

# Face Recognition Service

## FAQs

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# 1 General Consulting

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## 1.1 How Can Multiple Faces Be Recognized in an Image with Multiple Faces?

Currently, Face Recognition Service (FRS) can recognize only the largest face in an image containing multiple faces. You can follow the instructions here to perform face recognition (verification/retrieval) of multiple faces:

1. Call the Face Detection API to obtain the pixel locations of multiple faces in an image.
2. Snapshot the faces from the original image based on the location information. For reference information, see the [Multi-Face Recognition Demo](#).
3. Call Face Recognition APIs again to verify or retrieve multiple faces.

## 1.2 Can Certificate Photos Be Used for Facial Recognition?

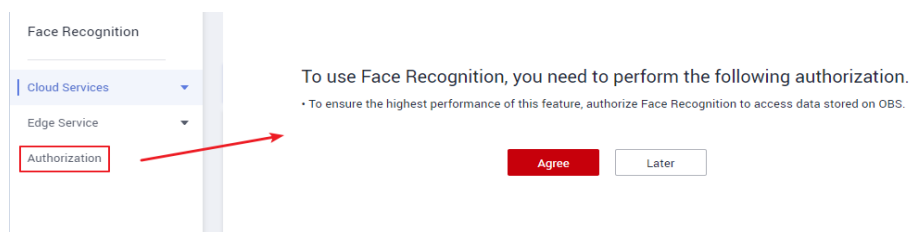
Certificate photos can be used for Face Recognition. Non-facial information will not be extracted. Due to various factors such as technology and cost, FRS has some restrictions. For details, see [Restrictions and Limitations](#).

## 1.3 How Do I Deal with Unauthorization Issues?

If the system prompts "The OBS is unauthorized" after you submit OBS data to Face Recognition, follow the following steps:

1. To use data in OBS, you need to authorize FRS to access data in OBS. Check whether you have clicked **Agree** on the [management console](#).
  - If the service has been authorized, **Authorized** is displayed on the page.
  - If you have not authorized the access, choose **Authorization** in the left navigation pane.

**Figure 1-1** Service authorization



2. If you have authorized the service on the management console, check whether the OBS URL is the OBS bucket address under your account.
3. If the OBS URL is an OBS bucket address under your account, check whether the OBS bucket is in the region that FRS supports.
4. If the problem persists, visit the [Service Assurance](#) page to seek help from the O&M team.

## 1.4 Why Do Recognition Errors Occur?

### Possible Causes

1. Images collected in the base library are not clear.
2. Qualities of the images captured by PUs are poor.

Common image quality problems: backlight, casting shadows, incorrect angles, and blurs.

### Solution

1. Enter the images with good qualities into the base library to replace the poor ones.
2. Improve the PUs' snapshot conditions. For example, adjust the illumination to avoid backlight. Remove the blurred images and adjust the camera parameters to improve clarity.

## 1.5 What Causes the Low Pass Rate in Face Recognition?

### Symptom

The pass rate of face recognition is low. A PU needs to capture multiple images to get one whose score is higher than 0.93 (the threshold).

### Possible Causes

1. Qualities of the images in the base library are poor.
2. The PUs' snapshot conditions are poor.
3. The face posture captured by the PU is much different from that in the base library, or the face in the base library is much different from that in the snapshot.

## Solution

1. Enter the images with good qualities into the base library to replace the poor ones.
2. Improve the PUs' snapshot conditions. For example, adjust the illumination to avoid backlight. Remove the blurred images and adjust the camera parameters to improve clarity.
3. If there are too many differences, you can record multiple faces for one person. You can record images with multiple different postures for a face in the base library to ensure that there is a posture similar to the captured one. Alternatively, you can enter captured faces with good qualities into the base library.

## 1.6 Why Is the Request Response so Slow?

### Symptom

Requests sent by a user must go through TCP handshake and HTTPS certificate exchange. If packet loss occurs during the process, the operating system will retransmit the packet. The retransmission interval may be 3s or 5s depending on the system.

### Solution

1. Use the HTTPS persistent connection for requests, avoiding HTTP connection building for every request. If no data is transmitted to API Gateway for 300s, the connection will be closed. To prevent this situation, a data packet needs to be periodically sent from the client to maintain persistent connection.
2. Conduct timeout retries at the application layer to collect statistics on the average duration of more than 99% requests. Then set a retry mechanism based on the duration.

## 1.7 What Is the Limit for Free Calls to the Face Detection API?

The first 2,000 valid API calls of sub-services (excluding Face LiveDetect) of FRS are free.

## 1.8 How Do I Disable a Service?

You can disable it on the management console.

An enabled service is paid on a pay-per-use basis by default. No fee will be deducted if you do not call the service.

## 1.9 Are There SDKs Available for Mobile Phones (Android and iOS) in FRS?

FRS provides a Java SDK for Android systems. Currently, no SDK is available for iOS systems. For details about the Java SDK, see the [Java SDK Quick Start](#).

### NOTE

When an Android system uses this Java SDK, the main thread is not supported. You are advised to use the sub-thread.

# 2 APIs

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## 2.1 How Can I Use FRS APIs?

You can send a request based on constructed request messages using any of the following three methods:

- **cURL**  
cURL is a command-line tool used to perform URL operations and transmit information. cURL acts as an HTTP client that can send HTTP requests to the server and receive response messages. cURL is applicable to API debugging.
- **Code**  
You can use code to call APIs to assemble, send, and process request messages.
- **RESTful client**  
Both Mozilla and Google Chrome provide a graphical browser plug-in REST client to send and process requests. Postman 7.24.0 is recommended.

## 2.2 What Do I Do If Error FRS.0022 Is Reported When Images Are Accessed on OBS?

### Possible Causes

1. The OBS path is incorrect.
2. The OBS bucket is not a bucket of the current account.
3. The current account does not authorize FRS to access OBS during service subscription.

### Solution

1. The image path is in the **/bucket/image-path** format and does not contain the domain name.
2. Ensure that the OBS bucket belongs to the current account.



3. To access images on OBS, authorize FRS to access OBS.

## 2.3 How Do I Obtain the Correct Endpoint?

An endpoint is the request address for calling an API. Endpoints vary depending on services and regions.

**Table 2-1** lists Face Recognition endpoints. Select a desired one based on service requirements.

**Table 2-1** FRS endpoints

| Region Name  | Region         | Endpoint                              | Protocol | Deployed Service |
|--------------|----------------|---------------------------------------|----------|------------------|
| CN-Hong Kong | ap-southeast-1 | face.ap-southeast-1.myhuaweicloud.com | HTTPS    | FRS APIs         |
| AP-Bangkok   | ap-southeast-2 | face.ap-southeast-2.myhuaweicloud.com | HTTPS    | FRS APIs         |

## 2.4 How Do I Obtain the Base64 Code of an Image?

This section uses Python as an example to describe how to convert a local image into Base64 encoding. You can also use an online conversion tool.

Replace `d:\demo.jpg` in the code with the actual image path.

```
import base64
with open("d:\demo.jpg", "rb") as image_file:
    encoded_string = base64.b64encode(image_file.read()).decode()
print(encoded_string)
```

## 2.5 How Do I Set the top\_n Parameter in the Face Retrieval API?

If a request for the API does not contain the `top_n` parameter, the system returns the most similar 10 faces by default. The maximum value you can set for the `top_n` parameter is **1,000**.

## 2.6 Why Is the Data Returned by FRS Empty?

### Symptom

The face in an uploaded image may be transverse or upside down.

## Solution

1. Select a solid color background without any interference and ensure that the face in the image is clear.
2. The side face angle cannot exceed 30°, and the angle of head up or down cannot exceed 15°.
3. The face in the image must be a front face and must be vertical. If the face is transverse or upside down, rotate it and try again.

## 2.7 What Is the Minimum Bandwidth Needed for FRS?

The image size and concurrency are controlled by customers. Customers can select the bandwidth based on their service requirements. FRS does not set a minimum limit for bandwidth.

## 2.8 How Do I Obtain the URL of the Most Recent Image in an OBS Bucket?

If you set the permission for an object to allow anonymous users to read it, anonymous users can access the object through the URL that you shared.

### Prerequisites

The read permission on the object has been granted to anonymous users.

For details about how to enable the permission, see [Granting Public Read Permissions on Objects to Anonymous Users](#).

#### NOTE

Encrypted objects cannot be shared.

### Procedure

1. In the navigation pane of the OBS console, choose **Buckets**.
2. In the bucket list, click the bucket name you want. The **Overview** page of the bucket is displayed.
3. In the navigation pane on the left, choose **Objects**.
4. Click the object to be shared. The object information is displayed in the upper part of the page. The **Link** displays the shared link of the object.

Anonymous users can access the object by clicking the URL. The object URL is in the format of **https://Bucket name.Domain name/Directory level/Object name**. If the object is in the root directory of the bucket, the URL does not contain a directory level.

**Figure 2-1** Link

|  |   |               |   |   |
|--|---|---------------|---|---|
| Name   | web image.jpg   | Storage Class | Standard <a href="#">Change Storage Class</a> |   |
| Last Modified  | Oct 18, 2023 16:57:40 GMT+08:00   | Size          | 15.67 KB                                      |   |
| <a href="#">Link</a>  |  |               | Version ID                                    | - |

 NOTE

- To allow anonymous users to access Archive objects using URLs, ensure that these objects are in the **Restored** state.
- The way to access objects through a browser differs based on the type of object. For example, you can open **.txt** and **.html** files directly in a browser, while **.exe** and **.dat** files will be automatically downloaded to your computer when accessed through a browser.

## 2.9 Can I Query Facial Images Uploaded for Face Recognition?

Face Recognition does not store customers' facial images. It detects facial parameters based on the images and stores only facial features. You can use the following two methods to store image data:

1. Enable Huawei Cloud OBS to store face images.
2. Store facial images in your databases.

# 3 Error Codes

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## 3.1 Why Do Errors Occur When Making API Calls?

### Troubleshooting

1. Find the cause based on the API calling result or error code.
2. Check whether the AK and SK have been successfully obtained.
3. Check whether the token has been correctly entered or has expired.
4. Check whether the API calling method is correct.

# 4 Region and AZ FAQs

## 4.1 What Are Regions and AZs?

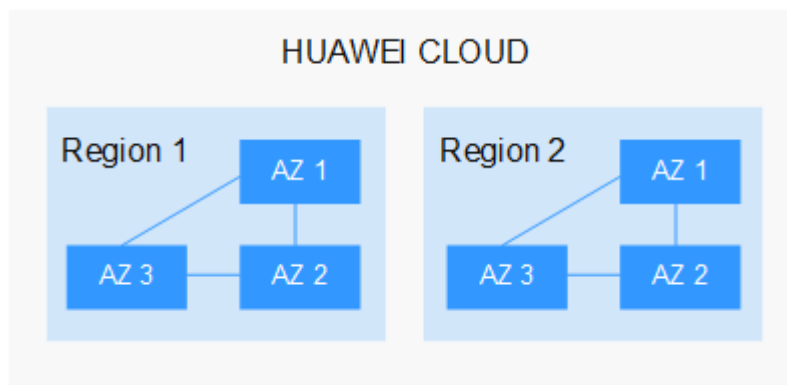
### Concepts

A region and availability zone (AZ) identify the location of a data center. You can create resources in a specific region and 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 more 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 4-1** shows the relationship between the regions and AZs.

**Figure 4-1** Regions and AZs



Huawei Cloud provides services in many regions around the world. You can select a region and AZ as needed.

## How Do I Select a Region?

When selecting a region, consider the following factors:

- Location  
You are advised to select a region close to you or your target users. This reduces network latency and improves access rate. However, Chinese mainland regions provide basically the same infrastructure, BGP network quality, as well as operations and configurations on resources. Therefore, if you or your target users are in the Chinese mainland, you do not need to consider the network latency differences when selecting a region.
  - If you or your target users are in Asia Pacific excepting the Chinese mainland, select the **CN-Hong Kong**, **AP-Bangkok**, or **AP-Singapore** region.
  - If you or your target users are in Africa, select the **AF-Johannesburg** region.
  - If you or your target users are in Europe, select the **EU-Paris** region.
- Relationship between cloud services  
When using multiple cloud services, pay attention to the following restrictions:
  - ECSs, RDS instances, and OBS buckets in different regions cannot communicate with each other through an internal network.
  - ECSs in different regions cannot be bound to the same load balancer.
- Resource price  
Resource prices may vary in different regions. For details, see [Product Pricing Details](#).

## How Do I Select an AZ?

When determining whether to deploy resources in the same AZ, consider your applications' requirements on disaster recovery (DR) and network latency.

- For high DR capability, deploy resources in different AZs in the same region.
- For low network latency, deploy resources in the same AZ.

## Regions and Endpoints

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

# 5 Permissions

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## 5.1 What Permissions Are Required to Use FRS?

- Once you have subscribed to the FRS service on the management console, you can immediately start using FRS without the need for any additional permission configurations.
- To utilize data stored on OBS, simply grant FRS access to your OBS through the FRS management console.
- FRS supports fine-grained policies of IAM.

## 5.2 Does FRS Support Fine-grained Policies of IAM?

FRS supports fine-grained policies of IAM, allowing for varying FRS operation permissions between IAM accounts and master accounts.

You can create IAM users for employees or applications. For details, see "Creating an IAM User."

## 5.3 Calling APIs Failed Due to Permission Issues

### Symptom

When an IAM user attempts to call FRS, they may receive a message indicating that they have not subscribed to the service, despite having already done so.

### Solution

- Make sure that the region used to call the API matches the region where the service is subscribed to.
- Check the permissions granted by the master account and confirm if the IAM user who subscribed to the service is the same as the one calling the API.

# 6 Data Security

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## 6.1 Will User Data Be Stored When FRS Is Used?

Huawei Cloud is committed to providing cutting-edge, future-ready, and trustworthy cloud services by meeting customer needs on security, compliance, privacy, resilience, and transparency, and trustworthiness lies in the core of Huawei Cloud's FRS service. For details about the statement, see [Privacy Statement](#) and [Legal Notice](#). For details about trusted resources, see [White Papers](#).