single stream recording job.

The naming rule of single-stream recording triggered by the API is as follows:  
{jobtype}\_{jobid}\_{roomid}\_{userid}

If the value of jobtype is **s**, the job is a single stream recording job.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

POST /v2/apps/{app\_id}/individual-stream-jobs

**Table 10-1** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.

## Request Parameters

**Table 10-2** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

**Table 10-3** Request body parameters

Parameter	Mandatory	Type	Description
room_id	Yes	String	Room ID.
user_id	Yes	String	ID of the user who is selected. The ID must be unique in a single recording job.
is_record_audio	No	Boolean	Whether to record audios. <ul style="list-style-type: none"> <li>• true: Audios are recorded.</li> <li>• false: Audios are not recorded.</li> </ul> The default value is true.

Parameter	Mandatory	Type	Description
video_type	No	String	<p>Video stream type. The options are camera stream and screen sharing stream. If this parameter is not specified, the video is not recorded.</p> <ul style="list-style-type: none"> <li>● CAMERASTREAM: camera video stream</li> <li>● SCREENSTREAM: screen sharing video stream</li> </ul> <p>The default value is CAMERASTREAM.</p>
select_stream_type	No	String	<p>Resolution level for pulling a window.</p> <ul style="list-style-type: none"> <li>● LD</li> <li>● SD</li> <li>● HD</li> <li>● FHD</li> </ul> <p>The default value is FHD.</p>
max_idle_time	No	Integer	<p>Maximum duration of an idle channel.</p> <p>The value ranges from 5 to 43200. The default value is 30.</p> <p>Unit: second</p> <p>If the channel is not connected for a period longer than the value of this parameter, the recording program automatically exits. If the start request is called again after the exit, a new recording task is generated.</p> <p>The co-host refers to a joiner or publisher.</p>
record_param	No	<b>RecordParam</b> object	Recording parameters.

**Table 10-4** RecordParam

Parameter	Mandatory	Type	Description
record_rule_id	Yes	String	Recording rule ID.

## Response Parameters

**Status code: 201**

**Table 10-5** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 10-6** Response body parameters

Parameter	Type	Description
job_id	String	Job ID.
stream_name	String	Stream name.
app_id	String	Application ID.
room_id	String	Room ID.
user_id	String	ID of the user who is selected. The ID must be unique in a single recording job.
is_record_audio	Boolean	Whether to record audios. <ul style="list-style-type: none"> <li>true: Audios are recorded.</li> <li>false: Audios are not recorded.</li> </ul> The default value is true.
video_type	String	Video stream type. The options are camera stream and screen sharing stream. If this parameter is not specified, the video is not recorded. <ul style="list-style-type: none"> <li>CAMERASTREAM: camera video stream</li> <li>SCREENSTREAM: screen sharing video stream</li> </ul> The default value is CAMERASTREAM.
select_stream_type	String	Resolution level for pulling a window. <ul style="list-style-type: none"> <li>LD</li> <li>SD</li> <li>HD</li> <li>FHD</li> </ul> The default value is FHD.

Parameter	Type	Description
max_idle_time	Integer	Maximum duration of an idle channel. The value ranges from 5 to 43200. The default value is 30. Unit: second If the channel is not connected for a period longer than the value of this parameter, the recording program automatically exits. If the start request is called again after the exit, a new recording task is generated. The co-host refers to a joiner or publisher.
record_param	<b>RecordParam</b> object	Recording parameters.
create_time	String	Creation time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
state	String	Job status. <ul style="list-style-type: none"><li>• INIT: The job is being initialized.</li><li>• RUNNING: The job is running.</li><li>• STOPPED: The job has been stopped.</li></ul>
stop_reason	String	Cause why a task is terminated. <ul style="list-style-type: none"><li>• TENANT_STOP</li><li>• EXCEED_MAX_IDLE_TIME</li><li>• INTERNAL_ERROR</li></ul>
description	String	Detailed description of the job status.
start_time	String	Time when a job starts, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
stop_time	String	Time when a job ends, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 10-7** RecordParam

Parameter	Type	Description
record_rule_id	String	Recording rule ID.

**Status code: 400**

**Table 10-8** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 10-9** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404**

**Table 10-10** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 10-11** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 10-12** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 10-13** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Creates a single stream recording task. Room ID: 100; recording user: user001; audio recording enabled; video stream type: camera video stream; resolution for window pulling: FHD; maximum idle channel duration: 30 seconds; recording rule ID: 5f5e172b9016ed5b0961a43

```
POST https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/individual-stream-jobs
```

```
{
  "room_id": 100,
  "user_id": "user001",
  "is_record_audio": true,
  "video_type": "CAMERASTREAM",
  "select_stream_type": "FHD",
  "max_idle_time": 30,
  "record_param": {
    "record_rule_id": "5f5e172b9016ed5b0961a43"
  }
}
```

## Example Responses

### Status code: 201

The job is created, and the job summary information is returned, including job\_id.

```
{
  "job_id": 1,
  "app_id": 1,
  "room_id": 100,
  "user_id": "user001",
  "is_record_audio": true,
  "video_type": "CAMERASTREAM",
  "select_stream_type": "FHD",
  "max_idle_time": 30,
  "record_param": {
    "record_rule_id": "5f5e172b9016ed5b0961a43"
  },
  "create_time": "2006-01-02T15:04:05.075Z",
  "start_time": "2006-01-02T15:04:05.075Z"
}
```

### Status code: 400

Failed to create the single stream recording job because the request cannot be understood by the server or parameters are incorrect.

```
{
  "error_code": "RTC.00001003",
  "error_msg": "InvalidParameterValue"
}
```

### Status code: 404

Failed to create the single stream recording job because the application does not exist.

```
{
  "error_code": "RTC.00001003",
  "error_msg": "InvalidParameterValue"
}
```

**Status code: 500**

Failed to create the single stream recording job due to server error.

```
{
  "error_code": "RTC.00002xxx",
  "error_msg": "InternalServerError"
}
```

## Status Codes

Status Code	Description
201	The job is created, and the job summary information is returned, including job_id.
400	Failed to create the single stream recording job because the request cannot be understood by the server or parameters are incorrect.
404	Failed to create the single stream recording job because the application does not exist.
500	Failed to create the single stream recording job due to server error.

## Error Codes

See [Error Codes](#).

# 10.2 Querying a Single Stream Recording Job

## Function

This API is used to query a single stream recording job.

Information in the OBS bucket of a tenant cannot be queried.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

GET /v2/apps/{app\_id}/individual-stream-jobs/{job\_id}

**Table 10-14** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.
job_id	Yes	String	Job ID.

## Request Parameters

**Table 10-15** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 200**

**Table 10-16** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 10-17** Response body parameters

Parameter	Type	Description
job_id	String	Job ID.
stream_name	String	Stream name.
app_id	String	Application ID.
room_id	String	Room ID.
user_id	String	ID of the user who is selected. The ID must be unique in a single recording job.
is_record_audio	Boolean	Whether to record audios. <ul style="list-style-type: none"> <li>• true: Audios are recorded.</li> <li>• false: Audios are not recorded.</li> </ul> The default value is true.
video_type	String	Video stream type. The options are camera stream and screen sharing stream. If this parameter is not specified, the video is not recorded. <ul style="list-style-type: none"> <li>• CAMERASTREAM: camera video stream</li> <li>• SCREENSTREAM: screen sharing video stream</li> </ul> The default value is CAMERASTREAM.
select_stream_type	String	Resolution level for pulling a window. <ul style="list-style-type: none"> <li>• LD</li> <li>• SD</li> <li>• HD</li> <li>• FHD</li> </ul> The default value is FHD.
max_idle_time	Integer	Maximum duration of an idle channel. The value ranges from 5 to 43200. The default value is 30. Unit: second If the channel is not connected for a period longer than the value of this parameter, the recording program automatically exits. If the start request is called again after the exit, a new recording task is generated. The co-host refers to a joiner or publisher.

Parameter	Type	Description
record_param	<a href="#">RecordParam</a> object	Recording parameters.
create_time	String	Creation time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
state	String	Job status. <ul style="list-style-type: none"> <li>INIT: The job is being initialized.</li> <li>RUNNING: The job is running.</li> <li>STOPPED: The job has been stopped.</li> </ul>
stop_reason	String	Cause why a task is terminated. <ul style="list-style-type: none"> <li>TENANT_STOP</li> <li>EXCEED_MAX_IDLE_TIME</li> <li>INTERNAL_ERROR</li> </ul>
description	String	Detailed description of the job status.
start_time	String	Time when a job starts, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
stop_time	String	Time when a job ends, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 10-18** RecordParam

Parameter	Type	Description
record_rule_id	String	Recording rule ID.

**Status code: 404**

**Table 10-19** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 10-20** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 10-21** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 10-22** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Queries the status of a single stream task by application ID and task ID.

GET [https://rtc-api.myhuaweicloud.com/v2/apps/{app\\_id}/individual-stream-jobs/{job\\_id}](https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/individual-stream-jobs/{job_id})

## Example Responses

**Status code: 200**

The query is successful, and the query result details are returned.

```
{
  "job_id" : 1,
  "app_id" : 1,
  "room_id" : 100,
  "user_id" : "user001",
  "is_record_audio" : true,
  "video_type" : "CAMERASTREAM",
  "select_stream_type" : "FHD",
  "max_idle_time" : 30,
  "record_param" : {
    "record_rule_id" : "5f5e172b9016ed5b0961a43"
  },
  "create_time" : "2006-01-02T15:04:05.075Z",
  "start_time" : "2006-01-02T15:04:05.075Z"
}
```

**Status code: 404**

Query failed because the application or job ID does not exist.

```
{
  "error_code": "RTC.00001003",
  "error_msg": "InvalidParameterValue"
}
```

**Status code: 500**

Query failed due to server error.

```
{
  "error_code": "RTC.00002xxx",
  "error_msg": "InternalError"
}
```

### Status Codes

Status Code	Description
200	The query is successful, and the query result details are returned.
404	Query failed because the application or job ID does not exist.
500	Query failed due to server error.

### Error Codes

See [Error Codes](#).

## 10.3 Stopping a Single Stream Recording Job

### Function

This API is used to stop a single stream recording job.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

DELETE /v2/apps/{app\_id}/individual-stream-jobs/{job\_id}

**Table 10-23** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID.
job_id	Yes	String	Job ID.

## Request Parameters

**Table 10-24** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. Value: <b>application/json</b>
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used for obtaining a user token. The value of X-Subject-Token in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 204**

**Table 10-25** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Status code: 404**

**Table 10-26** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 10-27** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 10-28** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 10-29** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Stops a single stream task by application ID and task ID.

```
DELETE https://rtc-api.myhuaweicloud.com/v2/apps/{app_id}/individual-stream-jobs/{job_id}
{
  "record_param": {
    "record_rule_id": "5f5e172b9016ed5b0961a43"
  }
}
```

## Example Responses

**Status code: 404**

Failed to stop the job because the application or job ID does not exist.

```
{
  "error_code": "RTC.00001003",
  "error_msg": "InvalidParameterValue"
}
```

**Status code: 500**

Failed to stop the job due to server error.

```
{
  "error_code": "RTC.00002xxx",
  "error_msg": "InternalServerError"
}
```

## Status Codes

Status Code	Description
204	The job is stopped.
404	Failed to stop the job because the application or job ID does not exist.
500	Failed to stop the job due to server error.

## Error Codes

See [Error Codes](#).

# 10.4 Updates a single stream recording job

## Function

Modifies a single stream recording job.

The job can be modified only in some scenarios.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

PUT /v2/apps/{app\_id}/individual-stream-jobs/{job\_id}

**Table 10-30** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID
job_id	Yes	String	Task ID

## Request Parameters

**Table 10-31** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. The value is application/json.
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API used to obtain a user token. The value of X-Subject-Token in the response header is a token.
Authorization	No	String	Authentication information. This parameter is mandatory for AK/SK authentication.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory for AK/SK authentication.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

**Table 10-32** Request body parameters

Parameter	Mandatory	Type	Description
record_param	No	<a href="#">RecordParam</a> object	Recording parameters.

**Table 10-33** RecordParam

Parameter	Mandatory	Type	Description
record_rule_id	Yes	String	Recording rule ID.

## Response Parameters

Status code: 200

**Table 10-34** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 10-35** Response body parameters

Parameter	Type	Description
job_id	String	Job ID.
stream_name	String	Stream name.
app_id	String	Application ID.
room_id	String	Room ID.
user_id	String	ID of the user who is selected. The ID must be unique in a single recording job.
is_record_audio	Boolean	Whether to record audios. <ul style="list-style-type: none"><li>• true: Audios are recorded.</li><li>• false: Audios are not recorded.</li></ul> The default value is true.
video_type	String	Video stream type. The options are camera stream and screen sharing stream. If this parameter is not specified, the video is not recorded. <ul style="list-style-type: none"><li>• CAMERASTREAM: camera video stream</li><li>• SCREENSTREAM: screen sharing video stream</li></ul> The default value is CAMERASTREAM.
select_stream_type	String	Resolution level for pulling a window. <ul style="list-style-type: none"><li>• LD</li><li>• SD</li><li>• HD</li><li>• FHD</li></ul> The default value is FHD.

Parameter	Type	Description
max_idle_time	Integer	<p>Maximum duration of an idle channel. The value ranges from 5 to 43200. The default value is 30.</p> <p>Unit: second</p> <p>If the channel is not connected for a period longer than the value of this parameter, the recording program automatically exits. If the start request is called again after the exit, a new recording task is generated.</p> <p>The co-host refers to a joiner or publisher.</p>
record_param	<b>RecordParam</b> object	Recording parameters.
create_time	String	Creation time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
update_time	String	Update time, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
state	String	<p>Job status.</p> <ul style="list-style-type: none"> <li>INIT: The job is being initialized.</li> <li>RUNNING: The job is running.</li> <li>STOPPED: The job has been stopped.</li> </ul>
stop_reason	String	<p>Cause why a task is terminated.</p> <ul style="list-style-type: none"> <li>TENANT_STOP</li> <li>EXCEED_MAX_IDLE_TIME</li> <li>INTERNAL_ERROR</li> </ul>
description	String	Detailed description of the job status.
start_time	String	Time when a job starts, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.
stop_time	String	Time when a job ends, for example, 2006-01-02T15:04:05.075Z. The time zone is UTC.

**Table 10-36** RecordParam

Parameter	Type	Description
record_rule_id	String	Recording rule ID.

**Status code: 400****Table 10-37** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 10-38** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404****Table 10-39** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 10-40** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500****Table 10-41** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 10-42** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Updating a Single Stream Recording Task by Application ID and Task ID

```
PUT https://{endpoint}/v2/apps/{app_id}/individual-stream-jobs/{job_id}
```

## Example Responses

### Status code: 200

The job is modified, and the job summary information is returned, including job\_id.

```
{
  "job_id" : 1,
  "app_id" : 1,
  "room_id" : 100,
  "user_id" : "user001",
  "is_record_audio" : true,
  "video_type" : "CAMERASTREAM",
  "select_stream_type" : "FHD",
  "max_idle_time" : 30,
  "record_param" : {
    "record_rule_id" : "5f5e172b9016ed5b0961a43"
  },
  "create_time" : "2006-01-02T15:04:05.075Z",
  "start_time" : "2006-01-02T15:04:05.075Z"
}
```

### Status code: 400

Failed to modify the single stream recording job because the request cannot be understood by the server or parameters are incorrect.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

### Status code: 404

Failed to modify the single stream recording job because the application or job ID does not exist.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

### Status code: 500

Failed to modify the single stream recording job due to server error.

```
{
  "error_code" : "RTC.00002xxx",
}
```

```
"error_msg" : "InternalError"  
}
```

## Status Codes

Status Code	Description
200	The job is modified, and the job summary information is returned, including job_id.
400	Failed to modify the single stream recording job because the request cannot be understood by the server or parameters are incorrect.
404	Failed to modify the single stream recording job because the application or job ID does not exist.
500	Failed to modify the single stream recording job due to server error.

## Error Codes

See [Error Codes](#).

# 11 Room management

## 11.1 Removes an online user.

### Function

Forces a user to leave a room.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

POST /v2/apps/{app\_id}/rooms/{room\_id}/batch-remove-users

**Table 11-1** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID
room_id	Yes	String	Room ID

### Request Parameters

**Table 11-2** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. The value is application/json.

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. The token can be obtained by calling the IAM API used to obtain a user token. The value of <b>X-Subject-Token</b> in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory for AK/SK authentication.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory for AK/SK authentication.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

**Table 11-3** Request body parameters

Parameter	Mandatory	Type	Description
user_ids	Yes	Array of strings	User ID list.

## Response Parameters

**Status code: 202**

**Table 11-4** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Status code: 400**

**Table 11-5** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 11-6** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 11-7** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 11-8** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Remove users user001 and user002 in a specified room.

```
POST https://{endpoint}/v2/apps/{app_id}/rooms/{room_id}/batch-remove-users
{
  "user_ids" : [ "user001", "user002" ]
}
```

## Example Responses

**Status code: 400**

The request cannot be understood by the server or parameters are incorrect.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

**Status code: 500**

Request failed due to server error.

```
{
  "error_code" : "RTC.00002xxx",
  "error_msg" : "InternalError"
}
```

## Status Codes

Status Code	Description
202	The request for kicking out a participant has been delivered.
400	The request cannot be understood by the server or parameters are incorrect.
500	Request failed due to server error.

## Error Codes

See [Error Codes](#).

# 11.2 Dismisses a room.

## Function

Dismisses a room and removes all users from the room.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

POST /v2/apps/{app\_id}/rooms/{room\_id}/dismiss

**Table 11-9** Path Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Application ID
room_id	Yes	String	Room ID.

## Request Parameters

**Table 11-10** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Content type. The value is application/json.

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. The token can be obtained by calling the IAM API used to obtain a user token. The value of <b>X-Subject-Token</b> in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory for AK/SK authentication.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory for AK/SK authentication.
X-Project-Id	No	String	Project ID. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 202**

**Table 11-11** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Status code: 400**

**Table 11-12** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 11-13** Response body parameters

Parameter	Type	Description
error_code	String	Error code.

Parameter	Type	Description
error_msg	String	Description.

**Status code: 404****Table 11-14** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 11-15** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500****Table 11-16** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 11-17** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

Dismiss a specified room.

```
POST https://{endpoint}/v2/apps/{app_id}/rooms/{room_id}/dismiss
```

## Example Responses

**Status code: 400**

The request cannot be understood by the server or parameters are incorrect.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

**Status code: 404**

The corresponding room cannot be found.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

**Status code: 500**

Request failed due to server error.

```
{
  "error_code" : "RTC.00002xxx",
  "error_msg" : "InternalError"
}
```

## Status Codes

Status Code	Description
202	The room dismissal request has been delivered.
400	The request cannot be understood by the server or parameters are incorrect.
404	The corresponding room cannot be found.
500	Request failed due to server error.

## Error Codes

See [Error Codes](#).

# 12 OBS Bucket Management

---

## 12.1 Listing OBS Buckets

### Function

This API is used to list OBS buckets.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

GET /v2/rtc-ops/buckets

### Request Parameters

Table 12-1 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. It can be obtained by calling the IAM API that is used to obtain a user token. The value of <b>X-Subject-Token</b> in the response header is the user token.

### Response Parameters

Status code: 200

**Table 12-2** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 12-3** Response body parameters

Parameter	Type	Description
count	Integer	Total number of buckets.
buckets	Array of <a href="#">ObsBucket</a> objects	Bucket information.

**Table 12-4** ObsBucket

Parameter	Type	Description
bucket	String	OBS bucket name.
location	String	Region where the OBS bucket resides.
creation_date	String	Creation time, for example, 2020/07/16 15:11:55 GMT+08:00.
is_authorized	Boolean	Authentication.

**Status code: 400**

**Table 12-5** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 12-6** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 401**

**Table 12-7** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 12-8** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 12-9** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 12-10** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

None

## Example Responses

**Status code: 200**

OBS buckets listed.

```
{
  "count" : 1,
  "buckets" : [ {
    "bucket" : "rtctest"
  }, {
    "location" : "cn-north-4"
  }, {
    "creation_date" : "20230808112928"
  }, {
    "is_authorized" : true
  }
]
```

```
  }]  
}
```

**Status code: 400**

Failed to list OBS buckets.

```
{  
  "error_code" : "RTC.00001003",  
  "error_msg" : "InvalidParameterValue"  
}
```

**Status code: 401**

Failed to list OBS buckets due to an incorrect X-Auth-Token.

```
{  
  "error_code" : "RTC.00001003",  
  "error_msg" : "InvalidParameterValue"  
}
```

**Status code: 500**

Query failed due to a server error.

```
{  
  "error_code" : "RTC.00002xxx",  
  "error_msg" : "InternalError"  
}
```

## Status Codes

Status Code	Description
200	OBS buckets listed.
400	Failed to list OBS buckets.
401	Failed to list OBS buckets due to an incorrect X-Auth-Token.
500	Query failed due to a server error.

## Error Codes

See [Error Codes](#).

# 12.2 Listing Objects in an OBS Bucket

## Function

This API is used to list objects in an OBS bucket.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

GET /v2/rtc-ops/buckets/objects

**Table 12-11** Query Parameters

Parameter	Mandatory	Type	Description
bucket	Yes	String	Name of the bucket to be queried.
prefix	No	String	Object name prefix, which can be regarded as a folder path.
type	Yes	String	Query type. Options: <b>folders</b> : queries directories. <b>objects</b> : queries objects.
location	Yes	String	Region where the bucket is located: <ul style="list-style-type: none"> <li>• cn-north-4</li> <li>• cn-north-1</li> <li>• cn-north-5</li> <li>• cn-north-6</li> <li>• cn-south-1</li> <li>• cn-east-2</li> </ul>

## Request Parameters

**Table 12-12** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. It can be obtained by calling the IAM API that is used to obtain a user token. The value of <b>X-Subject-Token</b> in the response header is the user token.

## Response Parameters

Status code: 200

**Table 12-13** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 12-14** Response body parameters

Parameter	Type	Description
count	Integer	Total number of objects.
objects	Array of <a href="#">ObsObject</a> objects	OBS files.

**Table 12-15** ObsObject

Parameter	Type	Description
file_name	String	Object name.
size	Integer	File size, in unit of KB.
last_modified	String	Last modification time, for example, 2020/07/16 15:11:55 GMT+08:00.

**Status code: 401****Table 12-16** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 12-17** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 404**

**Table 12-18** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 12-19** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 12-20** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 12-21** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

## Example Requests

None

## Example Responses

**Status code: 200**

Objects in an OBS bucket listed.

```
{
  "count" : 1,
  "objects" : [ {
    "file_name" : "test file"
  }, {
    "size" : 7254700
  }, {
    "last_modified" : "20230815085859"
  } ]
}
```

**Status code: 401**

Request failed due to an incorrect X-Auth-Token.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

**Status code: 404**

Query failed. Task ID not found.

```
{
  "error_code" : "RTC.00001003",
  "error_msg" : "InvalidParameterValue"
}
```

**Status code: 500**

Query failed due to a server error.

```
{
  "error_code" : "RTC.00002xxx",
  "error_msg" : "InternalError"
}
```

## Status Codes

Status Code	Description
200	Objects in an OBS bucket listed.
401	Request failed due to an incorrect X-Auth-Token.
404	Query failed. Task ID not found.
500	Query failed due to a server error.

## Error Codes

See [Error Codes](#).

# 12.3 Granting or Canceling OBS Bucket Authorization

## Function

This API is used to grant or cancel OBS bucket authorization.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

PUT /v2/rtc-ops/buckets/authentication

## Request Parameters

**Table 12-22** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. It can be obtained by calling the IAM API that is used to obtain a user token. The value of <b>X-Subject-Token</b> in the response header is the user token.

**Table 12-23** Request body parameters

Parameter	Mandatory	Type	Description
bucket	Yes	String	OBS bucket name.
operation	Yes	Integer	Operation. The options are as follows: 1: authorize; 0: cancel authorization.
location	Yes	String	Region where a bucket resides. <ul style="list-style-type: none"> <li>• cn-north-4</li> <li>• cn-north-1</li> <li>• cn-north-5</li> <li>• cn-north-6</li> <li>• cn-south-1</li> <li>• cn-east-2</li> </ul>
project_id	No	String	HUAWEI CLOUD project ID of the tenant.

## Response Parameters

Status code: 200

**Table 12-24** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Status code: 400**

**Table 12-25** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 12-26** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 401**

**Table 12-27** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 12-28** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Description.

**Status code: 500**

**Table 12-29** Response header parameters

Parameter	Type	Description
X-request-Id	String	Request ID for task tracing.

**Table 12-30** Response body parameters

Parameter	Type	Description
error_code	String	Error code.

Parameter	Type	Description
error_msg	String	Description.

## Example Requests

Grants permissions for bucket **bucket001** in the **cn-north-4** region.

POST https://rtc-api.myhuaweicloud.com/rtc-ops/buckets/authentication

```
{
  "bucket": "bucket001",
  "operation": 1,
  "location": "cn-north-4"
}
```

## Example Responses

### Status code: 400

Operation failed.

```
{
  "error_code": "RTC.00001003",
  "error_msg": "InvalidParameterValue"
}
```

### Status code: 401

Request failed due to an incorrect X-Auth-Token.

```
{
  "error_code": "RTC.00001003",
  "error_msg": "InvalidParameterValue"
}
```

### Status code: 500

Query failed due to a server error.

```
{
  "error_code": "RTC.00002xxx",
  "error_msg": "InternalError"
}
```

## Status Codes

Status Code	Description
200	Operation succeeded.
400	Operation failed.
401	Request failed due to an incorrect X-Auth-Token.
500	Query failed due to a server error.

## Error Codes

See [Error Codes](#).

# 13 Statistical Analysis

## 13.1 Listing Rooms

### Function

This API is used to list rooms created in a specified period.

The maximum query time span is 90 days.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

GET /v1/{project\_id}/rtc/rooms

**Table 13-1** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .

**Table 13-2** Query Parameters

Parameter	Mandatory	Type	Description
app	Yes	String	Application identifier.
room_id	No	String	Room ID.

Parameter	Mandatory	Type	Description
state	No	String	Room status. The options are as follows: <ul style="list-style-type: none"> <li>● RUNNING: The room is in use.</li> <li>● CLOSED: The room is closed.</li> </ul>
start_time	No	String	Time when the query starts. UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T06:00:00Z. If this parameter is not specified, data of the last hour is read by default.
end_time	No	String	Time when the query ends. UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T07:00:00Z. If this parameter is not specified, the current time is used by default.
limit	No	Integer	Total number of records in the query result.
offset	No	Integer	Query offset.

## Request Parameters

**Table 13-3** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used.  It can be obtained by calling the IAM API that is used to obtain a user token. The value of <b>X-Subject-Token</b> in the response header is the user token.

Parameter	Mandatory	Type	Description
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID, which is the same as that used in the URI. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

Status code: 200

Table 13-4 Response header parameters

Parameter	Type	Description
X-Request-Id	String	Unique ID of the request.

Table 13-5 Response body parameters

Parameter	Type	Description
total	Integer	Total number of records.
limit	Integer	Number of records in the query result.
offset	Integer	Query offset.
room_info_list	Array of <a href="#">RtcServerRoomInfo</a> objects	Room list.

Table 13-6 RtcServerRoomInfo

Parameter	Type	Description
domain	String	Domain name.
app	String	Application identifier.

Parameter	Type	Description
room_id	String	Room ID.
state	String	Room status. The options are as follows: <ul style="list-style-type: none"> <li>RUNNING: The room is in use.</li> <li>CLOSED: The room is closed.</li> </ul>
duration	Integer	Room duration, in seconds.
start_time	String	Start time of the room, that is, the time when the first user joins the room. The value is UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T07:00:00Z.
end_time	String	End time of the room, that is, the time when the last user leaves the room. The value is UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T07:00:00Z. If the room is not closed, a hyphen (-) is returned.

**Status code: 400**

**Table 13-7** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error message.

## Example Requests

```
GET /v1/{project_id}/rtc/rooms?app=5fa682b34a974f7ad24d223b
```

## Example Responses

**Status code: 200**

This status code is returned if the request succeeds.

```
{
  "total": 1,
  "room_info_list": [ {
    "domain": "603f71bdfa163e500aff1106c8xxxxxx.sparkrtc.myhuaweicloud.com",
    "app": "603f71bdfa163e500aff1106c8xxxxxx",
    "room_id": "ac146d0f2779916191716070xxxxxx",
    "state": "RUNNING",
    "start_time": "2021-04-23T09:55:30Z",
    "end_time": "-"
  }
]
```

```
  }],  
  "offset" : 0,  
  "limit" : 2  
}
```

**Status code: 400**

This status code is returned if the request fails.

```
{  
  "error_code" : "DATA.100011001",  
  "error_msg" : "Required String parameter 'app' is not present"  
}
```

## Status Codes

Status Code	Description
200	This status code is returned if the request succeeds.
400	This status code is returned if the request fails.

## Error Codes

See [Error Codes](#).

# 13.2 Listing Users

## Function

This API is used to list users who joined a room within a specified period.

The maximum query time span is 90 days.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

GET /v1/{project\_id}/rtc/users

**Table 13-8** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .

**Table 13-9** Query Parameters

Parameter	Mandatory	Type	Description
app	Yes	String	Application ID.
room_id	No	String	Room ID.
uid	No	String	User ID.
nickname	No	String	Nickname of the user.
region	No	Array of strings	Province where the user is located. The value can be the full name or abbreviation of a province, for example, Guangdong or GD.
isp	No	Array of strings	ISP to which the user belongs.
state	No	Array of strings	User status. The options are as follows: <ul style="list-style-type: none"><li>● FAIL: The user fails to join a room.</li><li>● ONLINE: The user is in the room.</li><li>● OFFLINE: The user has left the room.</li></ul>
start_time	No	String	Time when the query starts. UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T06:00:00Z. If this parameter is not specified, data of the last hour is read by default.
end_time	No	String	Time when the query ends. UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T06:00:00Z. If this parameter is not specified, the current time is used by default.
limit	No	Integer	Number of records in the query result.
offset	No	Integer	Query offset.

Parameter	Mandatory	Type	Description
type	No	String	Query mode. The options are as follows: <ul style="list-style-type: none"> <li>• detail: session level</li> <li>• summary: subscriber level (default)</li> </ul>

## Request Parameters

**Table 13-10** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. The token can be obtained by calling the IAM API used to obtain a user token. The value of <b>X-Subject-Token</b> in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID, which is the same as that used in the URI. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 200**

**Table 13-11** Response header parameters

Parameter	Type	Description
X-Request-Id	String	Unique ID of the request.

**Table 13-12** Response body parameters

Parameter	Type	Description
total	Integer	Total number of records.
limit	Integer	Number of records in the query result.
offset	Integer	Query offset.
users	Array of <a href="#">RtcUser</a> objects	User list.

**Table 13-13** RtcUser

Parameter	Type	Description
domain	String	Domain name.
app	String	Application identifier.
room_id	String	Room ID.
uid	String	User ID.
session	String	Session ID.
state	String	User Status <ul style="list-style-type: none"> <li>● FAIL: The user fails to join a room.</li> <li>● ONLINE: The user is in the room.</li> <li>● OFFLINE: The user has left the room.</li> </ul>
nick_name	String	Nickname of the user.
ip	String	User IP address.
region	String	Province where the user IP address is located.
isp	String	ISP to which the user IP address belongs.
device_model	String	User device model.
platform	String	User device platform.
sdk	String	User SDK version.
join_time	String	Time when the user joins a room. The format is YYYY-MM-DDThh:mm:ssZ.
leave_time	String	Time when the user leaves a room. The format is YYYY-MM-DDThh:mm:ssZ. If the user does not leave a room, a hyphen (-) is returned.

**Status code: 400**

**Table 13-14** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error message.

**Example Requests**

```
GET /v1/{project_id}/rtc/users?app=5fa682b34a974f7ad24d223b
```

**Example Responses**

**Status code: 200**

This status code is returned if the request succeeds.

```
{
  "total" : 1000,
  "limit" : 10,
  "offset" : 0,
  "users" : [ {
    "domain" : "603f71bdfa163e500aff1106c8bxxxx.sparkrtc.myhuaweicloud.com",
    "app" : "603f71bdfa163e500aff1106c8xxxx",
    "room_id" : "ac146d0f27799161917160702xxxx",
    "uid" : "xxxxx",
    "session" : "0afa1af5a41a11eb802b7d4bc77xxxx",
    "state" : "ONLINE",
    "nick_name" : "xxxx",
    "ip" : "113.140.81.xx",
    "region" : "Shaanxi",
    "isp" : "CTCC",
    "device_model" : "iphone",
    "platform" : "web-Mac10_15_4",
    "sdk" : "1.4.0",
    "join_time" : "2021-04-23T09:55:32Z",
    "leave_time" : "-"
  } ]
}
```

**Status code: 400**

This status code is returned if the request fails.

```
{
  "error_code" : "DATA.100011001",
  "error_msg" : "Required String parameter 'app' is not present"
}
```

## Status Codes

Status Code	Description
200	This status code is returned if the request succeeds.
400	This status code is returned if the request fails.

## Error Codes

See [Error Codes](#).

# 13.3 Querying Real-Time Scale Data

## Function

This API is used to query minute-level statistics for scale-related metrics within a specified period.

The maximum query time span is one day.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

GET /v1/{project\_id}/rtc/realtime/scale

**Table 13-15** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .

**Table 13-16** Query Parameters

Parameter	Mandatory	Type	Description
app	Yes	String	Application identifier.
room_id	No	String	Room ID.

Parameter	Mandatory	Type	Description
metric	Yes	String	Data type: <ul style="list-style-type: none"> <li>• OnlineUsers: number of online users</li> <li>• RoomCount: number of rooms in use</li> </ul>
start_time	No	String	Time when the query starts. UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T06:00:00Z. If this parameter is not specified, data of the last hour is read by default.
end_time	No	String	Time when the query ends. UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T07:00:00Z. If this parameter is not specified, the current time is used by default.

## Request Parameters

Table 13-17 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. The token can be obtained by calling the IAM API used to obtain a user token. The value of <b>X-Subject-Token</b> in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.

Parameter	Mandatory	Type	Description
X-Project-Id	No	String	Project ID, which is the same as that used in the URI. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 200**

**Table 13-18** Response header parameters

Parameter	Type	Description
X-Request-Id	String	Unique ID of the request.

**Table 13-19** Response body parameters

Parameter	Type	Description
scale	Array of <a href="#">TimeValueData</a> objects	Timestamp and metric list at the corresponding time.

**Table 13-20** TimeValueData

Parameter	Type	Description
time	String	Sampling time. The format must comply with the ISO 8601 standard (UTC time). The format is YYYY-MM-DDThh:mm:ssZ.
value	Long	Traffic metrics.

**Status code: 400**

**Table 13-21** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error message.

## Example Requests

```
GET /v1/{project_id}/rtc/realtime/scale?app=5fa682b34a974f7ad24d223b
```

## Example Responses

### Status code: 200

This status code is returned if the request succeeds.

```
{
  "scale": [ {
    "time": "2020-06-04T07:00:00Z",
    "value": 0
  } ]
}
```

### Status code: 400

This status code is returned if the request fails.

```
{
  "error_code": "DATA.100011001",
  "error_msg": "Required String parameter 'app' is not present"
}
```

## Status Codes

Status Code	Description
200	This status code is returned if the request succeeds.
400	This status code is returned if the request fails.

## Error Codes

See [Error Codes](#).

# 13.4 Querying Real-Time Scale Data Distribution

## Function

This API is used to query the statistics on scale-related metrics in a specified dimension. Scale-related data can be ranked based on the number of online users in a specified dimension.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

```
GET /v1/{project_id}/rtc/realtime/scale/dimension
```

**Table 13-22** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .

**Table 13-23** Query Parameters

Parameter	Mandatory	Type	Description
app	Yes	String	Application identifier.
room_id	No	String	Room ID.
metric	Yes	String	Data type: OnlineUsers: number of online users
dimension	Yes	String	Dimension type. <ul style="list-style-type: none"> <li>region: province</li> <li>access_net: network type</li> <li>platform: system platform</li> <li>sdk: SDK version</li> </ul>
time	Yes	String	Query time. UTC time in the format of YYYY-MM-DDThh:mm:ssZ.

## Request Parameters

**Table 13-24** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used.  It can be obtained by calling the IAM API that is used to obtain a user token. The value of <b>X-Subject-Token</b> in the response header is the user token.

Parameter	Mandatory	Type	Description
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID, which is the same as that used in the URI. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

Status code: 200

**Table 13-25** Response header parameters

Parameter	Type	Description
X-Request-Id	String	Unique ID of the request.

**Table 13-26** Response body parameters

Parameter	Type	Description
dimensions	Array of <a href="#">RealtimeScaleDimensionValue</a> objects	Dimension distribution information.

**Table 13-27** RealtimeScaleDimensionValue

Parameter	Type	Description
dimension	String	Dimension value. For example, if the query dimension is region, the value of this parameter may be GD.
online_users	Long	Number of online users.

**Status code: 400****Table 13-28** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error message.

## Example Requests

```
GET /v1/{project_id}/rtc/realtime/scale/dimension?app=5fa682b34a974f7ad24d223b
```

## Example Responses

**Status code: 200**

This status code is returned if the request succeeds.

```
{  
  "dimensions": [ {  
    "dimension": "GD",  
    "online_users": 10  
  } ]  
}
```

**Status code: 400**

This status code is returned if the request fails.

```
{  
  "error_code": "DATA.100011001",  
  "error_msg": "Required String parameter 'app' is not present"  
}
```

## Status Codes

Status Code	Description
200	This status code is returned if the request succeeds.
400	This status code is returned if the request fails.

## Error Codes

See [Error Codes](#).

## 13.5 Querying Real-Time Quality Data

### Function

This API is used to query real-time minute-level statistics for metrics within a specified period.

The maximum query time span is one day.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

GET /v1/{project\_id}/rtc/realtime/quality

**Table 13-29** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .

**Table 13-30** Query Parameters

Parameter	Mandatory	Type	Description
app	Yes	String	Application identifier.
room_id	No	String	Room ID.
metric	Yes	String	Data type. <ul style="list-style-type: none"><li>JoinSuccessRate: success rate of joining a room</li><li>JoinSuccess5SecsRate: success rate of joining a room in 5 seconds</li><li>VideoFreezeRate: video freeze rate</li><li>AudioFreezeRate: audio freeze rate</li></ul>

Parameter	Mandatory	Type	Description
sdk_type	Yes	String	SDK type. <ul style="list-style-type: none"> <li>• native: non-web SDK</li> <li>• webrtc: web-based SDK</li> </ul>
start_time	No	String	Time when the query starts. UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T06:00:00Z. If this parameter is not specified, data of the last hour is read by default.
end_time	No	String	Time when the query ends. UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T06:00:00Z. If this parameter is not specified, the current time is used by default.

## Request Parameters

**Table 13-31** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. The token can be obtained by calling the IAM API used to obtain a user token. The value of <b>X-Subject-Token</b> in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.

Parameter	Mandatory	Type	Description
X-Project-Id	No	String	Project ID, which is the same as that used in the URI. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 200**

**Table 13-32** Response header parameters

Parameter	Type	Description
X-Request-Id	String	Unique ID of the request.

**Table 13-33** Response body parameters

Parameter	Type	Description
quality	Array of <a href="#">TimeDoubleValueData</a> objects	Timestamp and metric list at the corresponding time.

**Table 13-34** TimeDoubleValueData

Parameter	Type	Description
time	String	Sampling time. The format must comply with the ISO 8601 standard (UTC time). The format is YYYY-MM-DDThh:mm:ssZ.
value	Double	Timestamp and metric list at the corresponding time.

**Status code: 400**

**Table 13-35** Response body parameters

Parameter	Type	Description
error_code	String	Error code.

Parameter	Type	Description
error_msg	String	Error message.

## Example Requests

```
GET /v1/{project_id}/rtc/realtime/quality?app=5fa682b34a974f7ad24d223b
```

## Example Responses

### Status code: 200

This status code is returned if the request succeeds.

```
{
  "quality" : [ {
    "time" : "2020-06-04T07:00:00Z",
    "value" : 0
  } ]
}
```

### Status code: 400

This status code is returned if the request fails.

```
{
  "error_code" : "DATA.100011001",
  "error_msg" : "Required String parameter 'app' is not present"
}
```

## Status Codes

Status Code	Description
200	This status code is returned if the request succeeds.
400	This status code is returned if the request fails.

## Error Codes

See [Error Codes](#).

# 13.6 Querying Real-Time Network Data

## Function

This API is used to query real-time minute-level statistics for network metrics within a specified period.

The maximum query time span is one day.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

GET /v1/{project\_id}/rtc/realtime/network

**Table 13-36** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .

**Table 13-37** Query Parameters

Parameter	Mandatory	Type	Description
app	Yes	String	Application identifier.
room_id	No	String	Room ID.
metric	Yes	String	Data type. <ul style="list-style-type: none"><li>• VideoUpstreamExcellentTransRate: uplink high-quality transmission rate of videos on the client</li><li>• AudioUpstreamExcellentTransRate: uplink high-quality transmission rate of audios on the client</li><li>• VideoExcellentTransRate: end-to-end high-quality video transmission rate</li><li>• AudioExcellentTransRate: end-to-end high-quality audio transmission rate</li></ul>
sdk_type	Yes	String	SDK type. <ul style="list-style-type: none"><li>• native: non-web SDK</li><li>• webrtc: web-based SDK</li></ul>

Parameter	Mandatory	Type	Description
start_time	No	String	Time when the query starts. UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T06:00:00Z. If this parameter is not specified, data of the last hour is read by default.
end_time	No	String	Time when the query ends. UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T06:00:00Z. If this parameter is not specified, the current time is used by default.

## Request Parameters

**Table 13-38** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. The token can be obtained by calling the IAM API used to obtain a user token. The value of <b>X-Subject-Token</b> in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID, which is the same as that used in the URI. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 200**

**Table 13-39** Response header parameters

Parameter	Type	Description
X-Request-Id	String	Unique ID of the request.

**Table 13-40** Response body parameters

Parameter	Type	Description
network	Array of <a href="#">TimeDoubleValueData</a> objects	Timestamp and metric list at the corresponding time.

**Table 13-41** TimeDoubleValueData

Parameter	Type	Description
time	String	Sampling time. The format must comply with the ISO 8601 standard (UTC time). The format is YYYY-MM-DDThh:mm:ssZ.
value	Double	Timestamp and metric list at the corresponding time.

**Status code: 400**

**Table 13-42** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error message.

## Example Requests

```
GET /v1/{project_id}/rtc/realtime/network?app=5fa682b34a974f7ad24d223b
```

## Example Responses

**Status code: 200**

This status code is returned if the request succeeds.

```
{
  "network": [ {
    "time": "2020-06-04T07:00:00Z",
    "value": 0
  } ]
}
```

**Status code: 400**

This status code is returned if the request fails.

```
{
  "error_code": "DATA.100011001",
  "error_msg": "Required String parameter 'app' is not present"
}
```

**Status Codes**

Status Code	Description
200	This status code is returned if the request succeeds.
400	This status code is returned if the request fails.

**Error Codes**

See [Error Codes](#).

**13.7 Querying Usage**

**Function**

This API is used to query usage data of various services in a past period.

**Authorization Information**

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

**URI**

GET /v1/{project\_id}/rtc/history/usage

**Table 13-43** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .

**Table 13-44** Query Parameters

Parameter	Mandatory	Type	Description
app	Yes	String	Application identifier.
metric	Yes	String	Type of data to be queried. <ul style="list-style-type: none"> <li>• <b>CommunicationDuration:</b> audio and video call duration</li> </ul>
start_date	Yes	String	Time when the query starts. UTC time in the format of YYYY-MM-DD, for example, 2020-04-23. If this parameter is not specified, data of the last day is read by default.
end_date	Yes	String	Queries end time. UTC time in the format of YYYY-MM-DD, for example, 2020-04-23.

## Request Parameters

**Table 13-45** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. It can be obtained by calling the IAM API that is used to obtain a user token. The value of <b>X-Subject-Token</b> in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.

Parameter	Mandatory	Type	Description
X-Project-Id	No	String	Project ID, which is the same as that used in the URI. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 200**

**Table 13-46** Response header parameters

Parameter	Type	Description
X-Request-Id	String	Unique ID of the request.

**Table 13-47** Response body parameters

Parameter	Type	Description
usage	Array of <a href="#">RtcHistoryUsage</a> objects	Timestamp and metric value list at the corresponding time

**Table 13-48** RtcHistoryUsage

Parameter	Type	Description
date	String	Sampling time. The format must comply with the ISO 8601 standard (UTC time). The format is YYYY-MM-DD.
video_sd	Long	SD video duration, in seconds.
video_hd	Long	HD video duration, in seconds.
video_hdp	Long	UHD video duration, in seconds.
audio	Long	Audio duration, in seconds.
total_duration	Long	Total audio and video duration, in seconds.

**Status code: 400**

**Table 13-49** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error message.

## Example Requests

```
GET /v1/{project_id}/rtc/history/usage?
app=5fa682b34a974f7ad24d223b&metric=CommunicationDuration&start_date=2020-04-23&end_date=2020-04-26
```

## Example Responses

### Status code: 200

This status code is returned if the request succeeds.

```
{
  "usage" : [ {
    "date" : "2020-06-04",
    "video_sd" : 1,
    "video_hd" : 1,
    "video_hdp" : 1,
    "audio" : 1,
    "total_duration" : 4
  } ]
}
```

### Status code: 400

This status code is returned if the request fails.

```
{
  "error_code" : "DATA.100011001",
  "error_msg" : "Required String parameter 'app' is not present"
}
```

## Status Codes

Status Code	Description
200	This status code is returned if the request succeeds.
400	This status code is returned if the request fails.

## Error Codes

See [Error Codes](#).

## 13.8 Querying Historical Scale Data

### Function

This API is used to query day-level statistics for scale-related metrics. You can query data from the past 31 days. Room and user counts for the current day cannot be queried until the day has ended.

The maximum query time span is 31 days.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

GET /v1/{project\_id}/rtc/history/scale

**Table 13-50** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .

**Table 13-51** Query Parameters

Parameter	Mandatory	Type	Description
app	Yes	String	Application identifier.

Parameter	Mandatory	Type	Description
metric	Yes	Array of strings	Data type. <ul style="list-style-type: none"><li>• UserCount: number of users in calls. The users with the same user ID in different channels are counted as different users.</li><li>• SessionCount: number of calls. Each time a user joins a channel, a call is counted.</li><li>• RoomCount: number of rooms. A call room is counted from the time when a user joins a room to the time when all users leave the room.</li><li>• MaxOnlineUserCount: maximum number of concurrent online users</li><li>• MaxOnlineRoomCount: maximum number of online rooms</li><li>• CommunicationDuration: audio and video call duration</li><li>• VideoCommunicationDuration: video call duration</li><li>• AudioCommunicationDuration: audio call duration</li></ul>
start_date	No	String	Start time of the query (UTC time in the format of YYYY-MM-DD, for example, 2020-04-23). If this parameter is not specified, the data of the last day is read by default.
end_date	No	String	Queries end time. UTC time in the format of YYYY-MM-DD, for example, 2020-04-23.

## Request Parameters

**Table 13-52** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. The token can be obtained by calling the IAM API used to obtain a user token. The value of <b>X-Subject-Token</b> in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID, which is the same as that used in the URI. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

Status code: 200

**Table 13-53** Response header parameters

Parameter	Type	Description
X-Request-Id	String	Unique ID of the request.

**Table 13-54** Response body parameters

Parameter	Type	Description
scale	Array of <b>RtcHistoryScale-TimeValue</b> objects	Timestamp and metric value list at the corresponding time

**Table 13-55** RtcHistoryScaleTimeValue

Parameter	Type	Description
date	String	Sampling time. The format must comply with the ISO 8601 standard (UTC time). The format is YYYY-MM-DD.
user_count	Long	Number of users in a call, that is, the total number of UIDs.
session_count	Long	Total number of sessions.
room_count	Long	Number of rooms.
max_online_user_count	Long	Maximum number of concurrent online users.
max_online_room_count	Long	Maximum number of concurrent online rooms.
communication_duration	Long	Total audio and video duration, in seconds.
video_communication_duration	Long	Total video duration, in seconds.
audio_communication_duration	Long	Total audio duration, in seconds.

**Status code: 400**

**Table 13-56** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error message.

## Example Requests

```
GET /v1/{project_id}/rtc/history/scale?
app=5fa682b34a974f7ad24d223b&metric=SessionCount,MaxOnlineRoomCount&start_date=2020-04-23&end_date=2020-04-26
```

## Example Responses

**Status code: 200**

This status code is returned if the request succeeds.

```
{
  "scale": [ {
```

```
"date" : "2020-06-04",
"user_count" : 1,
"session_count" : 1,
"room_count" : 3,
"max_online_user_count" : 5,
"max_online_room_count" : 4,
"communication_duration" : 123,
"video_communication_duration" : 234,
"audio_communication_duration" : 132
} ]
}
```

**Status code: 400**

This status code is returned if the request fails.

```
{
  "error_code" : "DATA.100011001",
  "error_msg" : "Required String parameter 'app' is not present"
}
```

## Status Codes

Status Code	Description
200	This status code is returned if the request succeeds.
400	This status code is returned if the request fails.

## Error Codes

See [Error Codes](#).

# 13.9 Querying Historical Quality Data

## Function

This API is used to query day-level statistics for experience-related metrics. Experience data for the current day cannot be queried until the day has ended.

The maximum query time span is 31 days.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

GET /v1/{project\_id}/rtc/history/quality

**Table 13-57** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .

**Table 13-58** Query Parameters

Parameter	Mandatory	Type	Description
app	Yes	String	Application identifier.

Parameter	Mandatory	Type	Description
metric	Yes	Array of strings	<p>Data type.</p> <ul style="list-style-type: none"> <li>• JoinSuccessRate: success rate of joining a room</li> <li>• JoinSuccess5SecsRate: success rate of joining a room in 5 seconds</li> <li>• VideoFreezeRate: video freeze rate</li> <li>• AudioFreezeRate: audio freeze rate</li> <li>• FirstVideoRecvTime: time required for receiving the first video frame</li> <li>• FirstAudioRecvTime: time required for receiving the first audio frame</li> <li>• PullStreamSuccessRate: stream pulling success rate</li> <li>• PushStreamSuccessRate: stream pushing success rate</li> <li>• VideoUpstreamExcellentTransRate: uplink high-quality transmission rate of videos on the client</li> <li>• AudioUpstreamExcellentTransRate: uplink high-quality transmission rate of audios on the client</li> <li>• VideoExcellentTransRate: end-to-end high-quality video transmission rate</li> <li>• AudioExcellentTransRate: end-to-end high-quality audio transmission rate</li> <li>• VideoTransDelay: end-to-end video latency, in milliseconds. The average latency of all users on a day is used.</li> <li>• AudioTransDelay: end-to-end audio latency, in milliseconds. The average latency of all users on a day is used.</li> </ul>

Parameter	Mandatory	Type	Description
start_date	No	String	Time when the query starts. UTC time in the format of YYYY-MM-DD, for example, 2020-04-23. If this parameter is not specified, data of the last day is read by default.
end_date	No	String	Time when the query ends. UTC time in the format of YYYY-MM-DD, for example, 2020-04-23.

## Request Parameters

**Table 13-59** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. The token can be obtained by calling the IAM API used to obtain a user token. The value of <b>X-Subject-Token</b> in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID, which is the same as that used in the URI. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 200**

**Table 13-60** Response header parameters

Parameter	Type	Description
X-Request-Id	String	Unique ID of the request.

**Table 13-61** Response body parameters

Parameter	Type	Description
quality	Array of <a href="#">RtcHistoryQualityTimeValue</a> objects	Timestamp and metric value list at the corresponding time

**Table 13-62** RtcHistoryQualityTimeValue

Parameter	Type	Description
date	String	Sampling time. The format must comply with the ISO 8601 standard (UTC time). The format is YYYY-MM-DD.
join_success_rate	Double	Success rate of joining a room. The value 1 indicates that the success rate is 100%.
join_success_in5secs_rate	Double	Success rate of joining a room within 5 seconds. The value 1 indicates that the success rate is 100%.
video_freeze_rate	Double	Video freeze rate. The value 1 indicates that the freeze rate is 100%.
audio_freeze_rate	Double	Audio freeze rate. The value 1 indicates that the freeze rate is 100%.
first_video_recv_time	Long	Time required for receiving the first video frame, in milliseconds.
first_audio_recv_time	Long	Time required for receiving the first audio frame, in milliseconds.
pull_stream_success_rate	Double	Success rate of stream pulling. The value 1 indicates that the success rate is 100%.
push_stream_success_rate	Double	Success rate of stream pushing. The value 1 indicates that the success rate is 100%.

Parameter	Type	Description
video_upstream_excellent_trans_rate	Double	Uplink high-quality transmission rate of videos on the client. The value 1 indicates that the transmission rate is 100%.
audio_upstream_excellent_trans_rate	Double	Uplink high-quality transmission rate of audios on the client. The value 1 indicates that the transmission rate is 100%.
video_excellent_trans_rate	Double	E2E high-quality video transmission rate. The value 1 indicates that the transmission rate is 100%.
audio_excellent_trans_rate	Double	E2E high-quality audio transmission rate. The value 1 indicates that the transmission rate is 100%.
video_trans_delay	Double	E2E video network latency, in milliseconds. The value is the median of the network latency of all users of the current day.
audio_trans_delay	Double	E2E audio network latency, in milliseconds. The value is the median of the network latency of all users of the current day.

**Status code: 400**

**Table 13-63** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error message.

## Example Requests

```
GET /v1/{project_id}/rtc/history/quality?
app=5fa682b34a974f7ad24d223b&metric=VideoFreezeRate,AudioTransDelay&start_date=2020-04-23&end_date=2020-04-26
```

## Example Responses

**Status code: 200**

This status code is returned if the request succeeds.

```
{
  "quality" : [ {
```

```
"date" : "2020-06-04",  
"join_success_rate" : 0.99  
} ]  
}
```

**Status code: 400**

This status code is returned if the request fails.

```
{  
  "error_code" : "DATA.100011001",  
  "error_msg" : "Required String parameter 'app' is not present"  
}
```

## Status Codes

Status Code	Description
200	This status code is returned if the request succeeds.
400	This status code is returned if the request fails.

## Error Codes

See [Error Codes](#).

# 13.10 Querying User Call Metrics

## Function

This API is used to query metrics about user call quality.

Data from the past five days can be queried. The value of **mid** cannot be **null**. For real-time data queries, the interval between the start time and end time cannot exceed 24 hours. Cross-day queries are supported for single-user data retrieval.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

GET /v1/{project\_id}/rtc/client/qos/details

**Table 13-64** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .

**Table 13-65** Query Parameters

Parameter	Mandatory	Type	Description
domain	No	String	Domain name.
app_id	Yes	String	Application ID.
room_id	Yes	String	Room ID.
user_id	No	String	Queries the user who sends streams.
peer_id	No	String	Queries the ID of the user who receives streams.
stream_id	No	String	Stream ID
direction	No	String	Data direction, which can be uplink or downlink.

Parameter	Mandatory	Type	Description
mid	Yes	Array of strings	<p>Metrics to be queried. If this parameter is set to all, all metrics are returned. Use commas (,) to separate multiple metrics.</p> <ul style="list-style-type: none"> <li>• appcpu: CPU usage of a device app</li> <li>• syscpu: CPU usage of the device system</li> <li>• abit: audio bit rate on the device, in kbit/s</li> <li>• vbit: video bit rate on the device, in kbit/s</li> <li>• dbit: presentation bit rate on the device, in kbit/s</li> <li>• vfps: video frame rate on the device, in FPS</li> <li>• dfps: presentation frame rate on the device, in FPS</li> <li>• vblock: video freeze rate on the device (Video freeze is counted when the freeze duration reaches 600 ms.)</li> <li>• dblock: presentation freeze rate on the device (Presentation freeze is counted when the freeze duration reaches 600 ms.)</li> <li>• aloss: audio packet loss rate on the device</li> <li>• vloss: video packet loss rate on the device</li> <li>• dloss: presentation packet loss rate on the device</li> <li>• vwidth: video resolution width on the device</li> <li>• vheight: video resolution height on the device</li> <li>• dwidth: presentation resolution width on the device</li> <li>• dheight: presentation resolution height on the device</li> </ul>

Parameter	Mandatory	Type	Description
			<ul style="list-style-type: none"><li>• ajitter: audio jitter rate on the device</li><li>• artt: audio latency on the device</li><li>• vjitter: video jitter rate on the device</li><li>• vrtt: video latency on the device</li><li>• djitter: presentation jitter rate on the device</li><li>• drtt: presentation latency on the device</li></ul>
start_time	Yes	String	Time when the query starts. UTC time in the format of yyyy-mm-ddThh:mm:ssZ, for example, 2020-04-23T06:00:00Z.
end_time	Yes	String	Time when the query ends. UTC time in the format of yyyy-mm-ddThh:mm:ssZ, for example, 2020-04-23T07:00:00Z.
time_type	No	String	Query time type. stime indicates the database dotting time. If this parameter is not specified, the default value ctime is used.
limit	No	Integer	Query result limits.
offset	No	Integer	Query offset.

## Request Parameters

**Table 13-66** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token. This parameter is mandatory when token authentication is used. The token can be obtained by calling the IAM API used to obtain a user token. The value of <b>X-Subject-Token</b> in the response header is the user token.
Authorization	No	String	Authentication information. This parameter is mandatory when AK/SK-based authentication is used.
X-Sdk-Date	No	String	Time when the request is sent. This parameter is mandatory when AK/SK-based authentication is used.
X-Project-Id	No	String	Project ID, which is the same as that used in the URI. This parameter is mandatory when AK/SK-based authentication is used.

## Response Parameters

**Status code: 200**

**Table 13-67** Response header parameters

Parameter	Type	Description
X-Request-Id	String	Unique ID of the request.

**Table 13-68** Response body parameters

Parameter	Type	Description
room_id	String	Room ID.

Parameter	Type	Description
data	Array of <b>QosQualityData</b> objects	QoS data.

**Table 13-69** QosQualityData

Parameter	Type	Description
uid	String	User ID.
peerid	String	Peer user ID. The value 0 indicates local uplink data.
mid	String	Metric ID.
data	Array of <b>TimeFloatValueData</b> objects	Timestamp and metric value list at the corresponding time

**Table 13-70** TimeFloatValueData

Parameter	Type	Description
time	String	Sampling time. The format must comply with the ISO 8601 standard (UTC time). The format is YYYY-MM-DDThh:mm:ssZ.
value	Float	Timestamp and metric list at the corresponding time.

**Status code: 400**

**Table 13-71** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error message.

## Example Requests

```
GET /v1/{project_id}/rtc/client/qos/details?
app_id=5fa682b34a974f7ad24d223b&room_id=6951a79e9f811ebbd2ac58d7ac82553&mid=appcpu&start_time=2020-04-23T06:00:00Z&end_time=2020-04-23T07:00:00Z
```

## Example Responses

### Status code: 200

This status code is returned if the request succeeds.

```
{
  "room_id": "73594089618272256",
  "data": [ {
    "uid": "30617",
    "peerid": "30617",
    "mid": "ajitter",
    "data": [ {
      "time": "2022-06-04T06:06:00Z",
      "value": 433422
    }, {
      "time": "2022-06-04T06:00:05Z",
      "value": 433422
    }
  ]
}
]
```

### Status code: 400

This status code is returned if the request fails.

```
{
  "error_code": "DATA.100011001",
  "error_msg": "Required String parameter 'app_id' is not present"
}
```

## Status Codes

Status Code	Description
200	This status code is returned if the request succeeds.
400	This status code is returned if the request fails.

## Error Codes

See [Error Codes](#).

# 13.11 Queries abnormal user experience events.

## Function

This API is used to query call exception details of a specific application.

The maximum query time span is one day.

## Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

## URI

GET /v1/rtc/data/abnormal-events

**Table 13-72** Query Parameters

Parameter	Mandatory	Type	Description
app	Yes	String	App ID
room_id	No	String	Room ID
uid	No	String	User ID
start_time	No	String	Start time of the query (UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T06:00:00Z). If this parameter is not specified, the data of the last hour is read by default.
end_time	No	String	End time of the query (UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T07:00:00Z). If this parameter is not specified, the current time is used by default.
limit	No	Integer	Number of results. The default value is 10.
offset	No	Integer	Query offset. The default value is 0.

## Request Parameters

**Table 13-73** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token, which is mandatory for token authentication. You can obtain the token by calling the IAM API (value of X-Subject-Token in the response header).

## Response Parameters

Status code: 200

**Table 13-74** Response header parameters

Parameter	Type	Description
X-Request-Id	String	Unique identifier of the request

**Table 13-75** Response body parameters

Parameter	Type	Description
total	Integer	Total number of exceptions
events	Array of <b>AbnormalEvent</b> objects	List of abnormal experience events

**Table 13-76** AbnormalEvent

Parameter	Type	Description
time	String	Sampling time. The date format complies with the ISO 8601 standard and the UTC time is used. The format is YYYY-MM-DDThh:mm:ssZ.
uid	String	ID of the user with an exception
room_id	String	ID of the room with an exception
stage	String	Abnormal phase <ul style="list-style-type: none"> <li>join_room: joining a room</li> <li>communication: The call is in progress.</li> </ul>
location	String	Event occurrence location <ul style="list-style-type: none"> <li>local: The event occurs on the local client.</li> <li>remote: The event occurs at the remote end.</li> </ul>
peer_uid	String	If the exception occurs at the remote end, peerid is the remote user ID. If the exception occurs at the local end, peerid is an empty string.

Parameter	Type	Description
abnormal_type	Integer	<p>Exception type</p> <ul style="list-style-type: none"> <li>• 1: It takes a long time to enter a room (longer than 5s).</li> <li>• 2: video frame freezing</li> <li>• 3: audio intermittence</li> </ul>
abnormal_type_desc	String	<p>The exception type description corresponds to the exception type and supports internationalization. The options are as follows:</p> <ul style="list-style-type: none"> <li>• It takes a long time to enter a room (longer than 5s).</li> </ul> <p>Video freezing Audio freezing</p>

Parameter	Type	Description
abnormal_factor	Integer	<p>Abnormal factors</p> <p>When the exception type is 1, the value range of the exception factor is as follows:</p> <ul style="list-style-type: none"> <li>• 1: The link fails to be established.</li> <li>• 2: The room is not idle.</li> <li>• 3: The server is abnormal.</li> <li>• 4: The server returns 503.</li> <li>• 5: Authentication failed.</li> <li>• 6: Authentication reattempt</li> <li>• 7: Clock synchronization fails.</li> <li>• 8: The URL is incorrect.</li> <li>• 9: An internal exception occurs on the terminal.</li> <li>• 9000004: The response to the signaling sent by the SDK for joining a room times out.</li> <li>• 9010009: The web system does not receive the configuration information delivered by the MSP.</li> <li>• 9010008: The WebSocket link fails to be established.</li> <li>• 1000001: exception information returned by the server</li> <li>• 3100003: exception information returned by the server</li> <li>• 3200030: exception information returned by the server</li> <li>• 15: SDP setting exception in the browser.</li> </ul> <p>When the exception type is 2 or 3, the options are as follows:</p> <ul style="list-style-type: none"> <li>• 1: The system CPU usage is high.</li> <li>• 2: The CPU usage of the app is high.</li> <li>• 3: uplink audio network delay</li> <li>• 4: uplink audio network jitter</li> <li>• 5: uplink video network delay</li> <li>• 6: uplink video network jitter</li> <li>• 7: downlink audio network delay</li> <li>• 8: downlink audio network jitter</li> <li>• 9: downlink video network delay</li> </ul>

Parameter	Type	Description
		<ul style="list-style-type: none"> <li>● 10: downlink video network jitter</li> <li>● 11: uplink audio packet loss</li> <li>● 12: uplink video packet loss</li> <li>● 13: downlink audio packet loss</li> <li>● 14: downlink video packet loss</li> <li>● 15: No sound is heard in the downlink audio.</li> <li>● 16: others</li> <li>● 17: The peer user is offline.</li> <li>● 18: The peer user has no code stream.</li> <li>● 19: no frame rate of the peer user</li> <li>● 20: There is no downlink code stream on the local server.</li> <li>● 21: no frame rate on the downlink of the local server</li> </ul>

Parameter	Type	Description
abnormal_factor_desc	String	<p>Exception factor description, which supports internationalization.</p> <p>When the exception type is 1, the exception factor description corresponds to the exception factor. The options are as follows:</p> <ul style="list-style-type: none"> <li>• Link setup failure</li> <li>• The room is not idle.</li> <li>• Server exception</li> <li>• The server returns 503.</li> <li>• Authentication reattempt</li> <li>• Time synchronization failure.</li> <li>• Incorrect URL.</li> <li>• An internal error occurs on the terminal.</li> <li>• The response to the signaling sent by the SDK for joining a room times out.</li> <li>• The web system does not receive the configuration information delivered by the MSP.</li> <li>• The WebSocket link fails to be established.</li> <li>• Exception information returned by the server.</li> <li>• Exception information returned by the server.</li> <li>• Exception information returned by the server.</li> <li>• An exception occurred when setting the SDP in the browser.</li> </ul> <p>-Authentication failed</p> <p>When the exception type is 2 or 3, the exception factor description corresponds to the exception factor. The options are as follows:</p> <ul style="list-style-type: none"> <li>• Heavy system CPU usage</li> <li>• Heavy app CPU usage</li> <li>• Uplink audio latency</li> <li>• Uplink audio jitter</li> <li>• Uplink video latency</li> <li>• Uplink video jitter</li> <li>• Downlink audio latency</li> </ul>

Parameter	Type	Description
		<ul style="list-style-type: none"> <li>• Downlink audio jitter</li> <li>• Downlink video latency</li> <li>• Downlink video jitter</li> <li>• Uplink audio packet loss</li> <li>• Uplink video packet loss</li> <li>• Downlink audio packet loss</li> <li>• Downlink video packet loss</li> <li>• No sound is heard in the downlink audio.</li> <li>• The peer user is offline.</li> <li>• The peer user has no code stream.</li> <li>• No frame rate of the peer user</li> <li>• There is no downlink code stream on the local server.</li> <li>• Downlink No Frame Rate of Local Server</li> </ul> <p>Others In other cases, the exception factor is described as follows: Others</p>

**Status code: 400**

**Table 13-77** Response header parameters

Parameter	Type	Description
X-Request-Id	String	Unique identifier of the request

**Table 13-78** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error message.

**Example Requests**

```
GET /v1/rtc/data/abnormal-events?
app=5f963b4c89ae1628c2568001&room_id=3b48d9db05cc11ecb1e78fe304a40b8f&start_time=2021-08-25T
16:00:00Z&end_time=2021-08-25T18:00:00Z
```

## Example Responses

### Status code: 200

OK.

```
{
  "total" : 2,
  "events" : [ {
    "time" : "2021-08-25T17:45:00Z",
    "uid" : "3d00ea7405cc11eca3b919d9aaa81457",
    "room_id" : "3b48d9db05cc11ecb1e78fe304a40b8f",
    "stage" : "communication",
    "location" : "remote",
    "peer_uid" : "3cc0863505cc11eca3b9cb30b1856de8",
    "abnormal_type" : 3,
    "abnormal_type_desc" : "Audio freezing",
    "abnormal_factor" : 13,
    "abnormal_factor_desc" : "Downlink audio packet loss"
  }, {
    "time" : "2021-08-25T17:45:00Z",
    "uid" : "3d00ea7405cc11eca3b919d9aaa81457",
    "room_id" : "3b48d9db05cc11ecb1e78fe304a40b8f",
    "stage" : "communication",
    "location" : "remote",
    "peer_uid" : "3cc0863505cc11eca3b9cb30b1856de8",
    "abnormal_type" : 2,
    "abnormal_type_desc" : "Video freezing",
    "abnormal_factor" : 14,
    "abnormal_factor_desc" : "Downlink video packet loss"
  } ]
}
```

### Status code: 400

Query failed.

```
{
  "error_code" : "DATA.100011001",
  "error_msg" : "Required String parameter 'app' is not present"
}
```

## Status Codes

Status Code	Description
200	OK.
400	Query failed.

## Error Codes

See [Error Codes](#).

## 13.12 Queries the distribution of users with abnormal events.

### Function

This API is used to query the breakdown of call anomaly details for an application within a specified time period.

The maximum query time span is one day.

### Authorization Information

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. For details about the required permissions, see [Permissions Policies and Supported Actions](#).

### URI

GET /v1/rtc/data/abnormal-event/dimension

**Table 13-79** Query Parameters

Parameter	Mandatory	Type	Description
app	Yes	String	App ID
room_id	No	String	Room ID
dimension	No	String	Group type. Two types can be specified at the same time. <ul style="list-style-type: none"><li>• abnormal_type: exception type</li><li>• abnormal_factor: abnormal factor</li></ul>
start_time	No	String	Start time of the query (UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T06:00:00Z). If this parameter is not specified, the data of the last hour is read by default.

Parameter	Mandatory	Type	Description
end_time	No	String	End time of the query (UTC time in the format of YYYY-MM-DDThh:mm:ssZ, for example, 2020-04-23T07:00:00Z). If this parameter is not specified, the current time is used by default.

## Request Parameters

**Table 13-80** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	User token, which is mandatory for token authentication. You can obtain the token by calling the IAM API (value of X-Subject-Token in the response header).

## Response Parameters

Status code: 200

**Table 13-81** Response header parameters

Parameter	Type	Description
X-Request-Id	String	Unique identifier of the request

**Table 13-82** Response body parameters

Parameter	Type	Description
dimensions	Array of <b>AbnormalEventDimensionValue</b> objects	List of abnormal experience events

**Table 13-83** AbnormalEventDimensionValue

Parameter	Type	Description
abnormal_type	Integer	Type of an exception: <ul style="list-style-type: none"> <li>• 1: It takes a long time to enter a room (longer than 5s).</li> <li>• 2: video freezing</li> <li>• 3: audio freezing</li> </ul>
abnormal_type_desc	String	The exception type description corresponds to the exception type and supports internationalization. The options are as follows: <ul style="list-style-type: none"> <li>• It takes a long time to enter a room (longer than 5s).</li> </ul> Video freezing Audio freezing

Parameter	Type	Description
abnormal_factor	Integer	<p>Abnormal factors</p> <p>When the exception type is 1, the value range of the exception factor is as follows:</p> <ul style="list-style-type: none"> <li>• 1: The link fails to be established.</li> <li>• 2: The room is not idle.</li> <li>• 3: The server is abnormal.</li> <li>• 4: The server returns 503.</li> <li>• 5: Authentication failed.</li> <li>• 6: Authentication reattempt</li> <li>• 7: Clock synchronization fails.</li> <li>• 8: The URL is incorrect.</li> <li>• 9: An internal exception occurs on the terminal.</li> <li>• 9000004: The response to the signaling sent by the SDK for joining a room times out.</li> <li>• 9010009: The web system does not receive the configuration information delivered by the MSP.</li> <li>• 9010008: The WebSocket link fails to be established.</li> <li>• 1000001: exception information returned by the server</li> <li>• 3100003: exception information returned by the server</li> <li>• 3200030: exception information returned by the server</li> <li>• 15: SDP setting exception in the browser.</li> </ul> <p>When the exception type is 2 or 3, the options are as follows:</p> <ul style="list-style-type: none"> <li>• 1: The system CPU usage is high.</li> <li>• 2: The CPU usage of the app is high.</li> <li>• 3: uplink audio delay</li> <li>• 4: uplink audio jitter</li> <li>• 5: uplink video delay</li> <li>• 6: uplink video jitter</li> <li>• 7: downlink audio delay</li> <li>• 8: downlink audio jitter</li> <li>• 9: downlink video delay</li> </ul>

Parameter	Type	Description
		<ul style="list-style-type: none"> <li>● 10: downlink video jitter</li> <li>● 11: uplink audio packet loss</li> <li>● 12: Uplink video packet loss</li> <li>● 13: downlink audio packet loss</li> <li>● 14: downlink video packet loss</li> <li>● 15: No sound is heard in the downlink audio.</li> <li>● 16: others</li> <li>● 17: The peer user is offline.</li> <li>● 18: The peer user has no code stream.</li> <li>● 19: no frame rate of the peer user</li> <li>● 20: There is no downlink code stream on the local server.</li> <li>● 21: no frame rate on the downlink of the local server</li> </ul>

Parameter	Type	Description
abnormal_factor_desc	String	<p>Exception factor description, which supports internationalization.</p> <p>When the exception type is 1, the exception factor description corresponds to the exception factor. The options are as follows:</p> <ul style="list-style-type: none"> <li>• Link setup failure</li> <li>• The room is not idle.</li> <li>• Server exception</li> <li>• The server returns 503.</li> <li>• Authentication failed</li> <li>• Authentication reattempt</li> <li>• Time synchronization failure.</li> <li>• Incorrect URL</li> <li>• An internal error occurs on the terminal.</li> <li>• The response to the signaling sent by the SDK for joining a room times out.</li> <li>• The web system does not receive the configuration information delivered by the MSP.</li> <li>• The WebSocket link fails to be established.</li> <li>• Exception information returned by the server.</li> <li>• Exception information returned by the server.</li> <li>• Exception information returned by the server.</li> <li>• An exception occurred when setting the SDP in the browser.</li> </ul> <p>When the exception type is 2 or 3, the exception factor description corresponds to the exception factor. The options are as follows:</p> <ul style="list-style-type: none"> <li>• Heavy system CPU usage</li> <li>• Heavy app CPU usage</li> <li>• Uplink audio latency</li> <li>• Uplink audio jitter</li> <li>• Uplink video latency</li> <li>• Uplink video jitter</li> <li>• Downlink audio latency</li> </ul>

Parameter	Type	Description
		<ul style="list-style-type: none"> <li>• Downlink audio jitter</li> <li>• Downlink video latency</li> <li>• Downlink video jitter</li> <li>• Uplink audio packet loss</li> <li>• Uplink video packet loss</li> <li>• Downlink audio packet loss</li> <li>• Downlink video packet loss</li> <li>• No sound is heard in the downlink audio.</li> <li>• The peer user is offline.</li> <li>• The peer user has no code stream.</li> <li>• No frame rate of the peer user</li> <li>• There is no downlink code stream on the local server.</li> <li>• Downlink No Frame Rate of Local Server</li> </ul> <p>Others In other cases, the exception factor is described as <b>Others</b>.</p>
user_count	Long	Number of users affected by an exception

**Status code: 400**

**Table 13-84** Response header parameters

Parameter	Type	Description
X-Request-Id	String	Unique identifier of the request

**Table 13-85** Response body parameters

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error message.

## Example Requests

```
GET /v1/rtc/data/abnormal-event/dimension?
app=5f963b4c89ae1628c2568001&room_id=3b48d9db05cc11ecb1e78fe304a40b8f&start_time=2021-08-25T
16:00:00Z&end_time=2021-08-25T18:00:00Z
```

## Example Responses

**Status code: 200**

OK.

```
{
  "dimensions": [ {
    "abnormal_type": 2,
    "abnormal_type_desc": "Video freezing",
    "abnormal_factor": 14,
    "abnormal_factor_desc": "Downlink video packet loss",
    "user_count": 1
  }, {
    "abnormal_type": 3,
    "abnormal_type_desc": "Audio freezing",
    "abnormal_factor": 13,
    "abnormal_factor_desc": "Downlink audio packet loss",
    "user_count": 1
  }
]
```

**Status code: 400**

Query failed.

```
{
  "error_code": "DATA.100011001",
  "error_msg": "Required String parameter 'app' is not present"
}
```

## Status Codes

Status Code	Description
200	OK.
400	Query failed.

## Error Codes

See [Error Codes](#).

# 14 Permissions and Supported Actions

## 14.1 Introduction

You can use Identity and Access Management (IAM) for fine-grained permissions management of your SparkRTC resources. If your HUAWEI IDaccount does not need individual IAM users, you can skip this section.

With IAM, you can control access to specific Huawei Cloudcloud service resources. IAM supports role/policy-based authorization and identity policy-based authorization.

The following table describes the differences between these two authorization models.

**Table 14-1** Differences between role/policy-based and identity policy-based authorization

Authorization Model	Core Relationship	Permissions	Authorization Method	Description
Role/Policy	User-permission-authorization scope	<ul style="list-style-type: none"> <li>System-defined roles</li> <li>System-defined policies</li> <li>Custom policies</li> </ul>	Assigning roles or policies to principals	To authorize a user, you need to add it to a user group first and then specify the scope of authorization. It is hard to provide fine-grained permissions control using authorization by user groups and a limited number of condition keys. This method is suitable for small- and medium-sized enterprises.

Authorization Model	Core Relationship	Permissions	Authorization Method	Description
Identity policy	User-policy	<ul style="list-style-type: none"> <li>System-defined identity policies</li> <li>Custom identity policies</li> </ul>	<ul style="list-style-type: none"> <li>Assigning identity policies to principals</li> <li>Attaching identity policies to principals</li> </ul>	You can authorize a user by attaching an identity policy to it. User-specific authorization and a variety of key conditions allow for more fine-grained permissions control. However, this model can be hard to set up. It requires a certain amount of expertise and is suitable for medium- and large-sized enterprises.

Assume that you want to grant IAM users the permissions needed to create ECSs in CN North-Beijing4 and OBS buckets in CN South-Guangzhou. With role/policy-based authorization, the administrator needs to create two custom policies and assign both to the IAM users. With identity policy-based authorization, the administrator only needs to create one custom identity policy and configure the condition key **g:RequestedRegion** for the policy, and then attach the policy to the users or grant the users the access permissions to the specified regions. Identity policy-based authorization is more flexible than role/policy-based authorization.

Policies/identity policies and actions in the two authorization models are not interoperable. You are advised to use the identity policy-based authorization model.

If you use IAM users in your account to call an API, the IAM users must be granted the required permissions. The required permissions are determined by the actions supported by the API. Only users with the policies allowing for those actions can call the API successfully.

Assume that an IAM user wants to call the API for creating an application. With policy-based authorization, the IAM user must be granted the permission for the action **rtc:app:create**. With identity policy-based authorization, the IAM user must be granted the permission for the action **rtc:app:create**.

## 14.2 Actions Supported by Policy-based Authorization

This section describes the SparkRTC actions supported by policy-based authorization.

### Supported Actions

SparkRTC provides system-defined policies that can be directly used in IAM. You can also create custom policies to supplement system-defined policies for more

refined access control. Operations supported by policies are API-specific. See the following common concepts related to policies:

- **Permissions:** statements in a policy that allow or deny certain operations
- **APIs:** REST APIs that can be called by a user who has been granted specific permissions.
- **Actions:** specific operations that are allowed or denied in a custom policy.
- **Dependencies:** actions which a specific action depends on. When allowing an action for a user, you also need to allow any existing action dependencies for that user.
- **IAM projects/Enterprise projects:** the authorization scope of a custom policy. A custom policy can be applied to IAM projects or enterprise projects or both. Policies that contain actions for both IAM and enterprise projects can be used and applied for both IAM and Enterprise Management. Policies that contain actions only for IAM projects can be used and applied to IAM only. Administrators can check whether an action supports IAM projects or enterprise projects in the action list. For details about the differences between IAM and enterprise management, see [Differences Between IAM and Enterprise Management](#).

 **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.

SparkRTC supports the following actions that can be defined in custom policies.

**Table 14-2** SparkRTC actions that can be defined in custom policies

Permission	API	Action	IAM (Project)	Enterprise Project
Creating an application	<a href="#">POST /v2/apps</a>	rtc:app:create	√	×
Querying applications	<a href="#">GET /v2/apps</a>	rtc:app:list	√	×
Querying an application	<a href="#">GET /v2/apps/{app_id}</a>	rtc:app:get	√	×
Deleting an application	<a href="#">DELETE /v2/apps/{app_id}</a>	rtc:app:delete	√	×
Enabling an application	<a href="#">POST /v2/apps/{app_id}/enable</a>	rtc:app:enable	√	×
Disabling an application	<a href="#">POST /v2/apps/{app_id}/disable</a>	rtc:app:disable	√	×

Permission	API	Action	IA M (Pr oje ct)	Enterpri se Project
Creating or updating a recording template	<b>POST /v2/apps/{app_id}/record-rules</b>	rtc:recordRule:save	√	×
Querying recording templates	<b>GET /v2/apps/{app_id}/record-rules</b>	rtc:recordRule:list	√	×
Querying a recording template	<b>GET /v2/apps/{app_id}/record-rules/{rule_id}</b>	rtc:recordRule:get	√	×
Updating a recording template	<b>PUT /v2/apps/{app_id}/record-rules/{rule_id}</b>	rtc:recordRule:update	√	×
Deleting a recording template	<b>DELETE /v2/apps/{app_id}/record-rules/{rule_id}</b>	rtc:recordRule:delete	√	×
Updating the automatic recording configuration	<b>PUT /v2/apps/{app_id}/auto-record-mode</b>	rtc:app:updateAutoRecord	√	×
Querying the automatic recording configuration	<b>GET /v2/apps/{app_id}/auto-record-mode</b>	rtc:app:getAutoRecord	√	×
Configuring a recording event callback	<b>PUT /v2/apps/{app_id}/record-callback</b>	rtc:app:updateRecordCallbackConf	√	×
Querying a recording event callback	<b>GET /v2/apps/{app_id}/record-callback</b>	rtc:app:getRecordCallbackConf	√	×
Removing an online user	<b>POST /v2/apps/{app_id}/rooms/{room_id}/batch-remove-users</b>	rtc:room:removeUsers	√	×
Dismissing a room	<b>POST /v2/apps/{app_id}/rooms/{room_id}/dismiss</b>	rtc:room:dismiss	√	×
Listing access control parameters	-	rtc:app:getUrlAuth	√	×

Permission	API	Action	IAM (Project)	Enterprise Project
Controlling access to an application	-	rtc:app:updateUrlAuth	√	×

# 15 Appendix

## 15.1 Status Codes

**Table 15-1** lists the status codes that may be returned when you call SparkRTC APIs.

**Table 15-1** Status codes

Status Code	Description
200 OK	The request has succeeded.
201 Created	The request for creating a resource has been fulfilled.
202 Accepted	The request has been accepted for handling, but the handling has not been completed.
204 No Content	The request has been fulfilled, but the HTTP response does not contain a response body.
400 Bad Request	The request is invalid. Do not retry the request before modifying it.
401 Unauthorized	The status code is returned after the client provides the authentication information, indicating that the authentication information is incorrect or invalid.
403 Forbidden	The request has been rejected. The server has received and understood the request but it refused to respond, because the request is set to deny access. Do not retry the request before modifying it.
404 Not Found	The requested resource cannot be found. Do not retry the request before modifying it.

Status Code	Description
405 Method Not Allowed	The request contains one or more methods not allowed for the resource. Do not retry the request before modifying it.
406 Not Acceptable	The server cannot fulfill the request sent by the client according to its content characteristics.
407 Proxy Authentication Required	This status code is similar to 401, but the client must first authenticate itself with the proxy.
408 Request Timeout	The client failed to send a request to the server within the time limit. The client may repeat the request without modifying it at any time later.
409 Conflict	The request cannot be handled due to a conflict with the status of the resource. This status code indicates that the resource that the client is attempting to create already exists, or that the requested update cannot be fulfilled due to the conflict.
500 Internal Server Error	The server is able to receive but unable to understand the request.
501 Not Implemented	The server does not support the requested function.
502 Bad Gateway	The server that acts as a gateway or proxy received an invalid request from a remote server.
503 Service Unavailable	The requested service is invalid. Do not retry the request before modifying it.
504 Gateway Timeout	A gateway timeout error occurred.

## 15.2 Error Codes

If an error code starting with APIGW is returned after you call an API, rectify the fault by referring to the instructions provided in [API Gateway Error Codes](#).

Status Code	Error Codes	Error Message	Description	Solution
400	RTC.00001001	OperationUnauthorized: get DomainID fail please check X-Auth-Token or AK/SK	The domainID cannot be parsed in the token received by SparkRTC, so the tenant identity cannot be confirmed.	Check whether the account used for calling the API is correct. For example, an incorrect token is used.
400	RTC.00001002	MalformedRequestBody: json parsing failed	Incorrect request body (JSON) parsing	Refer to the API document and check whether the parameters are correctly configured.
400	RTC.00001003	InvalidParameterValue	Parameter verification error	Refer to the API document and check whether the parameters are correctly configured.
400	RTC.00001004	InvalidParameterCombination	Incorrect field combination	Refer to the API document and check whether the parameters are correctly configured.
400	RTC.00001005	MissingParameter	The parameter is not carried.	Refer to the API document and check whether the parameters are correctly configured.
400	RTC.00001006	JobRunning: job exists and is not over	The task is ongoing. The external job_uniq_id is duplicate.	Wait until the task is complete.
400	RTC.00001007	JobExceed	The number of tasks exceeds the upper limit.	Submit a service ticket to increase the maximum number of tasks.

Status Code	Error Codes	Error Message	Description	Solution
400	RTC.00001009	JobDone: task canceled or completed	The task has been canceled or completed.	Check whether the parameter is correct.
400	RTC.00001010	LayoutTemplateNotExist: layout template not exist under your app	The combined template does not exist under the app ID.	Check whether the layout template ID is correct.
400	RTC.00001012	UnsupportRegion: rtc does not provide services in the region	The value-added services of SparkRTC are not available in this region.	Enter a correct region.
400	RTC.00001013	RuleForbiddenDelete: rule is associated with backup rule	The recording rule has been associated with a backup rule and cannot be deleted.	Submit a service ticket to disassociate the backup rule.
400	RTC.00001016	AppDeactivation: app is stopped	The application has been stopped.	Check whether the SparkRTC service is in arrears.
400	RTC.00001017	AppsExceed: app num exceed	The number of applications that can be created has reached the upper limit (20 by default).	Submit a service ticket to increase the maximum number of applications.
400	RTC.00001018	URL unavailable: The callback URL is unavailable.	The URL is unreachable, such as the callback URL set by the tenant.	Enter the correct callback URL.

Status Code	Error Codes	Error Message	Description	Solution
400	RTC.00001019	RecordRuleExist: record rule of the app exists	The recording rule already exists.	Delete related recording rules before performing subsequent operations.
400	RTC.00001020	AppExist: app exists	The application name already exists.	The app name already exists under the account. Change the app name to create an app.
400	RTC.00001021	NoPermission: policy doesn't allow action to be performed	You do not have the permission for calling this API.	Check whether the account for generating authentication information has the permission for accessing the API.
400	RTC.00001022	job is not initialized	The task is not initialized, and the operation cannot be performed.	Wait until the task is initialized.
404	RTC.00001008	JobNotExist: job does not exist	The task does not exist.	Check whether the parameter is correct.
404	RTC.00001011	RecordRuleNotExist: record rule not exist under your app	The recording rule does not exist under the app ID.	Check whether the parameter is correct.
404	RTC.00001014	BucketNotExists: bucket does not exist	The bucket does not exist.	Check whether the parameter is correct.
404	RTC.00001015	AppNotExist: app does not exist under your account	The app ID does not exist under the account.	Check whether the account used for calling the API is correct. For example, an incorrect token is used.

Status Code	Error Codes	Error Message	Description	Solution
500	RTC.00002001	InternalServerError	The ID generation component is faulty.	Submit a service ticket and contact O&M personnel.
500	RTC.00002002	InternalServerError.DbErr	Fault of database operation	Submit a service ticket and contact O&M personnel.
500	RTC.00002003	InternalServerError.Transcode4xxError	Input fault of the media processing component	Submit a service ticket and contact O&M personnel.
500	RTC.00002004	InternalServerError.Transcode5xxError	Internal fault of the media processing component	Submit a service ticket and contact O&M personnel.
500	RTC.00002005	InternalServerError.Live4xxError	Input fault of the recording component	Submit a service ticket and contact O&M personnel.
500	RTC.00002006	InternalServerError.Live5xxError	Internal fault of the recording component	Submit a service ticket and contact O&M personnel.

## 15.3 Obtaining a Project ID

A project ID is required for some URLs when an API is called. You can obtain a project ID using either of the following methods:

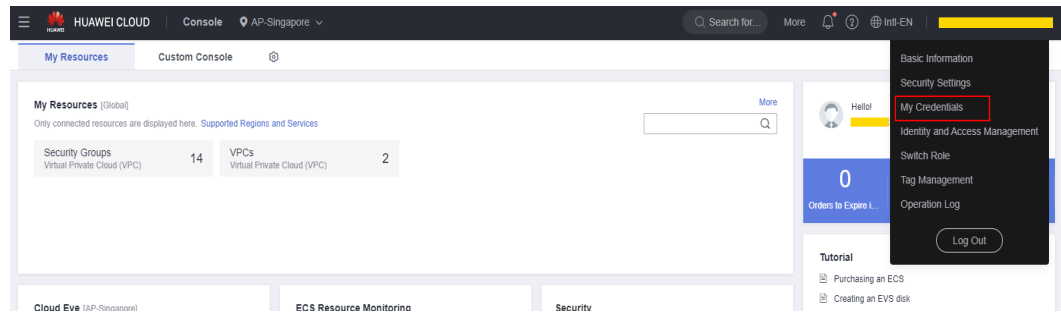
- [Obtaining a Project ID from the Console](#)
- [Obtaining a Project ID by Calling an API](#)

### Obtaining a Project ID from the Console

**Step 1** Log in to the [console](#).

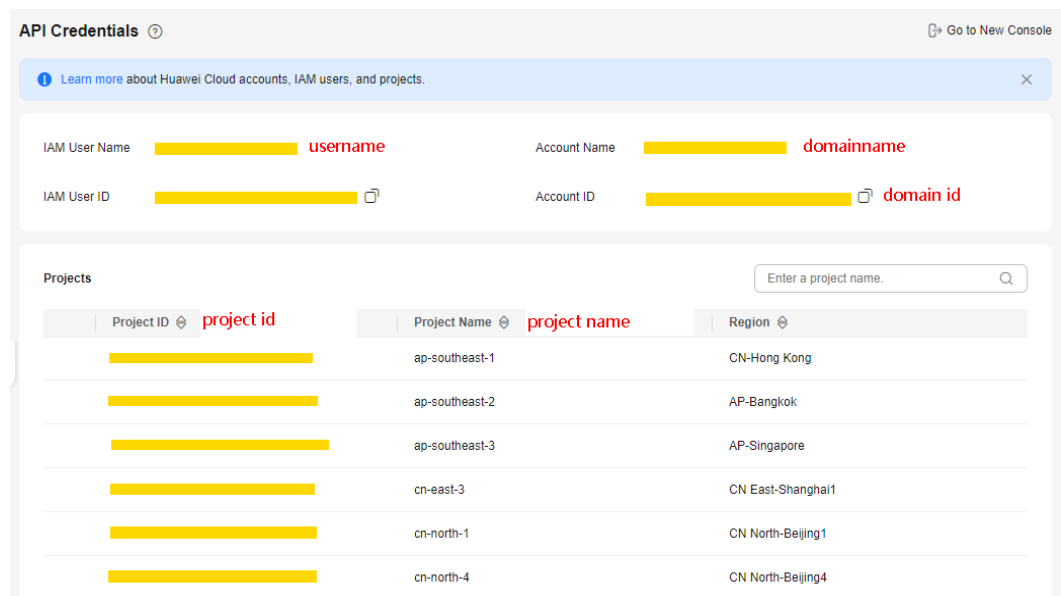
**Step 2** Hover over the username in the upper right corner and select **My Credentials** from the drop-down list.

**Figure 15-1 Console**



**Step 3** On the **API Credentials** page, view project IDs in the project list.

**Figure 15-2 Obtaining a project ID**



----End

## Obtaining a Project ID by Calling an API

You can obtain a project ID by calling the API for [querying project information](#).

The API for obtaining a project ID is **GET https://{Endpoint}/v3/projects/**. *{Endpoint}* indicates the endpoint of IAM, which can be obtained from [Endpoints](#). For details about API authentication, see [Authentication](#).

The following is an example response. The value of **id** under **projects** is the project ID.

```
{
  "projects": [
    {
      "domain_id": "65382450e8f64ac0870cd180d14e684b",
      "is_domain": false,
      "parent_id": "65382450e8f64ac0870cd180d14e684b",
      "name": "region01",
      "description": "",
      "links": {
```

```

    "next": null,
    "previous": null,
    "self": "https://www.example.com/v3/projects/a4a5d4098fb4474fa22cd05f897d6b99"
  },
  "id": "a4a5d4098fb4474fa22cd05f897d6b99",
  "enabled": true
}
],
"links": {
  "next": null,
  "previous": null,
  "self": "https://www.example.com/v3/projects"
}
}

```

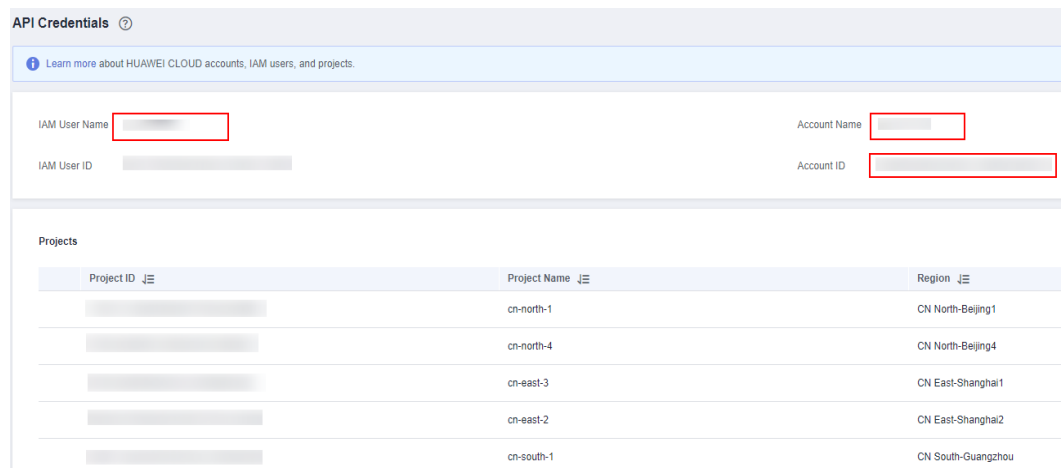
## 15.4 Obtaining an Account ID

An account ID is required for some URLs when an API is called. To obtain an account ID, perform the following steps:

- Step 1** Log in to the [console](#).
- Step 2** Hover over the username in the upper right corner and select **My Credentials** from the drop-down list.

On the **API Credentials** page, obtain the account ID.

**Figure 15-3** Obtaining an account ID



----End

## 15.5 Region Name Abbreviations

**Table 15-2** Region name abbreviations

Region	Abbreviation
Others	OT
Beijing	BJ

Region	Abbreviation
Tianjin	TJ
Chongqing	CQ
Shanghai	SH
Guangdong	GD
Hainan	HI
Guangxi	GX
Yunnan	YN
Shanxi	SX
Hebei	HE
Inner Mongolia	NM
Ningxia	NX
Liaoning	LN
Jilin	JL
Heilongjiang	HL
Jiangsu	JS
Zhejiang	ZJ
Jiangxi	JX
Shandong	SD
Fujian	FJ
Anhui	AH
Sichuan	SC
Xizang	XZ
Shannxi	SN
Qinghai	QH
Xinjiang	XJ
Gansu	GS
Guizhou	GZ
Hubei	HB
Hunan	HN
Henan	HA

Region	Abbreviation
Hong Kong	HK
Macao	MO
Taiwan	TW

## 15.6 Receiving a Recording Event Callback Notification

When SparkRTC calls back an API provided by a user, the following information is attached:

**Table 15-3** Request body parameter description

Parameter	Mandatory	Data Type	Description
job_id	No	String	Job ID, which can be used to modify, view, and stop a recording job.
stream_name	No	String	Stream name
app_id	No	String	Application ID
room_id	No	String	Room ID
event_type	No	String	Notification event type: <ul style="list-style-type: none"> <li>• <b>RECORD_NEW_FILE_START</b>: The recording module starts to create a file.</li> <li>• <b>RECORD_FILE_COMPLETE</b>: The recording module completes file generation.</li> <li>• <b>CLOUD_RECORD_SERVER_OVER</b>: The cloud-based recording job ends.</li> </ul>
record_format	No	String	Recording format. The options are as follows: <ul style="list-style-type: none"> <li>• HLS</li> <li>• MP4</li> </ul>
download_url	No	String	Download address of OBS where the recording file is stored. The address cannot be used for content playback. This parameter is needed when <b>event_type</b> is set to <b>RECORD_FILE_COMPLETE</b> .

Parameter	Mandatory	Data Type	Description
record_duration	No	Long	Duration of a recording, in seconds. This parameter is needed when <b>event_type</b> is set to <b>RECORD_FILE_COMPLETE</b> .
width	No	Integer	Width of a recording. This parameter is needed when <b>event_type</b> is set to <b>RECORD_FILE_COMPLETE</b> .
height	No	Integer	Height of a recording. This parameter is needed when <b>event_type</b> is set to <b>RECORD_FILE_COMPLETE</b> .
start_time	No	String	UTC time when the recording starts. The format is YYYY-MM-DDThh:mm:ssZ. This parameter is needed when <b>event_type</b> is set to <b>RECORD_FILE_COMPLETE</b> .
end_time	No	String	UTC time when the recording ends. The format is YYYY-MM-DDThh:mm:ssZ. This parameter is needed when <b>event_type</b> is set to <b>RECORD_FILE_COMPLETE</b> .
obs_location	No	String	OBS region where the file is stored. This parameter is needed when <b>event_type</b> is set to <b>RECORD_FILE_COMPLETE</b> .
obs_bucket	No	String	OBS bucket where the file is stored. This parameter is needed when <b>event_type</b> is set to <b>RECORD_FILE_COMPLETE</b> .
obs_object	No	String	Full path of the OBS bucket where the file is stored. This parameter is needed when <b>event_type</b> is set to <b>RECORD_FILE_COMPLETE</b> .
detail_message	No	String	Status description

# 16 Change History

**Table 16-1** Change history

Released On	Description
2023-08-28	This issue is the fourth official release. <ul style="list-style-type: none"><li>• Added the OBS bucket management APIs.</li><li>• Added the APIs for querying event details and for querying abnormal user experience events of a specified project.</li></ul>
2023-07-06	This issue is the third official release. Deleted the <b>publish_param</b> parameter from the APIs for starting a single stream task, updating a single stream task, and starting a mixed stream task.
2023-05-24	This issue is the second official release. Changed the enumerated value of the <b>encode_template</b> parameter in the API for starting a mixed stream task from <b>640x480_30_1000</b> to <b>640x480_30_1500</b> .
2022-09-30	This issue is the first official release.