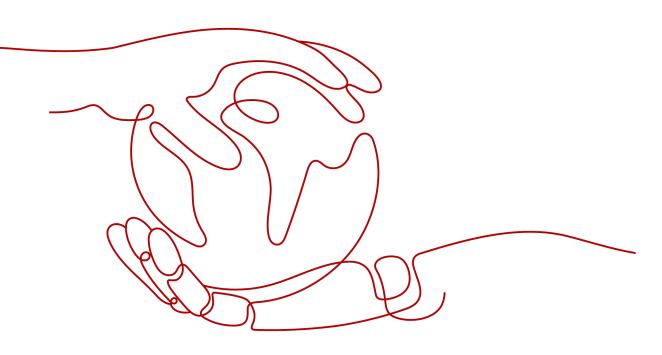
Media Processing Service

User Guide

 Issue
 01

 Date
 2022-03-31





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Contents

1 Permissions Management	1
1.1 Creating a User and Granting MPC Permissions	1
2 Overview	3
3 Uploading Media Files	5
4 Authorizing Access to Cloud Resources	7
5 Configuring Event Notifications	9
6 Customizing a Transcoding Template	
7 Customizing a Transcoding Template Group	21
8 Media Processing	27
8.1 Creating a Video Transcoding Task	70
8.2 Creating an Audio Transcoding Task	
8.2 Creating an Audio Transcoding Task8.3 Creating a Packaging Task	
8.2 Creating an Audio Transcoding Task	
8.2 Creating an Audio Transcoding Task8.3 Creating a Packaging Task	

Permissions Management

1.1 Creating a User and Granting MPC Permissions

This chapter describes how to use **IAM** to implement fine-grained permissions control for your MPC resources. With IAM, you can:

- Create IAM users for employees based on your enterprise's organizational structure. Each IAM user will have their own security credentials for accessing MPC resources.
- Grant only the permissions required for users to perform a specific task.
- Entrust a HUAWEI CLOUD account or cloud service to perform efficient O&M on your MPC resources.

If your HUAWEI CLOUD account does not require individual IAM users, skip this chapter.

This section describes the procedure for granting permissions (see Figure 1-1).

MPC System Permissions

By default, new IAM users do not have permissions assigned. You need to add a user to one or more groups, and attach permissions policies or roles to these groups. Users inherit permissions from the groups to which they are added and can perform specified operations on cloud services based on the permissions.

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

Currently, the system role of MPC is **MPC Administrator**, which has all of the permissions for MPC.

For the permissions of other services, see System Permissions.

Prerequisites

Learn about the permissions (see **MPC System Permissions**) supported by MPC and choose policies or roles according to your requirements.

Process Flow

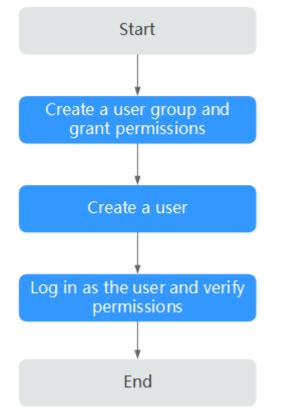


Figure 1-1 Process for granting MPC read-only permissions

1. Create a user group and assign permissions to it.

Create a user group on the IAM console, and attach the **MPC Administrator** policy to the group.

2. Create an IAM user.

Create a user on the IAM console and add the user to the group created in 1.

3. Log in and verify permissions.

Log in to the console by using the user created, and verify that the user only has read permissions for MPC.

- Choose Service List > Media Processing Center. If all functions work well, the MPC Administrator policy has already taken effect.
- Choose any other service in Service List. If a message appears indicating that you have insufficient permissions to access the service, the MPC Administrator policy has already taken effect.

2 Overview

On the **Dashboard** page of the MPC console, you can view resource usage this month, usage trends, billing mode, process flow, SDKs, and documentation for you to get started with MPC quickly.

Statistics on This Month

View resource usage in this month.

Resource Usage This Month	
0.02 н	1
Transcoding duration	Transcoding API calls

Resources include API calls and transcoding duration.

ltem	Description
Transcodin g duration	Total duration of the content that you output
Transcodin g API calls	Total number of transcoding API calls

Usage Trends

View the resource usage trends in the last week, last month, or a custom time period.

Last Week	Last N	lonth	Custon	nize	Oct 0	1, 2019	– Nov 3	0, 2019		× i 🛗								
ranscoding Dur	ation	Transcoding	g API Cal	s														
nutes																		
			٨٨			1	• Tra	anscod	ina Du	ration:	0.2	minut	es					
5			$\Lambda \Lambda$					019/10/										
5			\square															
			/															
10/01 10/04	10/07	10/10 10/13	10/16	10/19	10/22	10/25	10/28	10/31	11/03	11/06	11/09	11/12	11/15	11/18	11/21	11/24	11/27	11/

Billing Mode

View the billing mode you have chosen and buy MPC packages if needed.

Billing Mode

Pay-per-use. If you have purchased a package, then the package will be used first.

Pricing Details

3 Uploading Media Files

MPC does not store media files. Upload a video file to be transcoded to an OBS bucket before using MPC. This section describes how to upload media files.

Notes

MPC only processes media files stored in an OBS bucket whose region is the same as MPC. If you want to use MPC in CN North-Beijing 4, then the bucket that stores media files must be in CN North-Beijing 4 as well.

Procedure

- **Step 1** Log in to the OBS console.
- Step 2 Click Create Bucket.
- **Step 3** On the displayed page, enter the bucket name and select the **storage class** and **bucket policy** based on your needs.

Step 4 Click Create Now.

If the input and output files are stored in the same bucket, create one bucket. Otherwise, create two buckets as the input and output buckets respectively.

Storage Class	Application Scenario
Standard	Stores frequently accessed (multiple times per month) data such as small and essential files that require low latency.
Infrequent Access	Stores infrequently accessed (once per month) data that requires low latency.
Archive	Stores rarely accessed (once per year) data.

Table 3-1 Storage classes

Bucket Policy	Description
Private	Only the bucket owner can read, write, and delete objects in the bucket.
Public Read	Any user can read objects in the bucket. Only the bucket owner can write and delete objects in the bucket.
Public Read and Write	Any user can read, write, and delete objects in the bucket.

Table 3-2 Bucket policies

NOTE

- Select a region where you want MPC to do the transcoding. If you use MPC in CN North-Beijing 4, then you need to create a bucket in CN North-Beijing 4.
- If input files and output files are stored in different buckets, you are advised to set the storage class of the input bucket to **Infrequent Access** and that of the output bucket to **Standard**.

Step 5 Configure the input folder.

- 1. Click the name of the bucket created in **step 3**. The bucket details page is displayed.
- 2. In the navigation pane, choose **Objects**. On the displayed page, click **Create Folder** to create an input folder.

Object Storage Service	Object Storage / mpo-1						
Jeinice							
Overview	Objects Deleted Objects	Fragments					
Objects	Objects are basic units of data storage. In OB	S, files and folders are treated as objects. Any file t	ype can be uploaded and ma	anaged in a bucket. Learn more			
Permissions	Upload Object Create Folder	Restore Delete Change Stora	ge Class				Enter an object name prefix. Q
Basic Configurations •	Name ↓Ξ	Storage Class ↓Ξ	Size J≡	Encrypted	Restoration Status	Last Modified JF	Operation
Domain Name Mgmt	Dinput		-	-	-	-	Share Copy Path More 💌
Cross-Region Replication							
Image Processing							
Inventories							

- **Step 6** Configure the output folder. The procedure is similar to that in **step 5**.
 - 1. Click the name of the output bucket created in **step 3**. The bucket details page is displayed.
 - 2. In the navigation pane, choose **Objects**. On the displayed page, click **Create Folder** to create an output folder.

Step 7 Upload media files.

- 1. On the input bucket details page, click the name of the input folder.
- 2. Click **Upload File** and select a media file.
- 3. Select the **storage class** and encryption mode of the file, and click **OK**.

----End

4 Authorizing Access to Cloud Resources

After an input video file is uploaded to an OBS bucket, you need to authorize MPC to access the input bucket and output bucket.

Authorization Methods

MPC provides two authorization methods. You can select either of them. The difference between two authorization methods lies in the roles that access OBS. As a result, transcoded files belong to different roles.

Authorizatio n Method	Description
Bucket authorization	 MPC only has the read and write permissions on authorized buckets.
	 MPC accesses your OBS resources as an MPC role. The transcoded file is stored in an output bucket. You can download or delete the file. The file belongs to the MPC service and does not inherit the bucket policy of the output bucket.
	 If you need to change the permissions on the transcoded file, set the ACL for the file separately. For details, see Configuring an Object ACL.
OBS authorization	• MPC has the read and write permissions on all your buckets. OBS authorization is unavailable for IAM users.
	 MPC accesses OBS resources as your role. The transcoded file belongs to you and inherits the bucket policy of the output bucket by default.

Procedure

Step 1 Log in to the MPC console.

Step 2 In the navigation pane, choose **Cloud Resource Authorization**.

Step 3 Select an authorization method.

- OBS authorization Turn on the switch.
- Bucket authorization

In the row containing the input and output buckets, click **Authorize**.

OBS Authorization	Bucket Authorization				
Bucket Name		У	Status	∇	Operation
mpc-1		۷	Unauthorized	ų	Authorize
public-software			Unauthorized		Authorize
vod-test2			Authorized		Cancel Authorization
obs-dayutest			Unauthorized		Authorize

----End

5 Configuring Event Notifications

You can configure event notifications before submitting a media processing task. Once the task is executed, you will receive notifications on the event you subscribe to. This function depends on the SMN service. Therefore, SMN charges you based on the number of notification messages. For details about the price, see **SMN Pricing Details**.

Creating an SMN Topic

- **Step 1** Log in to the SMN console. In the navigation pane, choose **Topic Management** > **Topics**. The **Topics** page is displayed.
- Step 2 Click Create Topic in the upper right corner.
- **Step 3** In the displayed dialog box, configure topic information by referring to **Table 1**. Click **OK**.

Parameter	Description
Topic Name	 This parameter is mandatory. A topic name can include only letters, digits, hyphens (-),
	and underscores (_) and must start with a letter or digit.
	Length: 1–256 characters
Display Name	This parameter is optional. When sending an email:
	 If the display name is not set, the sender is displayed as username@example.com.
	 Otherwise, the email sender is presented as <i>Display</i> name<username@example.com>.</username@example.com>
Тад	Identifies cloud resources. This parameter is optional.

Table 5-1 Topic p	parameters
-------------------	------------

Step 4 Click Add Subscription in the Operation column.

Step 5 Configure the subscription protocol and endpoints. See **Figure 5-1**.

Figure 5-1 Adding a subscription

Topic Name	mpc-test
ropio nume	
Protocol	SMS
Endpoint 🔞	Enter one endpoint on a separate line.

 Table 5-2 describes the subscription parameters.

Table 5-2	Subscription	parameters
-----------	--------------	------------

Parameter	Description
Topic Name	Name of the topic to be subscribed to. Retain the default value.
Protocol	Message notification method. Select a protocol from the drop- down list.
	The common protocols used by MPC are SMS, email, and HTTP/ HTTPS.

Parameter	Description	
Endpoint	Subscription endpoint. You can enter up to 10 SMS, email, HTTP, or HTTPS endpoints, one in each line.	
	• SMS : Enter one or more valid phone numbers. The phone number must be preceded by a plus sign (+) and a country code.	
	Examples:	
	+86000000000	
	+86000000001	
	• Email: Enter one or more valid email addresses. Examples:	
	username@example.com	
	username2@example.com	
	HTTP or HTTPS: Enter one or more public network URLs. Examples:	
	http://example.com/notification/action	
	http://example2.com/notification/action	

Step 6 Receive a subscription confirmation message and confirm subscription. If the subscription endpoint is an email address, the page shown in Figure 5-2 is displayed. Then, the subscription endpoints can receive messages published to the topic.

Figure 5-2 Message subscription confirmation

Dear Sir or Madam,

Welcome to Simple Message Notification (SMN) service.

You are invited to subscribe to the topic: urn:smn:cn-north-1:0503dda897000fed2f78c00909158a4d:mpc-1

After confirmation, you will receive messages posted to this topic via email. Instructions on

Click the following URL to confirm your subscription: (If you don't want to subscribe to this Confirm Subscription

This URL is valid only within 48 hours.

This is an automatically generated email. Please do not reply. Official website: <u>https://www.huaweicloud.com</u> Service hotline: 4000-955-988

----End

×

Configuring a Topic Policy

- **Step 1** In the navigation pane of the SMN console, choose **Topic Management** > **Topics**.
- **Step 2** Click **More > Configure Topic Policy** in the **Operation** column.
- **Step 3** Configure topic policy parameters. See **Figure 5-3**.

Figure 5-3 Configuring a topic policy

Configure Topic Policy Topic Name mpc-test Policy Advanced Basic Users who can publish messages to this topic Topic creator All users Specified user accounts Enter one or more account IDs or URNs, each on a separate line. Learn how to obtain an account ID. Services that can publish messages to this topic LIVE OBS VOD DWS APM AAD MPC ОК Cancel

Topic policies are classified into basic mode and advanced mode. The basic mode simply specifies which users or cloud services have permissions to publish messages to a topic. See **Figure 5-3**.

Table 5-3 Descripti	on for confiaurin	a topic policies ir	n basic mode
		J	

Parameter	Settings	Description
Users who can publish	Topic creator	Only the topic creator has the permission to publish messages to the topic.
messages to this topic	All users	All users have the permission to publish messages to the topic.

Parameter	Settings	Description	
	Specified user accounts	Only specified users have the permission to publish messages to the topic.	
		Users are specified in the format of urn:csp:iam::domainId:root, in which domainId indicates the account ID of a user.	
		Every two users are separated with a comma (,). SMN does not limit the number of users you can specify, but the total length of a topic policy cannot exceed 30 KB.	
		NOTE	
		 Enter the account ID of the user and click OK.Other information is automatically supplemented by the system. 	
		 To obtain a user's account ID, log in to the SMN console, hover the mouse over the username in the upper right corner and choose My Credentials from the drop-down list. 	
Services that can publish messages to this topic	See Figure 5-3.	Select MPC . MPC has the permissions to access the topic.	

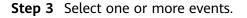
----End

Configuring Event Notifications

Step 1 Log in to the MPC console.

Step 2 In the navigation pane, choose **Global Settings** > **Event Notifications**.

Event		
Transcoding completed	Transcoding started	Snapshot captured
Packaging completed	GIF created	
Message	JSON message	
SMN Topic Select SMN Topic		+



Step 4 Select one or more message types.

Template Message Body describes a template message body. **JSON Message Body** describes the fields in a JSON message body.

D NOTE

If **Template message** and **JSON message** are both selected, you will receive template messages via SMS and email, and receive JSON messages via HTTP and HTTPS.

- **Step 5** Select an SMN topic.
- Step 6 Click OK.

----End

Template Message Body

• The following is an example of a template message used for transcoding started:

Dear user, your video transcoding task (task ID: {task_id}) has been started. Log in to the MPC console or call the transcoding API to obtain transcoding details.

- The following is an example of a template message used for a successful transcoding, snapshot, packaging, and animated GIF task:
 Dear user, your video {transcoding/snapshot/packaging/animated GIF/parsing} task (task ID: {task_id}) has been completed. Log in to the MPC console or call the transcoding API to obtain details.
- The following is an example of a template message used for a failed transcoding, snapshot, packaging, and animated GIF task: Dear user, an error occurs when processing your video {transcoding/snapshot/packaging/animated GIF/parsing} task (task ID: {task_id}). Error code: {err_code}. Error information: {err_msg}.

6 Customizing a Transcoding Template

In addition to the presets, you can customize one-in one-out transcoding templates based on your needs.

Creating a Transcoding Template

You can specify transcoding parameters as needed.

- **Step 1** Log in to the MPC console.
- **Step 2** In the navigation pane, choose **Global Settings** > **Custom Templates**.
- **Step 3** Click **Create Custom Template**. In the displayed dialog box, specify related parameters.

Basic Information			
* Template Name	Enter a template name.	0	
* Output Format:	HLS	•	
	1120		
Video Parameters Audio o	niy 🕐		
* Video Codec	O H264 ○ H265		
* Low Bitrate HD (PVC)	Disabled	*	
	After turning on, transcoding will be charge	d according to the HD low code standard.Learn more	
* HLS Segment Duration:	5	₩ S	
Width (Unit: px) ⑦		Height (Unit: px) ③	Bitrate (Unit: kbit/s) ③
The value is 0 or a multiple of	f 2 from 32 to 4,096.	The value is 0 or a multiple of 2 from 32 to 2,880.	The value is 0 or ranges from 40 to 30,000.
* Maximum I-Frame Interval	5	▼ s ⑦	
 Maximum Consecutive B- Frames 	4	· ⑦	

Step 4 Set basic information. See **Table 6-1**.

Parameter	Description	
Template Name	Enter a maximum of 128 characters. Only letters, underscores (_), and digits are allowed. Example: MP4_H264	
Output Format	 Format of an output audio or video file. The following output formats are supported: Video formats: MP4, HLS, DASH+HLS, and DASH 	
	Audio formats: ADTS and MP3	
	Note: If you select Audio only , the video parameters are disabled and only audio is transcoded.	

Table 6-1 Basic information

Step 5 Set video parameters. See **Table 2**.

If **Audio only** is selected, the output file does not contain any video information. This option applies to the scenario where audio is extracted from a media file. Perform **step 7** to set audio parameters.

 Table 6-2 Basic video parameters

Parameter	Description	
Video Codec	The H.264 and H.265 formats are supported.	
Low Bitrate HD (PVC)	Whether to enable low bitrate HD. The function is disabled by default. If this function is enabled, the output bitrate is about 20% lower than the configured bitrate.	
HLS Segment Duration	Length of an HLS segment. This parameter is only used when Output Format is set to HLS or DASH+HLS . The value ranges from 2 to 10. Default value: 5 Unit: s	
Dash Segment Duration	Length of a dash segment. This parameter is only used when Output Format is set to DASH or DASH+HLS . The value ranges from 2 to 10. Default value: 5 Unit: s	

Parameter	Description	
Width (Unit: px)	Width of an output video.	
	Its value range:	
	• If H.264 is selected for Video Codec , this value is 0 or a multiple of 2 from 32 to 4,096.	
	 If H.265 is selected for Video Codec, this value is 0 or a multiple of 2 from 160 to 4,096. 	
Height (Unit: px)	Height of an output video.	
	Its value range:	
	• If H.264 is selected for Video Codec , this value is 0 or a multiple of 2 from 32 to 2,880.	
	• If H.265 is selected for Video Codec , this value is 0 or a multiple of 2 from 96 to 2,880.	
Bitrate (Unit: kbit/s)	Bitrate of an output video.	
	The value is 0 or ranges from 40 to 30,000.	
	You are advised to set it to a recommended value. For details, see Table 6-3 . If Bitrate is set to 0 , the recommended bitrate is used.	

D NOTE

- If both the video width and height are set to **0**, an output video is generated based on the resolution of the input video.
- If the video bandwidth or height is set to **0**, the corresponding value is scaled based on the original size.

Video Quality	Recommended Resolution	Recommended Bitrate for H.265 (kbit/s)	Recommended Bitrate for H.264 (kbit/s)
4K	3840x2160	5600	8000
2К	2560x1440	4900	7000
UHD	1920x1080	2100	3000
HD	1280x720	700	1000
SD	854x480	500	600
LD	480x270	200	300

Table 6-3 Recommended resolutions and bitrates

If the bitrate is set to 0 and the configured resolution is not one of the recommended resolutions in the preceding table, use the recommended bitrate for the recommended resolution which is close to the configured resolution.

For example, if the bitrate is set to 0 and the resolution is set to 900x500, the output bitrate is the recommended bitrate for the resolution 854x480, that is, 500 for H.265 and 600 for H.264.

Step 6 Configure advanced video parameters. See **Table 4**.

Parameter	Description		
Maximum I-Frame Interval	Maximum interval between I frames (initial frame during playback). The value ranges from 2 to 5.		
Maximum Consecutive B- Frames	 Maximum number of consecutive B-frames (intermediate frames during playback). Value range: 0 to 7 for H.264. The default value is 4. 0 to 7 for H.265. The default value is 7. 		
Profile	 Video encoding level, which is related to the video codec. It cannot be modified. If Video Codec is H.264, the default value is VIDEO_PROFILE_H264_HIGH. If Video Codec is H.265, the default value is VIDEO_PROFILE_H265_MAIN. 		
FPS	Frame rate of an output video file. The value is 0 or ranges from 5 to 30. The value 0 indicates that the FPS of the output video is the same as that of the input video.		
Maximum Reference Frames	Number of past and future frames affected during decoding. Its value is: • An integer ranging from 1 to 8 for H.264 • Permanently 4 for H.265		
Quality	Quality level of video encoding. It cannot be modified. Possible values are: • VIDEO_PRESET_HSPEED2 • VIDEO_PRESET_HSPEED • VIDEO_PRESET_NORMAL (default value)		

 Table 6-4 Advanced video parameters

Parameter	Description
Black Bar Removal	Whether to automatically detect black bars and remove them.
	This function is disabled by default.

Step 7 Set audio parameters by referring to **Table 6-5**.

If **Video only** is selected, the output file does not contain any audio information. This option applies to the scenario where video is extracted from a media file.

Parameter	Description
Audio Codec	Audio codec.
	Possible values include AAC and HEAAC1 . The default value is AAC .
Audio Channel	Possible values include Stereo , Mono , and 5.1 Channel . The default is Stereo .
Sampling Rate	Choose one from Auto , 22050 , 32000 , 44100 , 48000 , and 96000 . The default value is Auto . The unit is Hz.
	Auto indicates adaptive sampling.
Bitrate	Bitrate of an output audio.
	The value is 0 or an integer ranging from 8 to 1,000.
	Unit: kbit/s

Step 8 Click OK.

----End

Modifying a Transcoding Template

You can modify a custom template, including the video parameters, audio parameters, and template name, to meet your service requirements.

- **Step 1** Log in to the MPC console.
- **Step 2** In the navigation pane, choose **Global Settings** > **Custom Templates**.
- **Step 3** Locate the target template and click **Modify** in the **Operation** column.
- **Step 4** Reconfigure the parameters that you want to modify. For details about the parameters, see **Creating a Transcoding Template**.
- Step 5 Click OK.

----End

Deleting a Transcoding Template

You can delete a template that is no longer used.

Step 1 Log in to the MPC console.

- **Step 2** In the navigation pane, choose **Global Settings** > **Custom Templates**.
- **Step 3** Locate the target template and click **Delete** in the **Operation** column.
- Step 4 Click Yes.

----End

7 Customizing a Transcoding Template Group

In addition to the preset templates, you can customize one-in multiple-out transcoding templates based on your needs.

Creating a Transcoding Template Group

You can specify transcoding parameters as needed.

- **Step 1** Log in to the MPC console.
- **Step 2** In the navigation pane, choose **Global Settings** > **Custom Template Groups**.
- **Step 3** Click **Create Custom Template Group**. In the displayed dialog box, specify related parameters.

Custom Template Groups	Sack to Custom Template Group List			
Basic Information				
* Template Group Name	Enter a template group name.	0		
* Output Format:	HLS	¥		
Video Parameters Audio only	· ⑦			
* Video Codec	O H264 ○ H265			
* Low Bitrate HD (PVC)	Disabled After turning on, transcoding will be charged accorr	v		
* HLS Segment Duration:	5	s		
Width (Unit: px) ③		Height (Unit: px) ③	Bitrate (Unit: kbit/s) ③	Operation
The value is 0 or a multiple of 2	? from 32 to 4,096.	The value is 0 or a multiple of 2 from 32 to 2,880.	The value is 0 or ranges from 40 to 30,000.	ΰ
+ Add				
* Maximum I-Frame Interval	5	▼ s ⑦		
* Maximum Consecutive B- Frames	4	- O		
* Profile	VIDEO_PROFILE_H264_HIGH	*		
FPS:	The value is 0 or an integer from 5 to 30.			
* Maximum Reference Frames	4	· ③		
* Quality	VIDEO_PRESET_NORMAL	¥		
* Quality	VIDEO_PRESET_NORMAL	Ŧ		
Augo Parameters 1000 0mg	\sim			
* Audio Codec	AAC	Ŧ		
* Audio Channel:	Stereo	Ŧ		
* Sample Rate	Auto	¥		
Bitrate	The value is 0 or an integer from 8 to 1,000.	kbit/s		

Step 4 Set basic information. See Table 7-1.

Parameter	Description
Template Name	Enter a maximum of 128 characters. Only letters, underscores (_), and digits are allowed. Example: MP4_H264
Output Format	 Format of an output audio or video file. The following output formats are supported: Video formats: MP4, HLS, DASH+HLS, and DASH
	 Audio formats: ADTS and MP3 Note: If you select Audio only, the video
	parameters are disabled and only audio is transcoded.

Table 7-1 Basic information

Step 5 Set video parameters. See **Table 2**.

If **Audio only** is selected, the output file does not contain any video information. This option applies to the scenario where audio is extracted from a media file. Perform **step 7** to set audio parameters.

Table 7-2 Basic video parameters

Parameter	Description	
Video Codec	The H.264 and H.265 formats are supported.	
Low Bitrate HD (PVC)	Whether to enable low bitrate HD. The function is disabled by default. If this function is enabled, the output bitrate is about	
	20% lower than the configured bitrate.	
HLS Segment Duration	Length of an HLS segment. This parameter is only used when Output Format is set to HLS or DASH+HLS .	
	The value ranges from 2 to 10. Default value: 5	
	Unit: s	
Dash Segment Duration	Length of a dash segment. This parameter is only used when Output Format is set to DASH or DASH+HLS .	
	The value ranges from 2 to 10.	
	Default value: 5	
	Unit: s	
Width (Unit: px)	Width of an output video.	
	Its value range:	
	 If H.264 is selected for Video Codec, this value is 0 or a multiple of 2 from 32 to 4,096. 	
	 If H.265 is selected for Video Codec, this value is 0 or a multiple of 2 from 160 to 4,096. 	
Height (Unit: px)	Height of an output video.	
	Its value range:	
	 If H.264 is selected for Video Codec, this value is 0 or a multiple of 2 from 32 to 2,880. 	
	 If H.265 is selected for Video Codec, this value is 0 or a multiple of 2 from 96 to 2,880. 	
Bitrate (Unit: kbit/s)	Bitrate of an output video.	
	The value is 0 or ranges from 40 to 30,000.	
	You are advised to set it to a recommended value. For details, see Table 7-3 . If Bitrate is set to 0 , the recommended bitrate is used.	

NOTE

- If both the video width and height are set to **0**, an output video is generated based on the resolution of the input video.
- If the video bandwidth or height is set to **0**, the corresponding value is scaled based on the original size.

Video Quality	Recommended Resolution	Recommended Bitrate for H.265 (kbit/s)	Recommended Bitrate for H.264 (kbit/s)
4K	3840x2160	5600	8000
2К	2560x1440	4900	7000
UHD	1920x1080	2100	3000
HD	1280x720	700	1000
SD	854x480	500	600
LD	480x270	200	300

Table 7-3	Recommended	resolutions	and bitrates

NOTE

If the bitrate is set to 0 and the configured resolution is not one of the recommended resolutions in the preceding table, use the recommended bitrate for the recommended resolution which is close to the configured resolution.

For example, if the bitrate is set to 0 and the resolution is set to 900x500, the output bitrate is the recommended bitrate for the resolution 854x480, that is, 500 for H.265 and 600 for H.264.

- Step 6 Click Add to add resolutions and bitrates.
- Step 7 Configure advanced video parameters. See Table 4.

	Table	7-4	Advanced	video	parameters
--	-------	-----	----------	-------	------------

Parameter	Description
Maximum I-Frame Interval	Maximum interval between I frames (initial frame during playback). The value ranges from 2 to 5.
Maximum Consecutive B- Frames	Maximum number of consecutive B-frames (intermediate frames during playback).
	Value range:
	• 0 to 7 for H.264. The default value is 4 .
	• 0 to 7 for H.265. The default value is 7 .
Profile	Video encoding level, which is related to the video codec. It cannot be modified.
	 If Video Codec is H.264, the default value is VIDEO_PROFILE_H264_HIGH.
	 If Video Codec is H.265, the default value is VIDEO_PROFILE_H265_MAIN.

Parameter	Description
FPS	Frame rate of an output video file.
	The value is 0 or ranges from 5 to 30.
	The value 0 indicates that the FPS of the output video is the same as that of the input video.
Maximum Reference Frames	Number of past and future frames affected during decoding.
	Its value is:
	• An integer ranging from 1 to 8 for H.264
	Permanently 4 for H.265
Quality	Quality level of video encoding. It cannot be modified.
	Possible values are:
	VIDEO_PRESET_HSPEED2
	VIDEO_PRESET_HSPEED
	 VIDEO_PRESET_NORMAL (default value)
Black Bar Removal	Whether to automatically detect black bars and remove them.
	This function is disabled by default.

Step 8 Set audio parameters by referring to **Table 7-5**.

If **Video only** is selected, the output file does not contain any audio information. This option applies to the scenario where video is extracted from a media file.

Parameter	Description	
Audio Codec	Audio codec. Possible values include AAC and HEAAC1 . The default value is AAC .	
Audio Channel	Possible values include Stereo , Mono , and 5.1 Channel . The default is Stereo .	
Sampling Rate	Choose one from Auto , 22050 , 32000 , 44100 , 48000 , and 96000 . The default value is Auto . The unit is Hz. Auto indicates adaptive sampling.	
Bitrate	Bitrate of an output audio. The value is 0 or an integer ranging from 8 to 1,000. Unit: kbit/s	

Table 7-5 Audio parameters

Step 9 Click OK.

----End

Modifying a Transcoding Template Group

You can modify a custom template group, including the video parameters, audio parameters, and template name, to meet your service requirements.

- **Step 1** Log in to the MPC console.
- **Step 2** In the navigation pane, choose **Global Settings** > **Custom Template Groups**.
- **Step 3** Locate the target template group and click **Modify** in the **Operation** column.
- **Step 4** Reconfigure the parameters that you want to modify. For details about the parameters, see **Creating a Transcoding Template Group**.
- Step 5 Click OK.

----End

Deleting a Transcoding Template Group

You can delete a template group that is no longer used.

- **Step 1** Log in to the MPC console.
- **Step 2** In the navigation pane, choose **Global Settings** > **Custom Template Groups**.
- **Step 3** Locate the target template group and click **Delete** in the **Operation** column.
- Step 4 Click Yes.

----End

8 Media Processing

8.1 Creating a Video Transcoding Task

You can select a video transcoding template and create a video transcoding task to transcode video files stored in OBS buckets.

Prerequisites

- An input video file has been uploaded to an OBS bucket. MPC is used in the same region as the OBS bucket. If the video file has not been uploaded, upload it by referring to **Uploading Media Files**.
- MPC has been authorized to access the buckets that store the input file and output file. If MPC has not been authorized, authorize MPC by referring to Authorizing Access to Cloud Resources.
- If you want to receive the task status updates, configure the event notifications function. For details, see **Configuring Event Notifications**.
- If you want to use a custom transcoding template, create a transcoding template first. For details, see **Creating a Transcoding Template**.

Restrictions

Video codecs supported are H.264, H.265, MPEG-2, MPEG-4, MJPEG, VP6/7/8/9, WMV1/2/3, and ProRes 422. If an input file is not in one of these formats, transcoding will fail.

Procedure

- **Step 1** Log in to the MPC console.
- **Step 2** In the navigation pane, choose **Media Processing** > **Transcoding**.
- Step 3 Click Create Task.
- **Step 4** Configure basic parameters, including the buckets and paths for storing an input file and output file.

Create Task < Back to Task List

1. Before starting a transcoding task, create an OBS bucket, upload a media file, and authorize MPC to access the bucket, <u>Upload File Authorize Access</u> 2. MPC supports the following input formats: MPA, TS, MCV, MXF, MPG, FLV, WMV, AV, MP3, ADTS, 3GP, MAV, and ADUS. More formats will be available soon. 3. If you use a one-in multiple out template for transcoding, you need to pay for transcoding for multiple output files. <u>Learn more</u>					
* Input Bucket	Select an input bucket.	Select	* Input File	Select an input file.	Select
* Output Bucket	Select an output bucket.	Select	Output Path		Select

Step 5 Select a transcoding template as required.

One-in One-out Templates One-in Multiple-out Templates Custom Template Groups				
Output Format 💿 AI 💫 HLS 🔿 DASH 🖉 MP3 🔷 ADTS 🔿 DASH+HLS				
Video Codec • All • H264 • H265				
Resolution (1) All Low Bitrate HD (1) All				
Output Format	Template Name	Template ID	Resolution/Bitrate (kbit/s)	
O MP4	MP4_H.265_P4K	7000761	3840*2160/5600(4K)	
○ MP4	MP4_H.265_P2K	7000762	2560*1440/4900(2K)	
○ MP4	MP4_H.265_4K	7000605	3840*2160/5600(4K)	
○ MP4	MP4_H.265_2K	7000606	2560*1440/4900(2K)	
O HLS	HLS_H.265_P4K	7000719	3840*2160/5600(4K)	
< 1 2 3 4 5 11 >				

MPC provides a wealth of one-in one-out and one-in multiple-out system templates, which are configured with common parameters such as the definition, bitrate, and resolution. You are advised to use system templates. You can choose **Global Settings** > **System Templates** to view the parameters of a system template on the MPC console.

NOTICE

- Audio files cannot be transcoded using a video transcoding template.
- Video files in GIF format can be transcoded only to MP4 files.
- If you need a transcoding template that supports adaptive bitrate and image enhancement, **submit a service ticket**.

Step 6 Click OK.

Step 7 View the transcoding task status in the task list. You can view details about transcoding tasks of the past 60 days.

anscoding					
Note: Perform the folio	owing steps before trans	coding: <u>Upload Media File</u> -> <u>Authorize Access</u>	-> (Optional).Configure Event Notifications -> .(Optional).	Configure Transcoding Settings	
Create Task				All statuses • 2019/11/23 - 20	19/12/23 × 🗎 Sea
ID	Status	Start/End Time	Input	Output	Operation
Task ID: 10031737 Template ID: 7000524	Completed	Start Time: 2019/12/13 14:18:38 End Time: 2019/12/13 14:19:19	Bucket Name: mpc-1 Input File Name: video.mp4	Bucket Name: mpc-1 Output Path: /	Delete

- If transcoding succeeds, click **Output Path** in the **Output** column to switch to the OBS console, where you can view, download, and share the transcoded video file.
- If transcoding fails, view the failure cause in the **Output** column for troubleshooting.

----End

8.2 Creating an Audio Transcoding Task

You can select an audio transcoding template and create an audio transcoding task to transcode audio files stored in OBS buckets. The fee for audio transcoding is different from that for video transcoding. For details, see **Pricing Details**.

Prerequisites

- An input audio file has been uploaded to an OBS bucket. MPC is used in the same region as the OBS bucket. If the audio file has not been uploaded, upload it by referring to **Uploading Media Files**.
- MPC has been authorized to access the buckets that store the input file and output file. If MPC has not been authorized, authorize MPC by referring to Authorizing Access to Cloud Resources.
- If you want to receive the task status updates, configure the event notifications function. For details, see **Configuring Event Notifications**.

Restrictions

The supported audio codecs: AAC, AC3, EAC3, HE-AAC, MP2, MP3, PCM (s161e, s16be, s241e, s24be, DVD), and WMA

If the encoding format of the input file is not one of the preceding formats, transcoding will fail.

Creating an Audio Transcoding Template

MPC has six built-in one-in one-out audio transcoding templates. If the presets do not meet your requirements, you can perform the following steps to customize a one-in one-out audio transcoding template.

- **Step 1** Log in to the MPC console.
- **Step 2** In the navigation pane, choose **Global Settings** > **Custom Templates**.
- Step 3 Click Create Custom Template.
- **Step 4** Set the basic information, template name, and output format.
 - The template name can be up to 128 characters long. Only letters, underscores (_), and digits are allowed.
 - Select **MP3** or **ADTS** as the output format.
- **Step 5** Set audio parameters. See **Table 1**.

Parameter	Description
Audio Codec	Audio codec. Possible values include AAC and HEAAC1 . The default value is AAC .

Table 8-1 Audio parameters

Parameter	Description
Audio Channel	Possible values include Stereo , Mono , and 5.1 Channel . The default is Stereo .
Sampling Rate	Choose one from Auto , 22050 , 32000 , 44100 , 48000 , and 96000 . The default value is Auto . The unit is Hz. Auto indicates adaptive sampling.
Bitrate	Bitrate of an output audio. The value is 0 or an integer ranging from 8 to 1,000. Unit: kbit/s

Step 6 Click OK.

----End

Creating an Audio Transcoding Task

- **Step 1** Log in to the MPC console.
- **Step 2** In the navigation pane, choose **Media Processing** > **Transcoding**.
- Step 3 Click Create Task.
- **Step 4** Set basic parameters, including the buckets and paths for storing an input file and output file.

Create Task CBack to Task List					
2. MPC supp	1. Before starting a transcoding task, create an OBS bucket, upload a media file, and authorize MPC to access the bucket. <u>Upload File Authorize Access</u> 2. MPC supports the following input formats: MP4, TS, MOV, MOF, MPG, FLV, WMV, AVI, MP3, ADTS, GSP, MAV, and MDUE. More formats will be available soon. 3. If you use a one-in multiple-out template for transcoding, you need to pay for transcoding for multiple output files. <u>Learn more</u>				
* Input Bucket	Select an input bucket.	Select	* Input File	Select an input file.	Select
* Output Bucket	Select an output bucket.	Select	Output Path		Select

- **Step 5** Select a transcoding template that best fits your needs.
 - If you select **One-in One-out Templates**, select **MP3** or **ADTS** for **Output Format**.
 - If you select **Custom Templates**, create an audio transcoding template by referring to **Creating an Audio Transcoding Template**.

One-in One-out Templates One-in Multiple-out Templates Custom Templates Custom Template Groups					
Output Format: All HLS DASH MP3 ADTS DASH+HLS					
Video Codec 💿 All 💿 H.264 💿 H.265					
Resolution 🕲 All 🔹 Low Bitrate HD: 🕲 All 🔹					
Output Format	Template Name	Template ID	Resolution/Bitrate (kbit/s)		
○ мрз	MP3	7001057			
< 1 >					

- **Step 6** Click **OK**. The transcoding task starts running.
- **Step 7** View the task status in the task list. You can view details about transcoding tasks of the past 60 days.

			(Optional).Configure Event Notifications -> .(Optional).Confi	3	
Create Task				All statuses + 2019/11/23 - 2019	/12/23 × 🗎 Sea
ID	Status	Start/End Time	Input	Output	Operation
Task ID: 10988424 Template ID: 7001057	 Completed 	Start Time: 2019/12/23 15:51:43 End Time: 2019/12/23 15:52:51	Bucket Name: mpc-cxf Input File Name: input/test.mp4	Bucket Name: mpc-test Output Path: ebbec1c56c544f3589f832859a6d8b94	Delete
Task ID: 10031737 Template ID: 7000524	Completed	Start Time: 2019/12/13 14:18:38 End Time: 2019/12/13 14:19:19	Bucket Name: mpc-1 Input File Name: video.mp4	Bucket Name: <u>mpc-1</u> Output Path: ¿	Delete



8.3 Creating a Packaging Task

You can create a packaging task to convert the container format of a video file stored in an OBS bucket without changing its resolution and bitrate.

Prerequisites

- An input video file has been uploaded to an OBS bucket. MPC is used in the same region as the OBS bucket. If the video file has not been uploaded, upload it by referring to **Uploading Media Files**.
- MPC has been authorized to access the buckets that store the input file and output file. If MPC has not been authorized, authorize MPC by referring to Authorizing Access to Cloud Resources.
- If you want to receive the task status updates, configure the event notifications function. For details, see **Configuring Event Notifications**.

Restrictions

- Supported input formats: MP3, MP4, FLV, and TS
- Supported output formats: HLS and MP4

Procedure

- **Step 1** Log in to the MPC console.
- **Step 2** In the navigation pane, choose **Media Processing** > **Packaging**.
- Step 3 Click Create Task.

Create Task < Back to Task List				
MPC accepts the following input formats for packaging: MP4, FLV, and TS. <u>Learn more</u>				
★ Input Region	cn-north-1			
★ Input Bucket	Select an input bucket.	Select		
* Input File	Select an input file.	Select		
★ Output Region	cn-north-1			
* Output Bucket	Select an output bucket.	Select		
Output Path	Select Output Path	Select		
Output File Name ③	Enter the output file name without the exten:			
* Output Format	• HLS OMP4			
Segment Duration (s)				

Step 4 Set task parameters by referring to **Table 8-2**.

Table 8-2 Task parameters

Parameter	Description
Input Region	Region where the OBS bucket for storing an input file resides
Input Bucket	OBS bucket where an input file is stored
Input File	Path for storing the input file
Output Region	Region where the OBS bucket for storing an output file resides
Output Bucket	OBS bucket where an output file is stored
Output Path	Path for storing the output file
Output File Name	Name of the packaged file
Output Format	Output format of the file. Currently, only the HLS and MP4 formats are supported.

Parameter	Description
Segment Duration (s)	HLS segment length. This parameter is only used when Output Format is HLS .
	The value ranges from 2 to 10.
	Default value: 5

Step 5 Click OK.

Step 6 View the task status in the task list.

When the task status changes to **Completed**, you can obtain the packaged file from the output path.

ackaging is t	o convert the container fo	rmat of video and audio files without	changing the resolution and bitrate. Before	e creating a packaging task, perform th	he following steps:Upload N	ledia File- > Authorize	Access- > (Optional) Configure Eve	nt Notifications.
e Task					Enter a task ID.	All statuses	▼ 2019.11.23 - 2019.12.2	3 × 🛗 🛛 S
ID	Status	Start/End Time	Input File Information	Output File Information	Output I	arameters	Task Description	Operatio
	Completed	Start Time: 2019/12/23 15:53:5	Ruckat Nama: mnc.cvf	Bucket Name: mpc-cxf	Output Format:	на	Remux succeed	Delete

----End

8.4 Creating an Animated GIF Task

You can create an animated GIF task to capture video segments at the specified time range for generating an animated GIF file.

Prerequisites

- An input video file has been uploaded to an OBS bucket. MPC is used in the same region as the OBS bucket. If the video file has not been uploaded, upload it by referring to **Uploading Media Files**.
- MPC has been authorized to access the buckets that store the input file and output file. If MPC has not been authorized, authorize MPC by referring to Authorizing Access to Cloud Resources.
- If you want to receive the task status updates, configure the event notifications function. For details, see **Configuring Event Notifications**.

Procedure

- **Step 1** Log in to the MPC console.
- Step 2 In the navigation pane, choose Media Processing > Animated GIFs.
- Step 3 Click Create Task.

Create Task < Back to Task List					
• You can capture a maximum of 60s video clip to generate a GIF file. Learn more					
★ Input Bucket	Select an input bucket.	Select			
★ Input File	Select an input file.	Select			
* Output Bucket	Select an output bucket.	Select			
Output Path	Enter or select an output path. Select				
File Name	Enter the output file name.				
* Output Format	GIF 👻				
* Width	Enter the width of the GIF image. px (2)				
* Height	Enter the height of the GIF image. px ③				
FPS	Enter the FPS of the video you want to capture.				
* Start/End Time	00:00:00 - 00:00 3				

Step 4 Set task parameters by referring to **Table 8-3**.

Table 8-3 Task parameters

Parameter	Description	
Input Bucket	OBS bucket where an input file is stored	
Input File	Path for storing the input file	
Output Bucket	OBS bucket where an output file is stored	
Output Path	Path for storing the output file	
File Name	Name of the animated GIF file	
Output Format	The GIF format is supported.	

Parameter	Description		
Width	Width of the animated GIF file.		
	The value is -1, 0, or a multiple of 2 from 32 to 3,820.		
	NOTE		
	 If the width is -1, the width is automatically auto-filled based on the height. In this case, the height cannot be -1 or 0. 		
	 If the width is 0, the height must be 0. The GIF image width and height depend on the video width and height. 		
Height	Height of the animated GIF file.		
	The value is -1, 0, or a multiple of 2 from 32 to 2,160.		
FPS	Frame rate of the animated GIF file.		
	Value range: an integer ranging from 1 to 75		
	Default value: 15		
Start/End Time	Start time and end time for generating an animated GIF file.		
	The end time cannot be earlier than or equal to the start time, and the maximum difference between the start time and end time is 60 seconds.		

Step 5 Click OK.

Step 6 View the task status in the task list.

When the task status changes to **Completed**, you can obtain the animated GIF file from the output path.

Canture a stice	e of a video and convert it to	o a GIE file. Before creating an animated	SIF task, perform the following steps: Upload M	ledia File -> Authorize Access -> (Optional) C	onfigure Event Notifications	
Create Task					All statuses - 2019/11/23 - 2019/12/23	X 🛗 Sear
ID	Status	Start/End Time	Input	Output	Parameters	Operatio
10989133	Completed	Created: 2019/12/23 15:55:54 Start Time: 2019/12/23 15:55:54 End Time: 2019/12/23 15:56:05	Bucket Name: mpc-cxf Input File Name: input/test.mp4	Output Format: gif Bucket Name: <u>mpc-cxf</u> Output Path: ¿	Width: 1280 px Height: 720 px FPS: 15 Start Time: 00.00.00 End Time: 00.00.10	

----End

35

A_{Appendix}

A.1 JSON Message Body

Table A-1 describes the fields in a JSON message.

Table A-1 JSON message body

Parameter	Туре	Description
event_type	String	Event type.
		Possible values include:
		• TranscodeComplete : A transcoding task has completed.
		• TranscodeStart: A transcoding task starts.
		• ThumbnailComplete : A snapshot task has completed.
		 RemuxComplete: A packaging task has completed.
		 AnimatedGraphicsComplete: An animated GIF file has been generated.
		ParseComplete: Attribute parsing completed
transcode_inf o	TranscodeInf o	Transcoding information. This parameter is used only when event_type is TranscodeComplete or TranscodeStart .
thumbnail_inf o	ThumbnailInf o	Snapshot information. This parameter is used only when event_type is ThumbnailComplete .
animated_gra phics_info	AnimatedGra phicsInfo	GIF image information. This parameter is used only when event_type is AnimatedGraphics- Complete .
remux_info	RemuxInfo	Packaging information. This parameter is used only when event_type is RemuxComplete .

Parameter	Туре	Description
task_id	string	Task ID
status	tring	Event status. TRANSCODING: started SUCCEED: completed FAILED: failed
create_time	string	Time when a task is created
start_time	string	Time when a task starts
end_time	string	Time when a task ends
intput	FileAddress	Storage location of an input file
output	FileAddress	Storage location of an output file
description	string	Task description
media_detail	MediaDetail	Transcoding details. This field is unavailable if transcoding fails.

Table A-2 TranscodeInfo parameter description

 Table A-3 MediaDetail parameter description

Parameter	Туре	Description
features	String[]	Task name
origin_para	OriginPara	Input file information
output_video_ paras	OutputVideo Para[]	Information about multiple output media files
output_water mark_para	OutputWater markPara	Watermark information

 Table A-4 OriginPara parameter description

Parameter	Туре	Description
duration	Integer	Duration of an input file
file_format	String	Input file format
video	Video	Input video file information
audio	Audio	Input audio file information

Parameter	Туре	Description
width	Integer	Video width
height	Integer	Video height
bitrate	Integer	Video bitrate
frame_rate	Integer	Video frame rate
codec	string	Video codec

Table A-5 Video parameter description

Table A-6 Audio parameter description

Parameter	Туре	Description
codec	string	Audio codec
sample	Integer	Audio sampling rate
channels	Integer	Audio channel
bitrate	Integer	Audio bitrate

Table A-7 OutputVideoPara parameter description

Parameter	Туре	Description
template_id	Integer	ID of the template used by the output video
size	Integer	Video size
pack	string	Video container format
video	Video	Output file (video) information
audio	Audio	Output file (audio) information
file_name	string	Output file name
conver_durati on	double	Converted duration
error	Error	Error information

 Table A-8 OutputWatermarkPara parameter description

Parameter	Туре	Description
time_duration	Int32	Watermark duration

Parameter	Туре	Description
task_id	String	Task ID
status	String	Event status. SUCCEED: completed FAILED: failed
create_time	String	Time when a task is created
start_time	String	Time when a task starts
end_time	String	Time when a task ends
description	String	Task description. If a task is abnormal, this field indicates error details.
input	FileAddress	Input file information
output	FileAddress	Output file information
output_param	AnimatedGra phicsOutputP aram	Animated GIF parameters

 Table A-9 AnimatedGraphicsInfo parameter description

 Table A-10 FileAddress parameter description

Parameter	Туре	Description
location	String	Region where an OBS bucket is deployed
bucket	String	Name of the OBS bucket
object	String	 File path. If this parameter is used for an input, a specific path must be specified. If this parameter is used for an output, only the directory for storing the outputs needs to be specified.
file_name	String	 Name of an output file. If this parameter is specified, the output object name is object/file_name. If this parameter is not specified, the output object name is object/<i>xxx</i>, where <i>xxx</i> is allocated by the system.

Parameter	Туре	Description
format	String	Output file format. Currently, only GIF format is supported.
width	Integer	Width of an output file
height	Integer	Height of an output file
start	Integer	Start time Unit: millisecond
end	Integer	End time
frame_rate	Integer	Frame rate of the output file

 Table A-11 AnimatedGraphicsOutputParam parameter description

 Table A-12 ThumbnailInfo parameter description

Parameter	Туре	Description
task_id	string	Task ID
status	tring	Event status. SUCCEED: completed FAILED: failed
create_time	string	Time when a task is created
start_time	String	Time when a task starts
end_time	string	Time when a task ends
intput	FileAddress	Storage location of an input file
output	FileAddress	Storage location of an output file
description	string	Task description
output_file_na me	String	Output file name
thumbnail_inf o	PicInfo[]	Snapshot details. This field is unavailable if capturing snapshots fails.

Table A-13 PicInfo parameter description

Parameter	Туре	Description
pic_name	String	Snapshot file name

Parameter	Туре	Description
task_id	String	Task ID
status	String	Event status.
		SUCCEED: completed
		• FAILED: failed
create_time	String	Time when a task is created
start_time	String	Time when a task starts
end_time	String	Time when a task ends
description	String	Task description. If a task is abnormal, this field indicates error details.
input	FileAddress	Input file information
output	FileAddress	Output file information
output_param	RemuxOutpu tParam	Packaging parameters

 Table A-14 RemuxInfo parameter description

 Table A-15 RemuxOutputParam parameter description

Parameter	Туре	Description
format	String	Output format.
		Possible values are:
		• HLS
		• MP4
segment_dura tion	Integer	Segment duration. This parameter is only used when format is HLS .
		The value ranges from 2 to 10.
		Default value: 5
		Unit: second