

**MetaStudio**

# Service Overview

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# 1 What Is MetaStudio?

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The MetaStudio solution offers a wide range of services, such as virtual human video production and livestreaming, intelligent interactions, and 3D enterprise spaces, breathing new life into content creation across industries.

## Scenarios

**Education:** virtual human courseware creation and virtual teachers

**Government and public services:** virtual media personalities, presentations by virtual humans, and conferences with virtual humans

**Healthcare:** intelligent healthcare customer service and virtual doctor training

**Finance:** virtual customer service personnel, virtual brand ambassadors, and virtual human training video production

**Culture and tourism:** virtual customer service personnel, virtual guides, and virtual docents

**Broadcasting and TV:** virtual variety show hosts and virtual news broadcasters

**Interactive entertainment and e-commerce:** virtual human livestreaming, virtual human short video production, and live commerce

# 2 Features

MetaStudio allows you to customize your virtual avatar images and voices, produce virtual avatar videos, and livestream with virtual avatars. See [Table 2-1](#).

**Table 2-1** Features

Feature	Description
Image modeling	You can upload a video of a human for model training to customize a virtual avatar image. Virtual avatars can work as streamers, hosts, customer service personnel, and teachers.
Voice modeling	You can upload a human-voice audio for model training to customize a virtual avatar voice. You can also buy a third-party voice package and use the voice to dub your virtual avatar.
Video production	You can set the image layout and audio of a video, and composite the virtual avatar image into the video. Such videos can be used for training, presentations, and knowledge sharing.
Livestreaming	You can set the image layout, script, interaction rules, and streaming startup of a video, and composite the virtual avatar image into the video for livestreaming. Virtual avatar livestreaming can be performed on third-party platforms.

# 3 Product Advantages

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## One-stop Content Generation on the Self-service MetaStudio Console

You need to register with Huawei Cloud MetaStudio, upload an authorization letter, and record and upload an audio/video for model training to generate a custom image and voice. Select content such as backgrounds, voices, and roles, and implement capabilities such as video production and livestreaming based on intelligent text or audio control.

## Huawei Cloud Pangu Virtual Human Model for New Digital Marketing Techniques Across Industries

MetaStudio is powered by Huawei's global cloud infrastructure (compute-network convergence and ultra-low latency) and diversified computing power (CPUs/GPUs/NPUs). Coupled with Huawei Cloud Pangu virtual human model, MetaStudio enables the training and production of virtual humans, objects, and spaces. MetaStudio is ideal for many scenarios, such as virtual avatar video production, livestreaming, intelligent interactions, and virtual media personalities.

## Fast Iteration of Huawei Cloud Virtual Humans to Stay Relevant

- Accurate lip sync: accuracy > 95%, capable of speaking many languages, and strong generalization
- Natural facial expressions: AI eye contact correction for consistent eye ID and focus
- Realistic images: intelligent relighting for better integration with backgrounds
- Modeling in complex scenarios: walking and motion training for smoother movements
- Multi-language generalization: able to speak 20+ languages after one-off mother tongue-based training

## 90%+ Less Expensive than Humans

- After one-off video shooting and training, the generated virtual avatar can be used an unlimited number of times. There is no restriction on time, duration, or capacity, with consistent quality and high stability. Lip and motion sync is so high that you cannot tell the difference between a virtual human and a real human.

- The freedom of motion of a virtual avatar depends on the video used for training. Virtual avatars are less expensive and more efficient and stable than real humans.

### **More Realistic and Immersive Livestreaming**

- Features such as virtual streamers holding objects, livestreaming with a real-world background, intelligent on-screen comments, and real-time takeover by humans make virtual human livestreaming more realistic and immersive.
- Matrix management and advanced policy configuration make virtual human livestreaming more flexible.

### **Open Virtual Human Capabilities and Multiple Collaboration Models**

- After completing real-name authentication, you can create content on the console.
- Virtual human APIs and SDKs are integrated into customers' own platforms.
- We work with professional livestreaming service partners to offer solutions tailored to your needs and provide professional support for the delivery and operations of virtual avatar livestreaming systems.

### **Improved Product Competitiveness**

- More efficient virtual human production  
The platform supports simultaneous training of thousands of models to batch generate virtual humans.
- Premium quality  
With the model quality improved by more than 30%, the virtual human is able to attract more users, paving the way for subsequent business promotion.
- E2E service capabilities
- The solution is applicable to other AIGC products to build E2E solution capabilities ranging from virtual human video generation to editing.

### **Spanning Many Industries and Scenarios**

MetaStudio virtual humans are qualified for many roles, such as brand ambassador, variety show host, live commerce streamer, news broadcaster, trainer, tourist guide, and customer service personnel.

### **Global Presence**

MetaStudio has been deployed in Huawei Cloud regions in the Chinese mainland, Singapore, and Ireland, which facilitates customers' global business expansion.

# 4 Constraints

Before using MetaStudio, understand the following constraints.

## 4.1 Resources

**Table 4-1** describes the resource constraints of MetaStudio.

**Table 4-1** Resource constraints

Item	Description	Constraint
Region	MetaStudio is now available only in the <b>CN North-Beijing4</b> region.	-

## 4.2 APIs

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

**Table 4-2** API request throttling

API Category	API Name	Single Tenant (CN North-Beijing4)	Single Tenant (CN East-Shanghai1)	Single Tenant (AP-Singapore)
Digital Asset Management	Creating an Asset	10 times/second	5 times/second	5 times/second
	Querying the Asset List	20 times/second	10 times/second	10 times/second
	Updating an Asset	10 times/second	5 times/second	5 times/second



API Category	API Name	Single Tenant (CN North-Beijing4)	Single Tenant (CN East-Shanghai1)	Single Tenant (AP-Singapore)
	Deleting an Asset	10 times/second	5 times/second	5 times/second
	Querying Asset Details	20 times/second	10 times/second	10 times/second
	Restoring a Deleted Asset	10 times/second	5 times/second	5 times/second
	Querying Asset Summary	20 times/second	10 times/second	10 times/second
File Management	Deleting a File	10 times/second	5 times/second	5 times/second
	Creating a File and Obtaining the URL for File Upload	10 times/second	5 times/second	5 times/second
	Confirming the Upload of a File	10 times/second	5 times/second	5 times/second
Video Script Management	Creating a Video Script	10 times/second	5 times/second	5 times/second
	Querying Video Scripts	20 times/second	10 times/second	10 times/second
	Querying Video Script Details	20 times/second	10 times/second	10 times/second
	Updating a Video Script	10 times/second	5 times/second	5 times/second
	Deleting a Video Script	10 times/second	5 times/second	5 times/second
	Copying a Video Script	10 times/second	5 times/second	5 times/second
Virtual Human Video Production Management	Querying Video Production Tasks	20 times/second	10 times/second	10 times/second
Virtual Avatar Video Production Management	Creating a Virtual Avatar Video Production Task	5 times/second	3 times/second	3 times/second

API Category	API Name	Single Tenant (CN North-Beijing4)	Single Tenant (CN East-Shanghai1)	Single Tenant (AP-Singapore)
	Querying Virtual Avatar Video Production Task Details	20 times/second	10 times/second	10 times/second
	Canceling a Virtual Avatar Video Production Task in the Waiting Status	5 times/second	3 times/second	3 times/second
Intelligent Live Room Management	Creating an Intelligent Live Room	5 times/second	3 times/second	3 times/second
	Querying Intelligent Live Rooms	20 times/second	10 times/second	10 times/second
	Querying Intelligent Livestreaming Script Details	20 times/second	10 times/second	10 times/second
	Updating Intelligent Live Room Information	5 times/second	3 times/second	3 times/second
	Deleting an Intelligent Live Room	4 times/second	3 times/second	3 times/second
	Creating an Interaction Rule Library for Live Rooms	4 times/second	3 times/second	3 times/second
	Querying Interaction Rule Libraries for Live Rooms	20 times/second	10 times/second	10 times/second
	Updating an Interaction Rule Library for Live Rooms	4 times/second	3 times/second	3 times/second
	Deleting an Interaction Rule Library for Live Rooms	4 times/second	3 times/second	3 times/second

API Category	API Name	Single Tenant (CN North-Beijing4)	Single Tenant (CN East-Shanghai1)	Single Tenant (AP-Singapore)
	Checking Language Consistency Between Timbre and Text	4 times/second	3 times/second	3 times/second
Livestreaming Task Management	Starting a Virtual Human Intelligent Livestreaming Task	4 times/second	3 times/second	3 times/second
	Querying Virtual Human Intelligent Livestreaming Tasks	20 times/second	10 times/second	10 times/second
	Querying Virtual Human Intelligent Livestreaming Task Details	20 times/second	10 times/second	10 times/second
	Ending a Virtual Human Intelligent Livestreaming Task	4 times/second	3 times/second	3 times/second
	Controlling Virtual Human Intelligent Livestreaming	4 times/second	3 times/second	3 times/second
	Reporting Livestreaming Events	4 times/second	3 times/second	3 times/second
Image Modeling Management	Creating a Virtual Avatar Model Training Task	10 times/second	3 times/second	3 times/second
	Querying Virtual Avatar Model Training Tasks	20 times/second	10 times/second	10 times/second
	Querying Virtual Avatar Model Training Task Details	20 times/second	10 times/second	10 times/second
	Deleting a Virtual Avatar Model Training Task	10 times/second	3 times/second	3 times/second

API Category	API Name	Single Tenant (CN North-Beijing4)	Single Tenant (CN East-Shanghai1)	Single Tenant (AP-Singapore)
	Updating a Virtual Avatar Model Training Task	10 times/second	3 times/second	3 times/second
	Executing a Virtual Avatar Model Training Task as a Tenant	10 times/second	3 times/second	3 times/second
Voice Modeling Task Management	Creating a Voice Training Task (Basic Edition)	10 times/second	3 times/second	3 times/second
	Creating a Voice Training Task (Advanced Edition)	10 times/second	3 times/second	3 times/second
	Creating a Voice Training Task (Premium Edition)	10 times/second	3 times/second	3 times/second
	Querying Voice Training Tasks	20 times/second	10 times/second	10 times/second
	Submitting a Voice Training Task	10 times/second	3 times/second	3 times/second
	Querying Voice Training Task Details	20 times/second	10 times/second	10 times/second
	Deleting a Voice Training Task	10 times/second	3 times/second	3 times/second
	Obtaining the URL for Uploading a Voice File	20 times/second	10 times/second	10 times/second
	Obtaining the Review Result of a Voice Training Task	20 times/second	10 times/second	10 times/second
	Confirming the Online Recording Result	10 times/second	3 times/second	3 times/second
	Obtaining the Confirmed Online Recording Result	20 times/second	10 times/second	10 times/second

API Category	API Name	Single Tenant (CN North-Beijing4)	Single Tenant (CN East-Shanghai1)	Single Tenant (AP-Singapore)
TTS Management	Creating a TTS Preview Task	5 times/second	3 times/second	3 times/second
	Obtaining a TTS Preview File	20 times/second	10 times/second	10 times/second

## 4.3 Virtual Avatar Image Customization

Only enterprise users can customize virtual avatar images on MetaStudio.

When you customize a virtual avatar image, it is clearly stated in the **authorization letter** downloaded from the platform that you need to authorize the use of the customized virtual avatar image.

## 4.4 Virtual Avatar Voice Customization

Only enterprise users can customize virtual avatar voices on MetaStudio.

When you customize a virtual avatar voice, it is clearly stated in the **authorization letter** downloaded from the platform that you need to authorize the use of the customized virtual avatar voice.

## 4.5 Virtual Avatar Video Production

**Table 4-3** shows the constraints on virtual avatar video production.

**Table 4-3** Constraints on virtual avatar video production

Virtual avatar video production	Constraint
Multiple scenes	<ul style="list-style-type: none"> <li>If <b>Text Control</b> is used to generate an audio file, the total number of words of all paragraphs must be greater than 200.</li> <li>If <b>Audio Control</b> is used to generate an audio file, the duration of each audio file must be longer than one minute.</li> </ul>

Virtual avatar video production	Constraint
Text control	<p>If <b>Text Control</b> is used to generate an audio file, the text requirements are as follows:</p> <ul style="list-style-type: none"> <li>• There must be fewer than 2,000 characters in each paragraph (fewer than 3,000 if SSML tags are contained).</li> <li>• The total number of characters of all paragraphs in a live room must be fewer than 300,000 if SSML tags are contained.</li> </ul>
Video format	<p>The supported video formats are MP4, M4V, MKV, MOV, FLV, 3GP, WMV, AVI, and WebM.</p> <p><b>NOTE</b> On the video production page, if FLV, 3GP, WMV, or AVI videos are inserted, the video playback cannot be previewed and only images are displayed. This is caused by browser incompatibility. However, after video compositing, the inserted videos can be played properly.</p> <p>Video requirements:</p> <ul style="list-style-type: none"> <li>• Resolution ≤ 1080p</li> <li>• Frame rate ≤ 30 FPS</li> <li>• AV1, VP8, VP9, H.264, or H.265 for encoding <ul style="list-style-type: none"> <li>- VP8 and VP9 encoding is supported only for WebM videos.</li> <li>- If AV1 encoding is used for a WebM video, the video cannot be composited.</li> <li>- AV1 and H.265 are only supported by the Chrome browser.</li> </ul> </li> <li>• Video size &lt; 1 GB</li> <li>• Overlaid videos ≤ 3, including the videos configured during interaction</li> </ul>
Audio format	<p>The supported audio formats are MP3, M4A, and WAV.</p> <p>Audio requirements:</p> <ul style="list-style-type: none"> <li>• Only mono audios are extracted.</li> <li>• The total size of audio files is less than 500 MB.</li> </ul>
Image format	<p>The supported image formats are PNG, JPG, and JPEG.</p> <p>Image requirements:</p> <ul style="list-style-type: none"> <li>• Resolution ≤ 1080p</li> <li>• Image size &lt; 500 MB</li> </ul>

## 4.6 Virtual Avatar Livestreaming

Constraints on virtual avatar livestreaming:

- [Constraints on live room configurations](#)
- [Stopping a Livestreaming Task](#)
- [Livestreaming](#)
- [Live Content Review](#)

## Constraints on live room configurations

See [Table 4-4](#).

**Table 4-4** Constraints on live room configurations

Live Room Configuration	Constraint
Multiple scenes	<ul style="list-style-type: none"> <li>• If <b>Text Control</b> is used to generate an audio file, the total number of words of all paragraphs must be greater than 200.</li> <li>• If <b>Audio Control</b> is used to generate an audio file, the duration of each audio file must be longer than one minute.</li> </ul>
Text control	<p>If <b>Text Control</b> is used to generate an audio file, the text requirements are as follows:</p> <ul style="list-style-type: none"> <li>• There must be fewer than 2,000 characters in each paragraph (fewer than 3,000 if SSML tags are contained).</li> <li>• The total number of characters of all paragraphs in a live room must be fewer than 300,000 if SSML tags are contained.</li> </ul>
Video format	<p>The supported video formats are MP4, M4V, MKV, MOV, FLV, 3GP, WMV, and AVI.</p> <p><b>NOTE</b> On the live room creation page, if FLV, 3GP, WMV, or AVI videos are inserted, the video playback cannot be previewed and only images are displayed. This is caused by browser incompatibility. However, during the livestreaming, the inserted videos can be played properly.</p> <p>Video requirements:</p> <ul style="list-style-type: none"> <li>• Resolution ≤ 1080p</li> <li>• Frame rate ≤ 30 FPS</li> <li>• AV1, H.264, or H.265 for encoding AV1 and H.265 are only supported by the Chrome browser.</li> <li>• Video size &lt; 1 GB</li> <li>• Overlaid videos ≤ 3, including the videos configured during interaction</li> </ul>
Audio format	<p>The supported audio formats are MP3, M4A, and WAV.</p> <p>Audio requirements:</p> <ul style="list-style-type: none"> <li>• Only mono audios are extracted.</li> <li>• The total size of audio files is less than 500 MB.</li> </ul>

Live Room Configuration	Constraint
Image format	The supported image formats are PNG, JPG, and JPEG. Image requirements: <ul style="list-style-type: none"> <li>• Resolution ≤ 1080p</li> <li>• Image size &lt; 500 MB</li> </ul>

## Stopping a Livestreaming Task

See [Table 4-5](#).

**Table 4-5** Stopping a livestreaming task

Scenario	Operation
Stopping a livestreaming task as a tenant	A tenant can stop a livestreaming task: <ul style="list-style-type: none"> <li>• On the playback startup page of the MetaStudio console.</li> <li>• By calling the API.</li> </ul>
Automatically stopping a livestreaming task	To protect tenants' interests, a livestreaming task will be automatically stopped when: <ul style="list-style-type: none"> <li>• There is no RTMP stream push on the MetaStudio console and the playback window has been closed for about two to three minutes.</li> <li>• APIs are called for livestreaming, there is no RTMP stream push, and viewers have left the RTC room for about two to three minutes.</li> </ul>
Freezing a livestreaming task	If the live content involves compliance risks, the service O&M personnel directly freeze the livestreaming task on the O&M page.

## Livestreaming

See [Table 4-6](#).



**Table 4-6** Livestreaming

Livestreaming Configuration	Operation
Livestreaming controlled by a tenant	<p>MetaStudio allows controlling livestreaming so that streamers can capture a complete live video.</p> <p>Before starting livestreaming, deselect <b>Automatic livestreaming after loading</b> on the console (that is, set <b>play_policy.auto_play_script</b> to <b>FALSE</b>). After a livestreaming task is started, livestreaming will not start until the tenant's instruction of starting livestreaming is sent (for API calling, the <b>play_start</b> instruction is sent through the <b>RTSA COMMAND</b> instruction). Before the instruction is sent, the virtual streamer remains silent.</p>

## Live Content Review

See [Table 4-7](#).

**Table 4-7** Live content review

Content Review	Operation
Live room content review	<p>Content review on MetaStudio:</p> <ul style="list-style-type: none"> <li>• By default, each configuration item of a live room, such as the live room name, description, text, audio, video, and image, will be automatically reviewed to eliminate risks of violation and avoid generating illegal live content.</li> <li>• If a tenant has interconnected with another content risk control system and is committed to being responsible for content risk control, the tenant can <a href="#">submit a service ticket</a> to disable content review on MetaStudio.</li> <li>• If complaints about live content are received, MetaStudio will freeze the live rooms and livestreaming tasks that violate the regulations in accordance with applicable laws and regulations. When necessary, all resources of the tenant will be frozen.</li> </ul>

## 4.7 Asset Management

See the following sections:

- [Asset Storage Billing](#)
- [Asset Creation Failure](#)
- [Asset Freezing](#)

## Asset Storage Billing

See [Table 4-8](#).

**Table 4-8** Asset storage billing

Asset Storage	Billing Description
Free storage space	MetaStudio provides 5 GB asset storage space for free for each tenant to upload audios, videos, and images. If the tenant needs more storage space, they need to buy a monthly asset management package.
Customized image model storage	The storage space occupied by the timbre models of a customized image model on MetaStudio is not included in the tenant's asset storage billing.
Customized video asset storage	The storage space used by a customized video asset on MetaStudio will not be charged in the first six months. The billing starts after six months.
Asset storage billing	If an asset is not completely deleted, is frozen or in the recycle bin, billing of its storage space will continue.

## Asset Creation Failure

During asset creation, the asset status will be automatically set to **Failed** when:

- The main asset file is not uploaded within 24 hours.
- Review of the asset title, description, and main file content failed.
- The main asset file does not match the created file information.

## Asset Freezing

See [Table 4-9](#).

**Table 4-9** Asset freezing

Scenario	Operation
Freezing tenant assets	<p>MetaStudio is jointly and severally liable for the risks of a tenant's asset content. If complaints about asset content are received, MetaStudio will freeze the assets that violate the regulations in accordance with applicable laws and regulations. When necessary, all resources of the tenant will be frozen.</p> <p>Frozen assets cannot be used as materials for content generation. Tenants can delete frozen assets or apply for unfreezing assets.</p>

Scenario	Operation
Requesting for unfreezing an asset	<p>You can submit a request for unfreezing an asset. After the asset is unfrozen, its asset status will become the one before it was unfrozen.</p> <p>If an asset in the recycle bin is unfrozen, its asset status will become the one before it was deleted.</p>

# 5 Concepts

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## Virtual Human

A virtual human exists in a digital space and has a realistic, human-like appearance and behavioral characteristics, as well as certain intelligence and emotional capabilities that enable it to interact with people and express itself. A virtual human is also known as a virtual image or virtual avatar. The core technologies behind virtual humans include computer vision (CV), computer graphics, motion capture and control, image rendering, and AI.

- A virtual support personality is a hyper-realistic virtual human built on composited images based on deep neural networks.

It has the following features:

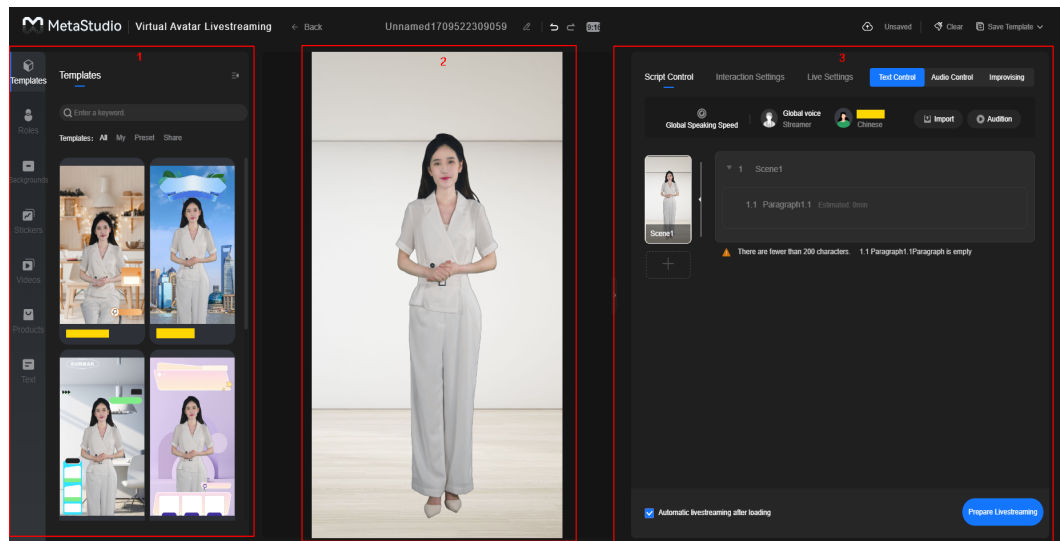
- 2D model, which is generated after training a video of a human
- No facial expression & skeletal data
- AI-controlled only
- Specified facial expressions and motions

## Script, Image Layout, and Settings

Video compositing is required for video production and livestreaming. The following uses livestreaming as an example.

- Video materials: as shown in area 1 in the figure, including templates, roles, backgrounds, stickers, videos, products, and texts. You can use the preset materials or customize materials.
- Image layout: as shown in area 2 in the figure. You can adjust the size, layer, and position of content such as the person image, background, sticker, text box, and video. You can design these elements and preview their effect in the image layout area.
- Playback startup: as shown in area 3 in the figure, including various livestreaming settings
- Script: Script design, including material preparations, layout design, and playback startup settings, is required for video compositing to produce videos and livestream.

Figure 5-1 Page for editing a live room



**Role**

Virtual human model

**Action**

Action of the virtual human model

# 6 Billing Overview

There are yearly/monthly, pay-per-use, and one-off package payment billing modes to meet your requirements.

## Billing Items

The billing items of MetaStudio include fees for virtual avatars, 3D virtual humans, and asset management. For pricing details, see [Pricing Details](#).

For details, see [Table 6-1](#).

**Table 6-1** Billing items

Category	Billing Item	Description	Billing Mode
Virtual avatars	Image modeling	You are charged based on the number of created virtual avatar images. Each time a virtual avatar image is created, one quota will be deducted from your purchased resource package.	One-off package payment

Category	Billing Item	Description	Billing Mode
	Video production	<p>You are charged based on the duration of a virtual avatar video. The video duration cannot exceed the duration specified in the purchased resource package.</p> <p>Billing of video production:</p> <ul style="list-style-type: none"> <li>• Deduction sequence of different billing modes: one-off package payment &gt; pay-per-use package &gt; pay-per-use</li> <li>• If the fees of a composited video are deducted through one-off package payment: <ul style="list-style-type: none"> <li>- After the quota is used up, you need to purchase a new package.</li> <li>- If the duration of the composited video exceeds the remaining available duration, the excess part is not charged.</li> </ul> </li> <li>• If the fees of a composited video are deducted from a pay-per-use package, pay-per-use billing will be used after the package quota is used up.</li> </ul> <p><b>NOTICE</b></p> <ul style="list-style-type: none"> <li>• The duration of a composited video is expressed in seconds, and the duration of a package is expressed in minutes. Therefore, the total duration of a composited video is converted from seconds to minutes. The value is accurate to two decimal places and the last digit is rounded off.</li> <li>• Even if a composited video is frozen due to violation of regulations, the video production fees are still charged.</li> </ul>	<ul style="list-style-type: none"> <li>• Pay-per-use</li> <li>• Pay-per-use package</li> <li>• One-off package payment</li> </ul>

Category	Billing Item	Description	Billing Mode
	Voice modeling	<p>You are charged based on the number of created voices.</p> <p>Including:</p> <ul style="list-style-type: none"> <li>● Basic edition: 20-phrase audio package</li> <li>● Advanced edition: 100-phrase audio package</li> <li>● Premium edition: WAV file longer than one hour</li> </ul> <p>Each time a virtual avatar voice is created, one quota will be deducted from your purchased resource package.</p>	One-off package payment
	Livestreaming	<p>You are charged based on the total duration of all virtual avatar livestreams.</p> <ul style="list-style-type: none"> <li>● Fees will be deducted from a yearly/monthly package when the package is valid. If the number of streams exceeds that specified in the yearly/monthly package, pay-per-use billing will be used.</li> <li>● If a yearly/monthly package expires, pay-per-use billing will be used.</li> </ul>	<ul style="list-style-type: none"> <li>● Pay-per-use</li> <li>● Yearly/Monthly</li> </ul>



Category	Billing Item	Description	Billing Mode
Asset management	Asset management	<p>You are charged based on the asset management specifications (asset storage space).</p> <p>Notes:</p> <ul style="list-style-type: none"> <li>• When you purchase or create an asset for the first time, 5 GB storage space is provided for free.</li> <li>• Asset space usage is not charged for: <ul style="list-style-type: none"> <li>- Uploaded virtual avatar models and 3D virtual human models and voices</li> <li>- Virtual avatar models and 3D virtual human models and voices generated by the platform</li> <li>- 6-month storage of video assets composited by the platform. The billing starts after six months.</li> </ul> </li> </ul> <p>Asset management provides basic management capabilities such as digital asset storage, simple classification, and search.</p>	Yearly/Monthly

## Billing Modes

There are yearly/monthly, pay-per-use, and one-off package payment billing modes to meet your requirements.

- You can choose the pay-per-use or prepaid pay-per-use package billing mode.
  - Pay-per-use: You pay as you go and just pay for what you use. In each billing cycle, the system calculates the fee based on the actual usage of each resource multiplied by the unit price, and then deducts the fee from your account balance.
  - Prepaid pay-per-use package: You can also purchase quota in advance to obtain more discounts. The package must be used within the validity period, and the excess part will be automatically charged in pay-per-use mode.
- Yearly/Monthly: a prepaid billing mode. You pay in advance for a subscription term, and in exchange, you get a discounted rate. The longer the subscription term, the bigger the discount. This mode is a good option for long-term, stable services.
- One-off package payment: A package of certain duration is charged by MetaStudio.

## Renewal

Renewal of MetaStudio:

- If you use the prepaid pay-per-use package or yearly/monthly billing mode, you can renew your subscription before the quota is used up. Renew the subscription on the [Renewals](#) page. If the renewal fails, the fee will be deducted from the account balance.
- One-off package payment does not support renewal. You need to buy the same resource package again on the MetaStudio console.

## Expiration and Arrears

- **Arrears:** Prepaid package resources do not expire. In pay-per-use mode, fees are deducted based on each billing item in its billing cycle. If your account balance is insufficient, the system fails to deduct the fees of the previous billing cycle. As a result, your account is in arrears. If your account is in arrears, your cloud resources will enter a grace period and then retention period. For details about how to handle service suspension due to arrears, see [Resource Suspension and Release](#).

View the outstanding amount of your account in the [Billing Center](#). Pay the outstanding amount by referring to [Making Repayments \(Postpaid Direct Customers\)](#).

Complete the renewal during the retention period. If the service is in arrears and enters the retention period, the service will be unfrozen after the renewal.

- **Service expiration:** Pay-per-use resources do not expire. If a prepaid resource package expires, the remaining resources will be cleared. Since then, you will be billed for subsequent resource usage on a pay-per-use basis.

# 7 Permissions Management

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If you need to assign different permissions to employees in your enterprise to access your purchased MetaStudio resources, Identity and Access Management (IAM) is a good choice for fine-grained permissions management. IAM provides identity authentication, permissions management, and access control, helping you secure access to your resources.

With IAM, you can use your account to create IAM users, and assign permissions to the users to control their access to specific resources. For example, if you want some software developers in your enterprise to be able to use MetaStudio resources but do not want them to be able to delete MetaStudio resources or perform any other high-risk operations, you can create IAM users and grant permission to use MetaStudio resources but not permission to delete them.

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

IAM is a free service. You pay only for the resources in your account. For more information about IAM, see [IAM Service Overview](#).

MetaStudio does not support enterprise projects.

## MetaStudio 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.

MetaStudio is a project-level service deployed and accessed in specific physical regions. To assign MetaStudio permissions to a user group, specify the scope as region-specific projects and select projects (such as **ap-southeast-2**) for the permissions to take effect. If you select **All projects**, the permissions will take effect for user groups in all region-specific projects. When accessing MetaStudio, the users need to switch to a region where they have been granted permissions to use this service.

You can grant users permissions by using roles and policies.

- **Roles:** A type of coarse-grained authorization mechanism that defines permissions related to user responsibilities. This mechanism provides only a

limited number of service-level roles for authorization. When using roles to grant permissions, you need to also assign other roles on which the permissions depend to take effect. However, roles are not an ideal choice for fine-grained authorization and secure access control.

- **Policies:** A fine-grained authorization strategy that defines permissions required to perform operations on specific cloud resources under certain conditions. This mechanism allows for more flexible policy-based authorization, meeting requirements for secure access control.

**Table 7-1** lists all system-defined policies of MetaStudio.

**Table 7-1** System-defined policies of MetaStudio

Policy Name	Description	Type	Policy Content
MetaStudio FullAccess	Administrator permissions for MetaStudio. This policy contains all permissions of MetaStudio.	System-defined policy	<a href="#">MetaStudio FullAccess Policy</a>
MetaStudio ReadOnlyAccess	Read-only permissions for MetaStudio. Users granted these permissions can only view MetaStudio data.	System-defined policy	<a href="#">MetaStudio ReadOnlyAccess Policy</a>

## Helpful Links

- [IAM Service Overview](#)
- [Creating a User and Granting MetaStudio Permissions](#)

## MetaStudio FullAccess Policy

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

## MetaStudio ReadOnlyAccess Policy

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

# 8 Regions and AZs

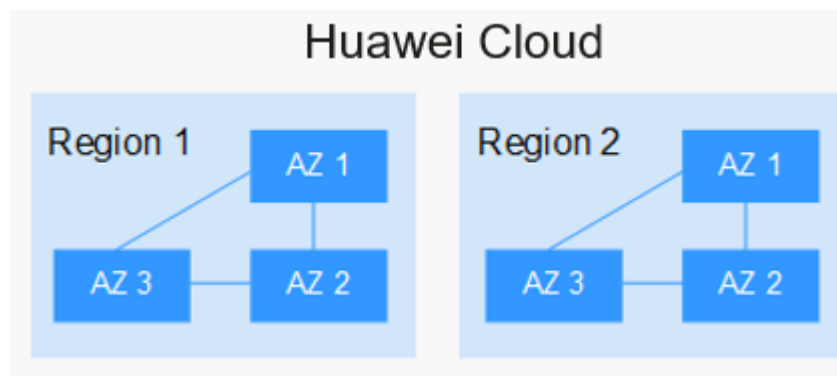
## Concepts

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

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

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

**Figure 8-1** Regions and AZs



Huawei Cloud provides services in many regions around the world. You can select a region and AZ as needed. For more information, see [Huawei Cloud Global Regions](#).

## How Do I Select a Region?

When selecting a region, consider the following factors:

- Location

You are advised to select a region closest to you or your target users for low network latency and quick access. Regions within the Chinese mainland provide the same infrastructure, BGP network quality, as well as resource operations and configurations. Therefore, if your target users are in the Chinese mainland, you do not need to consider the network latency differences when selecting a region.

## Regions and Endpoints

Before using an API to call resources, specify its region and endpoint. For more details, see [Regions and Endpoints](#).