

Optical Character Recognition

Getting Started

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1 Introduction to OCR

Optical Character Recognition (OCR) detects and extracts text from images, scanned copies, PDFs, and OFD files, and converts the recognition results into editable text.

OCR provides open APIs, so you can use programming languages such as Python and Java to call OCR APIs to extract text from images. OCR allows you to automate the collection of key data. It helps you build an intelligent service system to improve efficiency. For details about how to obtain APIs, see [Optical Character Recognition API Reference](#).

OCR also provides software development kits (SDKs) for multiple programming languages. For details about how to use SDKs, see [Optical Character Recognition SDK Reference](#).

You can use either of the following methods to call OCR APIs after subscription:

- **OCR Experience Center**
If you do not have any programming experience but want to try out OCR services quickly, the OCR Experience Center offers an online web-based method. This method does not require any coding; simply upload an image on the web page and receive the recognition results.
- **A software tool such as curl or Postman**
These are good options if you are more comfortable writing code, HTTP requests, and API calls. For details about how to use the tool, see [Calling the Passport OCR API](#).
- **Software development kit (SDK)**
SDKs for Java, Python, and Node.js are available for quick integration. For details about how to use the tool, see [Using an SDK to Call the Passport OCR](#).

2 Calling the Passport OCR API

Use Postman to call the Passport OCR API.

To call an OCR API, there are four steps:

Step 1: Subscribe to a Service

Step 2: Configure the Environment

Step 3: Use a Token for Authentication

Step 4: Call the Service

Preparations

You have signed up for a HUAWEI ID and enabled Huawei Cloud services. Your account cannot be in arrears or frozen.

Step 1: Subscribe to a Service

1. Log in to the Huawei Cloud OCR management console.

The default region is displayed in the upper left corner. Select a region based on service requirements. For details about the region where the OCR service is available, see [Regions and Endpoints](#).

2. Select and subscribe to your desired API.

For this example, subscribe to the Passport OCR API.

NOTE

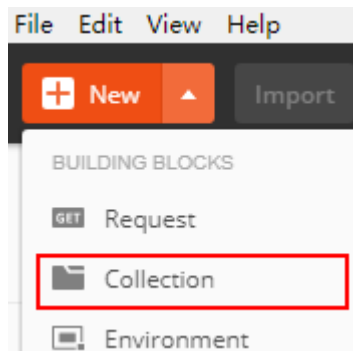
- The OCR service is released on ModelArts. Error codes starting with "ModelArts" may be reported. For details about error codes, see [Error Codes](#).
- If the ModelArts.4204 error is reported, the service may not be subscribed to or the region where the service is subscribed to is inconsistent with the region where the service is called. Before calling the service, log in to the console and ensure the region is the same.

Step 2: Configure the Environment

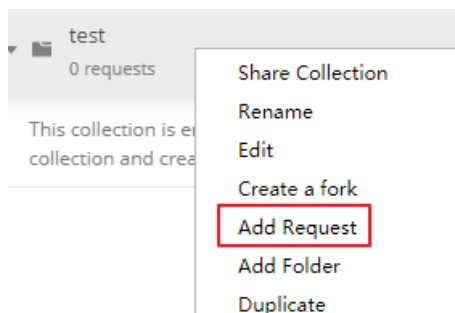
Download and install Postman 7.24.0.

Step 3: Use a Token for Authentication

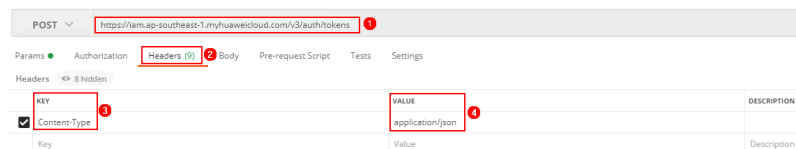
1. On the Postman page, choose **New > Collection**, set the name, and click **Create**.



2. Right-click the created collection and select **Add Request** from the shortcut menu. Set the request name and click **Save**.

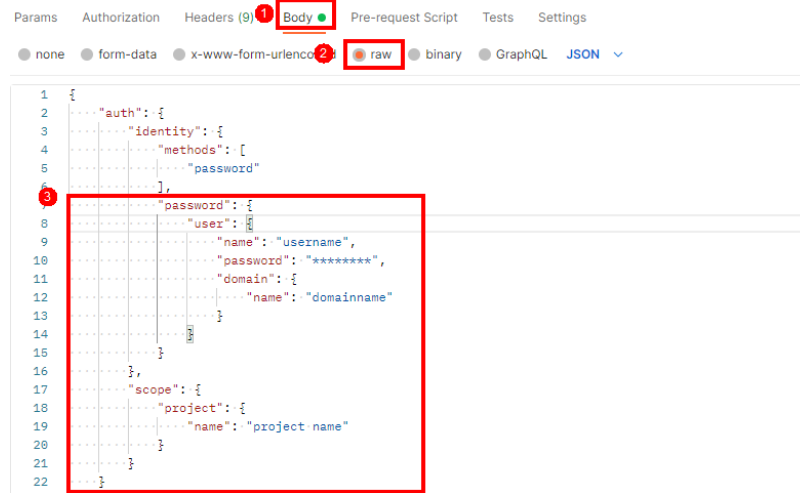


3. Change the request mode to **POST** and enter the URL.
For example, if **ap-southeast-1** is used, the URL is **https://iam.ap-southeast-1.myhuaweicloud.com/v3/auth/tokens**.
4. In the **Headers** list, set **KEY** to **Content-Type** and **VALUE** to **application/json**.

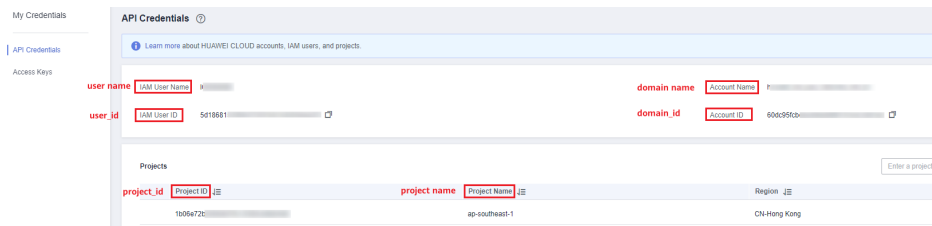


5. Click **Body**, select **raw**, and enter the code in the blank area.

Figure 2-1 Token-based authentication



Replace *username*, ******* (login password), *domainname*, and *project name* (region where the service is deployed) with the actual values. To obtain the values of these parameters, log in to the management console and click **My Credentials**.



The region where OCR is deployed must be the same as the region where you call the service. In this example, the region is **ap-southeast-1**.

```
{
  "auth": {
    "identity": {
      "methods": [
        "password"
      ],
      "password": {
        "user": {
          "name": "username",
          "password": "*****",
          "domain": {
            "name": "domainname"
          }
        }
      }
    },
    "scope": {
      "project": {
        "name": "ap-southeast-1"
      }
    }
  }
}
```

6. Click **Send** in the upper right corner to send the request. Obtain the token from the returned result. The token is valid for 24 hours.

Body	Cookies	Headers (16)	Test Results	Status: 201 Created	Time: 404ms	Size: 25.27 KB	Save Response
		Content-Length		16647			
		Connection		keep-alive			
		X-IAM-Trace-Id		token_cn-north-4_null_02720ac73da1e27272edf6fab756e911			
		Cache-Control		no-cache, no-store, must-revalidate			
		Pragma		no-cache			
		Expires		Thu, 01 Jan 1970 00:00:00 GMT			
		X-Subject-Token		MIIZNgYjKoZlhvcNAQcCollZpCCGSMCAQExDTALBgIghkgBZQMEAgEwghdlBkqkhiG9...			
		X-Request-Id		7d1dcfbac0e463dda61e7ba926279c7e			
		Server		api-gateway			
		Strict-Transport-Security		max-age=31536000; includeSubdomains;			

Step 4: Call the Service

1. Create a request, set the request mode to **POST**, and enter the URL as needed.

For example, if Passport OCR is deployed in the **CN-Hong Kong** region, the request URL is **https://ocr.ap-southeast-1.myhuaweicloud.com/v2/{project_id}/ocr/passport**.

Click **Headers** and copy the token to **X-Auth-Token**.

Log in to the **My Credentials** page, query the ID of the project in the **CN-Hong Kong** region, and replace *{project_id}* in the URI with the queried project ID.

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> Content-Type	application/json	
<input checked="" type="checkbox"/> X-Auth-Token	MIIB+QYJKoZlhvcNAQcCollb6jCCG+YCAQExD...	
Key	Value	Description

Project ID	Project Name	Region
0150:...	ap-southeast-1	CN-Hong Kong

2. Click **Body** and add the Base64 code of an image to the request body. For details about the API description, see **Passport OCR**.

```
{
  "image": "/9j/4AAQSkZJRgABAgEASABIAAD/4RFZRXhpZgAATU0AKgAAAA...",
  "country_code": "GENERAL"
}
```

3. Click **Send** in the upper right corner to send the request and view the results.

3 Using an SDK to Call the Passport OCR

OCR SDKs use OCR RESTful APIs to simplify development.

To call an OCR API using an SDK, do the following:

Step 1: Subscribe to a Service

Step 2: Install the SDK

Step 3: Obtain Sample Code

Step 4: Call the Service

Preparations

You have signed up for a HUAWEI ID and enabled Huawei Cloud services. Your account cannot be in arrears or frozen.

Step 1: Subscribe to a Service

1. Log in to the Huawei Cloud OCR management console.

The service is deployed in the region by default. Select a region based on service requirements. For details about the region where each service is deployed, see [Regions and Endpoints](#).

2. Select and subscribe to your desired API.

For this example, subscribe to the Passport OCR API.

NOTE

If the service is not enabled, an error message with error code "ModelArts.4204" will be displayed when you call the service. Before calling the service, log in to the OCR console and enable the service. Ensure that the region where the service is enabled is the same as that where the service is called.

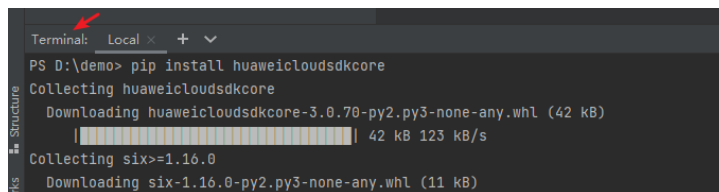
Step 2: Install the SDK

1. Download and install the OCR Python SDK.

The following uses PyCharm as an example to describe how to install the SDK.

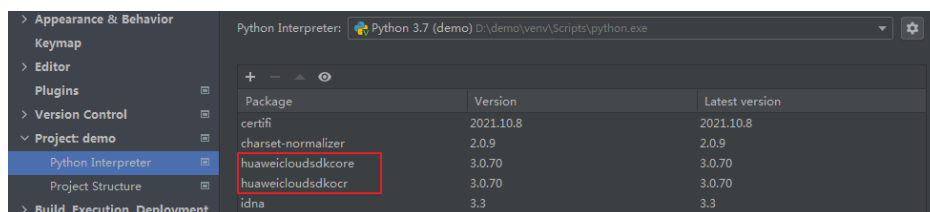
Create a project in PyCharm and click **Terminal** in the lower left corner. Run the following commands to install the SDK (the SDK supports Python 3 or later):

```
# Install the huaweicloudsdkcore package.
pip install huaweicloudsdkcore
# Install the huaweicloudskocr package.
pip install huaweicloudskocr
```



2. Check whether the SDK has been installed properly.

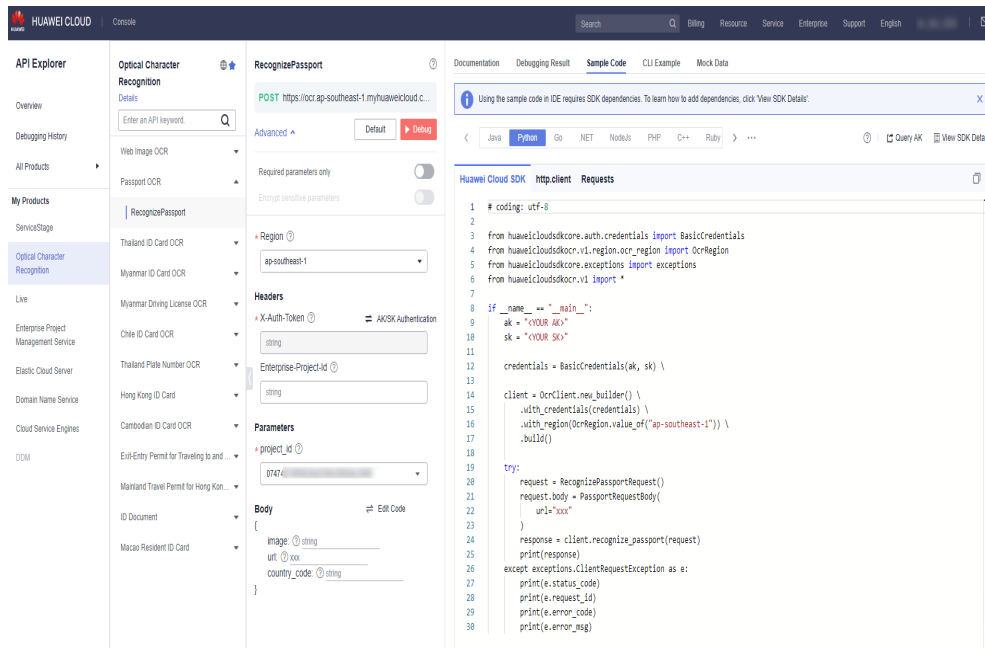
Choose **File > Settings > Project > Python Interpreter** in PyCharm and check whether the SDK has been installed properly.



Step 3: Obtain Sample Code

Obtain the SDK sample code of Passport OCR.

1. Log in to the [API Explorer](#) and click **Python** on the **Sample Code** tab page.
2. Configure request body parameters. Set **image** or **url** as input data.



3. Copy the sample code to PyCharm.

Step 4: Call the Service

1. Obtain the AK and SK and replace <YOUR AK> and <YOUR SK> in the sample code with the AK and SK, respectively.

Log in to the [Access Keys](#) page and create an access key or use an existing access key. The AK and SK are contained in the `credentials.csv` file.

A	B	C	D	E
User Name	Access Key	Secret Access Key		
testuser	LSKM	rIZaQ		
	AK	SK		

2. Run the sample code to obtain recognition results.

```

# coding: utf-8
from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkocr.v1.region_ocr_region import OcrRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkocr.v1 import *

if __name__ == '__main__':
    ak = "LSKM"
    sk = "rIZaQ"
    credentials = BasicCredentials(ak, sk)
    client = OcrClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(ocr_region_value_of('ap-southeast-1')) \
        .build()
    try:
        request = RecognizePassportRequest()
        request.body = PassportRequestBody(
            url="http://img-test.oss-cn-hangzhou.aliyuncs.com/ocr-test/1.jpg"
        )
        response = client.recognize_passport(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)

if __name__ == '__main__':
    try:
        ocr = OcrClient.new_builder() \
            .with_credentials(credentials) \
            .with_region(ocr_region_value_of('ap-southeast-1')) \
            .build()
        request = RecognizePassportRequest()
        request.body = PassportRequestBody(
            url="http://img-test.oss-cn-hangzhou.aliyuncs.com/ocr-test/1.jpg"
        )
        response = ocr.recognize_passport(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
    
```

```

Run ocr
D:\demo\vscode\scripts\python.exe D:/demo/ocr.py
{"result": {"country_code": "CHINA", "passport_number": "98880000", "surname": "CHUNG", "given_name": "88880000", "sex": "F", "date_of_birth": "1980-00-00", "date_of_expiry": "2000-00-00", "confidence": {"country_code": 0.9888, "surname": 0.9888, "given_name": 0.9888, "machine_code": 0.9888, "passport_number": 0.9888, "date_of_birth": 0.9888, "sex": 0.9888, "date_of_expiry": 0.9888, "machine_code2": 0.9888}, "extra_info": {}}}
Process finished with exit code 0
    
```

NOTE

- If an HTTPS request error warning containing "InsecureRequestWarning: Unverified HTTPS request is being made" is displayed, add the following code to clear the warning:

```
import urllib3
urllib3.disable_warnings()
```
- If the SSL configuration is incorrect, the message "Error:sslHandShakeException occurred" is displayed when you call the service. You can skip SSL certificate verification or configure the CA certificate on the server as required. For details, see "Python SDK" > "Configure client connection parameters" > "(Optional) Configuring an SSL" in *Optical Character Recognition SDK Reference*.