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HUAWEI CLOUD Hands-on lab

READ Thailand-ID Card with Huawei OCR

HUAWEI CLOUD

Hands-on lab

Read Thailand-ID Card with HUAWEI OCR

Overview

HUAWEI CLOUD Optical Character Recognition (OCR) allows you to detect and recognize printed characters in images and convert such characters into editable text in JSON format.

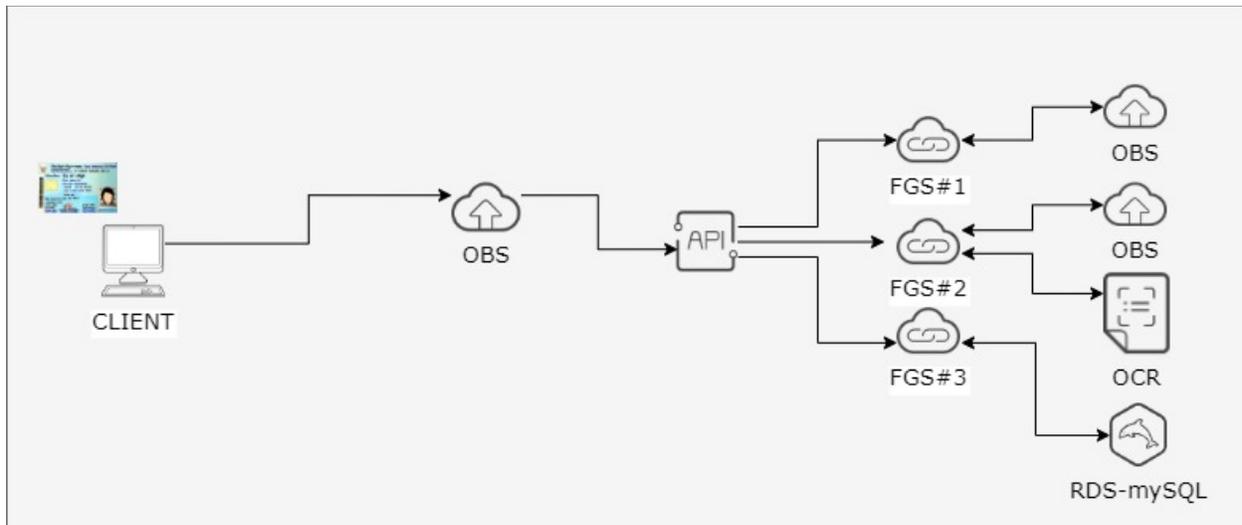
OCR provides services through open application programming interfaces (APIs). You can use programming languages such as Python and Java to call OCR APIs to recognize images as text, helping you automatically collect key data and build an intelligent service system to improve service efficiency.

OCR also provides software development kits (SDKs) for multiple programming languages.

HUAWEI CLOUD has deploy OCR Service in Thailand Region and support Thailand-ID Card allows you to detect and recognizes key information such as the ID number, given name, surname, and address on Thailand-issued identity cards.

In this hands-on lab you'll learn how to use HUAWEI CLOUD OCR to recognize Thailand-ID Card then store data into Database, you will also learn how to create static website on Object Storage Service and using the API-Gateway, FunctionGraph.

Introduction:



CLIENT: workstation open up URL to upload the picture then they update query store into database service

Object Storage Service (OBS): is a cloud storage service optimized for storing massive amounts of data. It provides unlimited, secure, offers an affordable and always-available website hosting solution, with auto scaling based on site traffic and highly reliable storage capabilities at a relatively low cost

API Gateway: is a high-performance, high-availability, and high-security API hosting service that helps enterprises build, manage, and deploy Application Programming Interfaces (APIs) at any scale.

FunctionGraph: hosts and computes event-driven functions in a serverless context while ensuring high availability, high scalability, and zero maintenance

Optical Character Recognition (OCR) allows you to detect and recognize printed characters in images and convert such characters into editable text in JSON format. OCR provides services through open application programming interfaces (APIs).

RDS for MySQL is reliable, secure, scalable, inexpensive, easy to manage, and immediately ready for use. It supports various web applications and is cost-effective, preferred by small- and medium-sized enterprises with web-based console provides comprehensive monitoring information, making your operations easy and visual. You can flexibly adjust the required resources based on your service requirements and pay for only what you use.

What you'll do

Create HUAWEI OBS bucket
Create AK SK with the Console
Create Relational Database Server
Subscribe OCR Service
Create FunctionGraph with the Console
Create an API-Gateway with the Console
Upload static website with OBS

Prerequisites

Understand HUAWEI CLOUD Fundamental such as Virtual Private Cloud, Security Group, Elastic Cloud Server, Relational Database Service and familiarity with standard text editors such as Notepad, or Notepad++ will be helpful

Read these instructions.

This hands-on lab lets you do the lab activities in HUAWEI CLOUD environment, and quick demonstrate how to integrate relate service in CLOUD with *pre-build code and script and store website in OBS instead of create ECS and webserver, in your real production environment you need to consider setup Web server for secure website, code and script, security setup, data structure and etc.*

In this hands-on you need to provision all resources in **AP-Bangkok**

What you need

To complete this lab, you need:

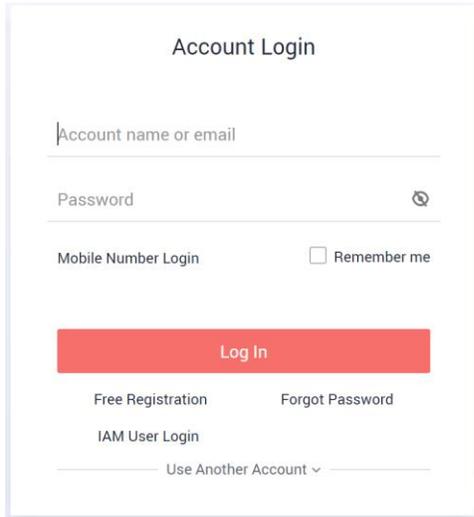
- Completed HUAWEI CLOUD Fundamental 101
- Time to complete the lab.

Create HUAWEI Object Storage bucket

To quick demonstrate with HUAWEI CLOUD with in this section, you'll learn how to create OBS Bucket from the Console.

Download pre-build website static code, sample data and FunctionGraph script from <https://tinyurl.com/y6pcwq3w>, and extract to your local computer e.g. C:\HOL-OCR

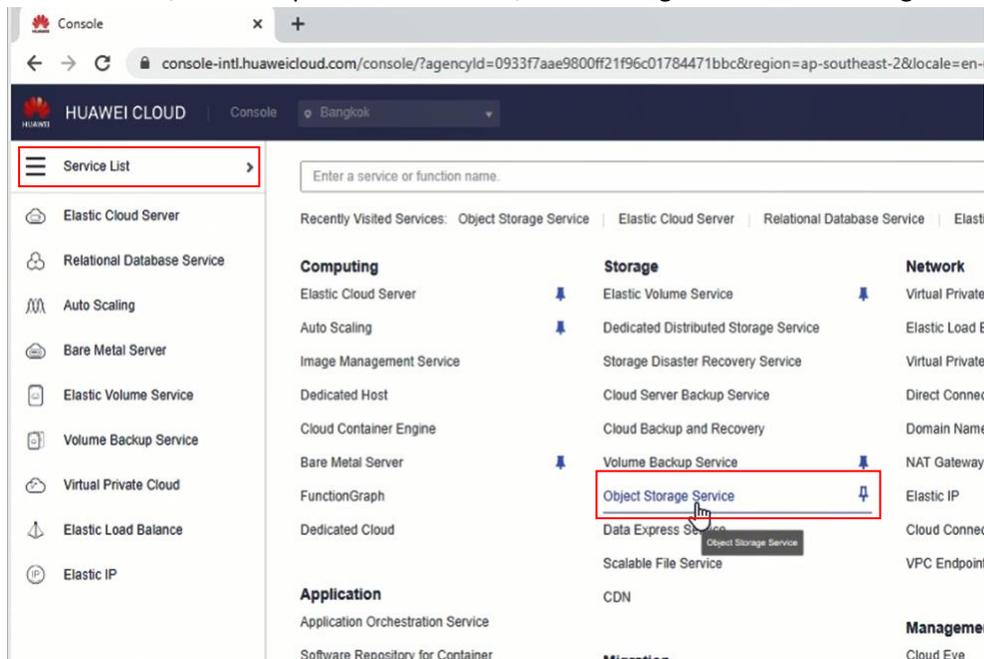
Open Web Browser e.g. Chrome/Firefox to access <https://www.huaweicloud.com> and login



The screenshot shows the 'Account Login' page of the Huawei Cloud console. It features a form with the following elements:

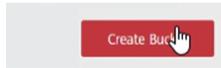
- Input field for 'Account name or email'.
- Input field for 'Password' with a toggle for visibility.
- Input field for 'Mobile Number Login' and a checkbox for 'Remember me'.
- A prominent red 'Log In' button.
- Links for 'Free Registration', 'Forgot Password', and 'IAM User Login'.
- A link for 'Use Another Account' with a dropdown arrow.

In the Console, on the top left of the screen, select Navigation menu > Storage > Object Storage Service



The screenshot displays the Huawei Cloud console interface. On the left, the 'Service List' navigation menu is expanded, showing various service categories. The 'Storage' category is selected, and 'Object Storage Service' is highlighted with a red box. The main content area shows a grid of services under the 'Storage' heading, with 'Object Storage Service' also highlighted by a red box and a mouse cursor. Other services listed include Elastic Cloud Server, Auto Scaling, Image Management Service, Dedicated Host, Cloud Container Engine, Bare Metal Server, FunctionGraph, Dedicated Cloud, Elastic Volume Service, Dedicated Distributed Storage Service, Storage Disaster Recovery Service, Cloud Server Backup Service, Cloud Backup and Recovery, Volume Backup Service, Data Express Service, Scalable File Service, and CDN.

On the top right of screen, Click on Create Bucket



Create 3 bucket, with following information

[Region] AP-Bangkok
[Bucket Name] kt8795, is used in an example
[Storage Class] Standard

[Region] AP-Bangkok
[Bucket Name] kt8795-imgs, is used in an example
[Storage Class] Standard

[Region] AP-Bangkok
[Bucket Name] kt8795-dev, is used in an example
[Storage Class] Standard

The name of Bucket must be globally unique in HUAWEI CLOUD OBS Service in the same region. You need to define the bucket name and cannot duplicate with other, for example to create you bucket name, e.g. yourname-4digits

Change Bucket permission

Click on Bucket name store website static and images example **kt8795** and **kt8795-imgs**, is used in an example in left panel click Permission, in right panel “Bucket Policies” change standard bucket policies to **“Public Read”**

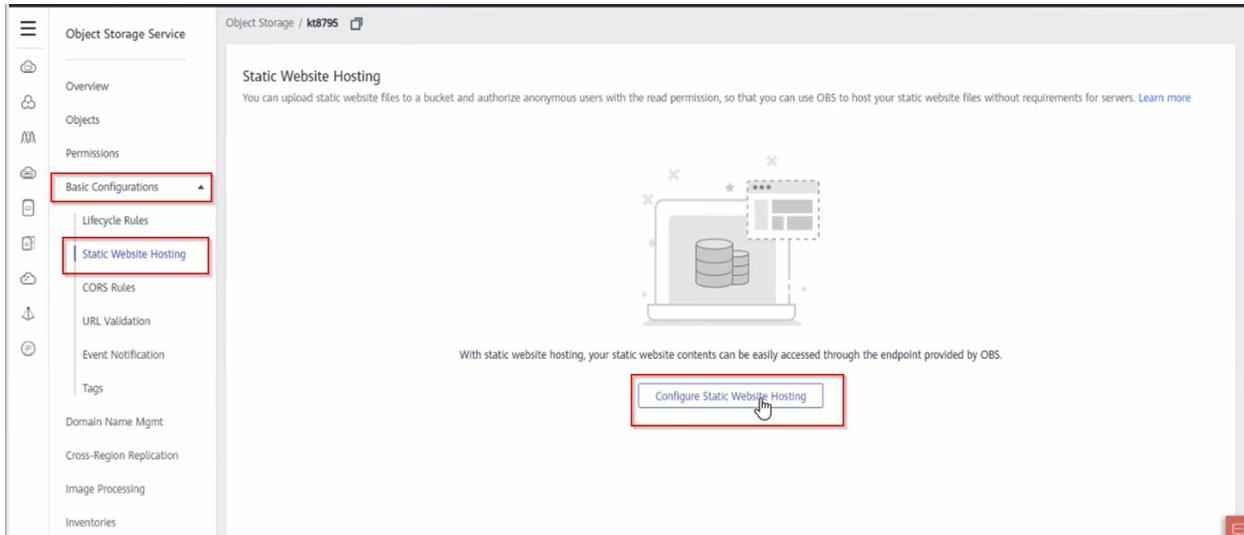
To allow anyone access to your static website and show image on web you need to assign permission on bucket as public read

(In your real production environment you need to consider setup Web server for secure website, code and script, security setup, call picture in OBS via API, data structure and etc.)

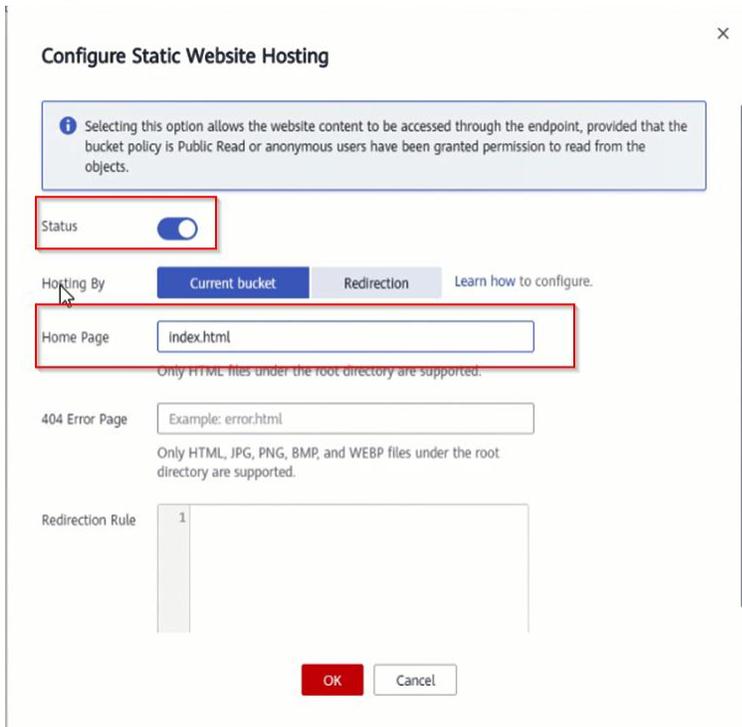
The screenshot shows the 'Object Storage / kt8795-imgs' page in the OBS console. The left sidebar contains navigation options: Overview, Objects, Permissions (selected), Basic Configurations, Domain Name Mgmt, Cross-Region Replication, Image Processing, and Inventories. The main content area is titled 'Bucket Policies' and includes a sub-tab for 'Bucket ACLs'. Below this, there is explanatory text about bucket policies and a section for 'Standard Bucket Policies'. Three policy options are displayed: 'Private' (locked icon), 'Public Read' (glasses icon, highlighted with a red box), and 'Public Read and Write' (pencil icon). Each option includes a brief description of its permissions. At the bottom, there is a 'Custom Bucket Policies' section with a dropdown arrow.

Configure Static Website Hosting

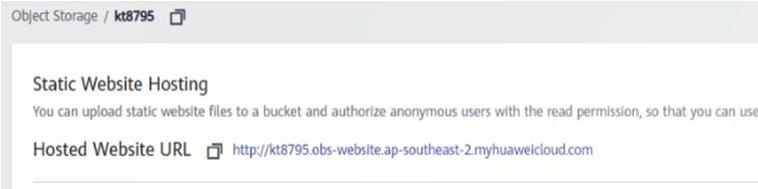
Click on Bucket name, in left panel click Basic Configurations > Static Website Hosting, in right panel click “Configure Static Website Hosting”



Change Status to enable and enter Home page value to “index.html”



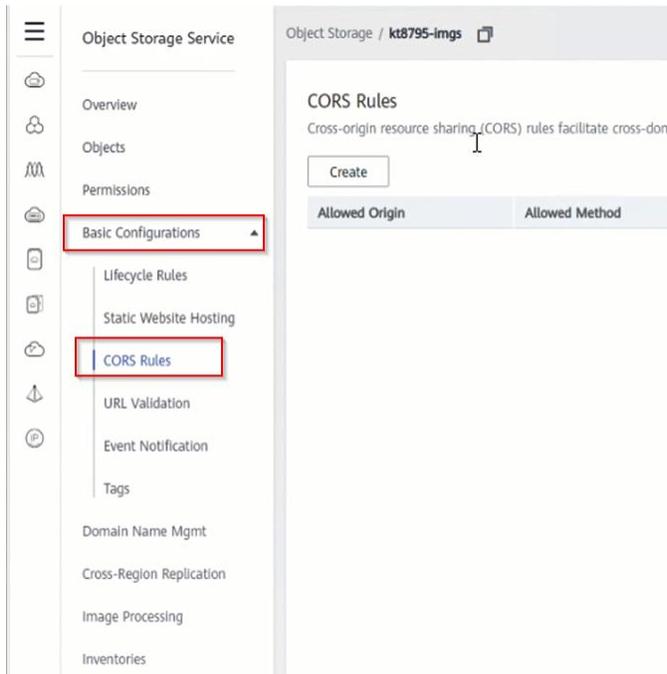
You will get Hosted Website URL, you can upload your static website to OBS and try to open URL e.g. <http://kt8795.obs-website.ap-southeast-2.myhuaweicloud.com>, you need this URL in the next step



In the last step will show your how to modify website static and upload to OBS

Configure CORS Rules >>> can you explain what is CORS?

Click on Bucket name you plan to store idcard image e.g. kt8795-imgs, in left panel click Basic Configurations > CORS Rules, in right panel click "Create"



Input parameter

Create CORS Rule [Learn how to configure.](#)

* Allowed Origin 0/1,024

* Allowed Method

Allowed Header 0/1,024

Exposed Header 0/1,024

Cache Duration (s) - +

[Allowed Origin] `http://kt8795.obs-website.ap-southeast-2.myhuaweicloud.com,`
Is used in an example, in put your OBS website static URL in previous step.

[Allowed Method] `POST, PUT, DELETE`

[Allowed Header] `*`

[Exposed Header]: `x-amz-server-side-encryption`
`x-amz-request-id`
`x-amz-id-2`

[Cache Duration]: `3000`

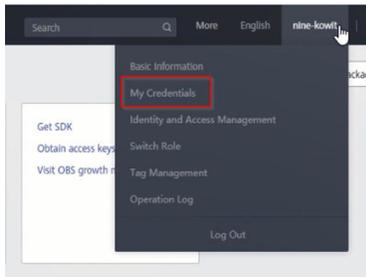
Create HUAWEI Cloud AK SK

In this section, you'll learn how to create AK SK from the Console.

In order to access HUAWEI CLOUD API such as Connect to OBS with OBS Browser client, call the API from customer premise application, call the API from FunctionGraph. You need to make and calling for Authenticated, In this lab will calling APIs through AK/SK authentication

In your production environment you need to create IAM Account and using IAM account AK/SK and avoid using root AK/SK

In the Console, on the top right of the screen, Rollover you mouse on your username and select “My Credentials”



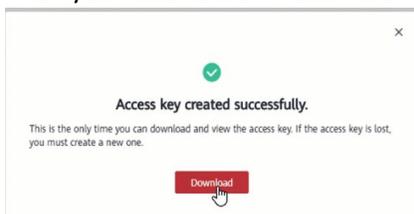
On bottom of screen, Click “Access Keys” and “Create Access Key”



Click on “Send Code”, then check your email and enter Verification Code then “OK”.



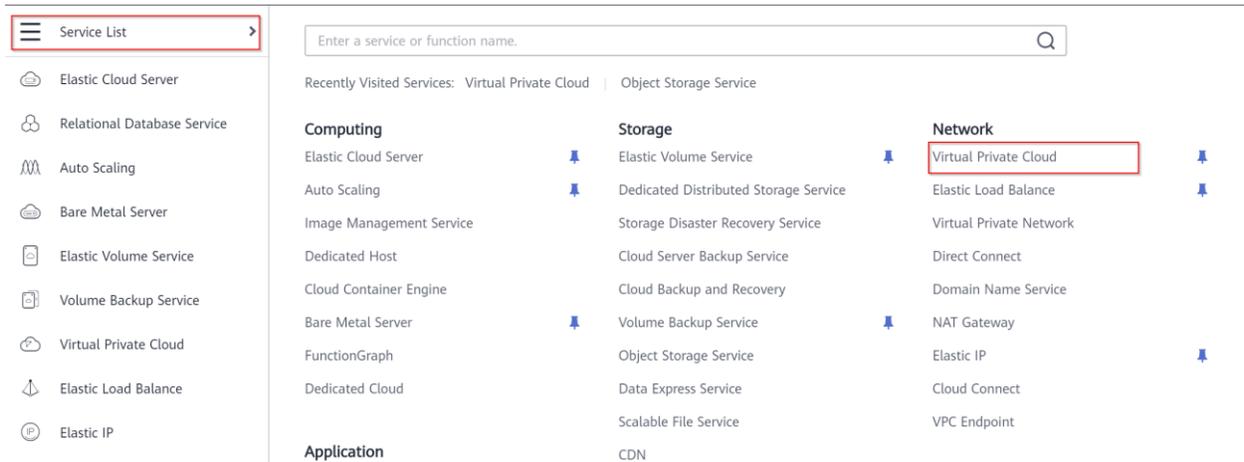
Then you need to download AS SK file to your computer and keep in save place.



Create Relational Database Service

In this section, you need to completed learn HUAWEI CLOUD Fundamental service such as Virtual Private Cloud, Security Group, Elastic Cloud Server, Relational Database Service, you'll learn how to create Relational Database Service from the Console.

In the Console, on the top left of the screen, select Navigation menu > Network > Virtual Private Cloud



Click “Create VPC” in the upper right corner, configure as follows:



- [Region]: Bangkok
- [Name]: Enter a user-defined name. In this lab, “vpc-hol-ocr” is used as an example.
- [CIDR Block]: 192.168.0.0/24, is used as an example

Basic Information

Region:

Regions are geographic areas isolated from each other. Resources are region-specific and cannot latency and quick resource access, select the nearest region.

Name:

CIDR Block:

Recommended: 10.0.0.0/8-24 (Select) 172.16.0.0/12-24 (Select) 192.168.0.0/16-24 (Select)

Configure Default Subnet as follows:

- [Name]: Enter a user-defined name. In this lab, “subnet-hol-ocr” is used as an example.
- [CIDR Block]: 192.168.0.0/24

Default Subnet

Name:

CIDR Block: Available IP Addresses: 251

The CIDR block cannot be modified after the subnet has been created.

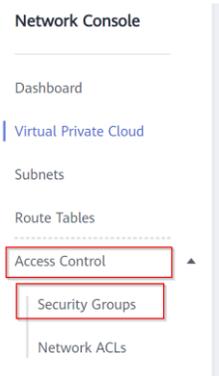
Associated Route Table:

Advanced Settings: Gateway | DNS Server Address | DHCP Lease Time | Tag

Click Create Now at lower right corner.

Setup Security Groups

In the Virtual Private Cloud console, click “Access Control” and “Security Groups” as follows:



Click “Create Security Groups” at upper right corner, configure as follows:

[Name]: Enter a user-defined name. In this lab, “sg-hol-ocr” is used as an example.

[Template]: Custom

[Description]: keep default

Click OK

Create Security Group

* Name

* Template

Description

0/255

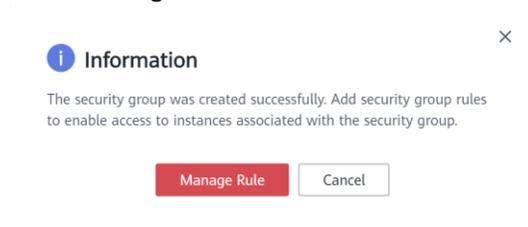
Hide Default Rule

Inbound | Outbound

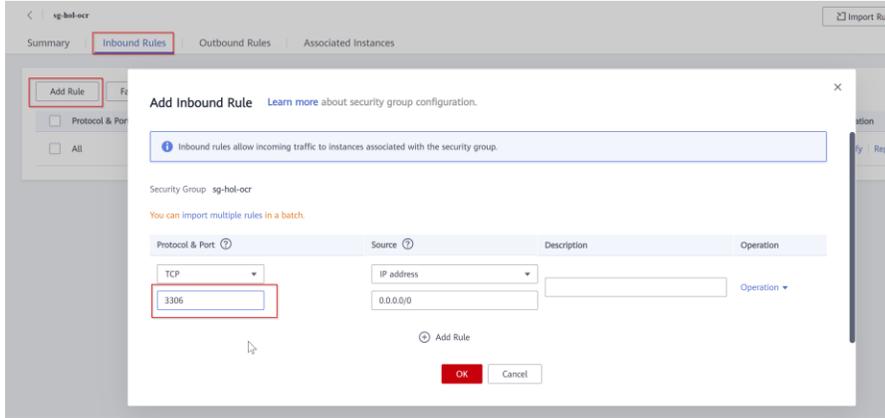
Protocol & Port	Type	Source
All	IPv4	sg-hol-ocr

OK Cancel

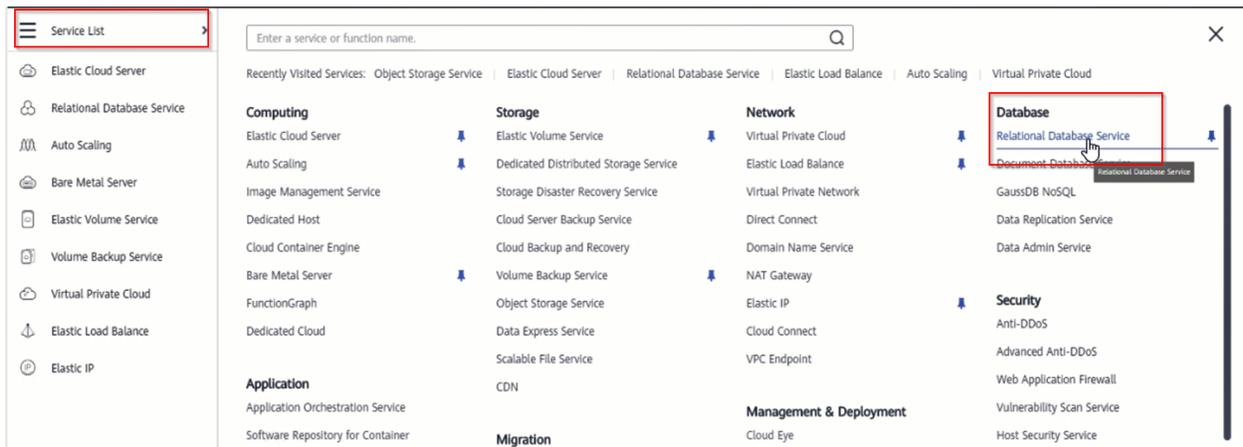
Click “Manage Rule”



Click "Inbound Rules", "Add Rule" and input 3306 in Protocol & Port for allow MySQL RDS Service, then Click OK



In the Console, on the top left of the screen, select Navigation menu > Database > Relational Database Service



Click "Buy DB instance"



Select parameter as below.

[Billing Mode]:	Pay-per-use
[Region]:	AP-Bangkok
[DB Instance Name]:	rds-ocr, is used in an example, you can define name.
[DB Engine]:	MySQL
[DB Engine Version]:	5.7
[DB Instance Type]:	Single
[AZ]:	AZ1
[Time Zone]:	UTC+07:00
[Instance Class]:	2 vCPU 4 GB
[Storage]:	40 GB
[VPC]:	vpc-hol-ocr, is used in an example and assign IP 192.168.0.100
[Security Group]:	sg-hol-ocr, is used in an example. Make sure your inbound rules allow database port (3306)
[Database Port]:	Default 3306
[Administrator Password]:	You define administrator password

Billing Mode Yearly/Monthly **Pay-per-use** ?

Region AP-Bangkok ▼

Regions are geographic areas isolated from each other. Resources are region-specific and the nearest region.

DB Instance Name rds-ocr ?

If you buy multiple DB instances at a time, they will be named with four digits appended instance-0001, the second as instance-0002, and so on.

DB Engine MySQL PostgreSQL Microsoft SQL Server Learn

DB Engine Version 8.0 **5.7** 5.6

DB Instance Type ? Primary/Standby **Single**

Single-node architecture is cost-effective and suitable for developing and testing of microservices.

Storage Type Recommended **Ultra-high I/O** Learn more about storage types.

AZ az1 az2

Time Zone UTC+07:00 ▼

Instance Class ? General-enhanced **General-enhanced II**

vCPU Memory	Maximum Connections	TPS/QPS ?
<input checked="" type="radio"/> 2 vCPUs 4 GB	1,500	474 9,236
<input type="radio"/> 2 vCPUs 8 GB	2,500	602 11,865
<input type="radio"/> 4 vCPUs 16 GB	5,000	1,371 26,281
<input type="radio"/> 8 vCPUs 16 GB	5,000	1,971 38,234
<input type="radio"/> 16 vCPUs 32 GB	10,000	3,312 62,769
<input type="radio"/> 32 vCPUs 64 GB	18,000	3,836 74,256

DB Instance Specifications **General-enhanced II** 2 vCPUs | 4 GB, Maximum Connections : 1500, TPS/QPS: 474 | 9236

Storage Space (GB) 40 GB

40 800 1,550 2,300 4,000 40 + ?

We provide free backup space the same size as the storage space of the primary DB instance. After the free backup space is used up, charge 40 GB is recommended. Enjoy more benefits of free packages. [Learn more](#)

Disk Encryption Disable **Recommended Enable** ?

VPC ? Relationship among VPCs, subnets, security groups, and DB instances

vpc-hol-ocr ↻ subnet-hol-ocr(192.168.0.0/24) ↻ 192.168.0.100 View In-use IP Address

Security Group ? sg-hol-ocr ↻ View Security Group

Inbound: TCP/3306 | Outbound: --
In a security group, rules that authorize connections to DB instances apply to all DB instances associated with the security group.

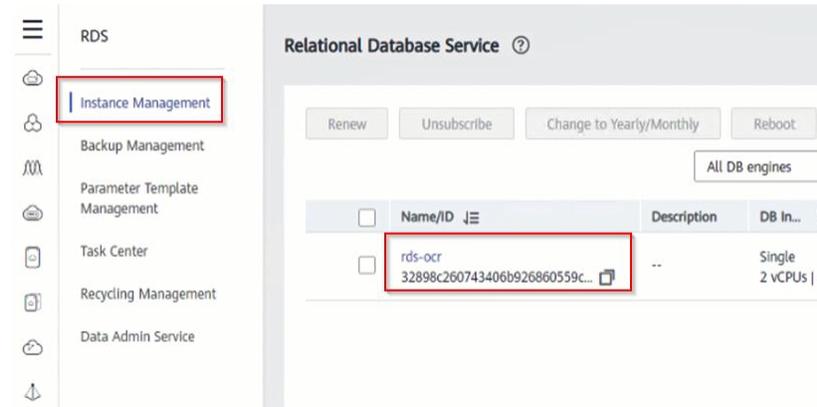
Database Port Default port: 3306

The database port of read replicas (if any) is the same as that of the primary DB instance.

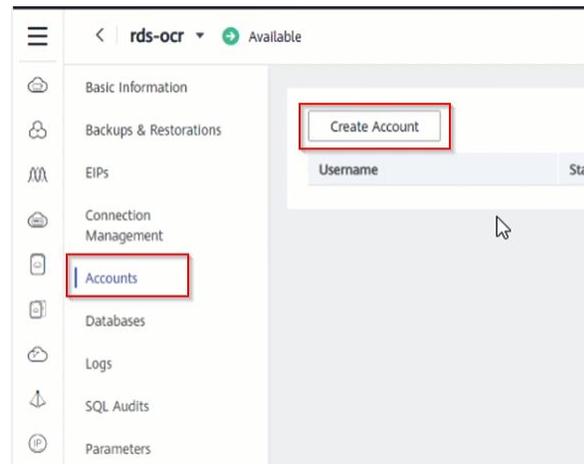
Create DB Instance and wait until database create successful.

Create Account in Database

Click on “Instance Management” and select Instance name



Click on “Accounts” and “Create Account”, create sub account to access database instead of use root account



Create an OCR database username and password is use as an example below

[Username]: ocr_user

[Password]: Welcome1, is used as an example. Your need to define it

[Confirm Password]: retype your password again

Create Account ×

Username

Database

Database Not Authorized	Database Auth...	Permission
		No data available.

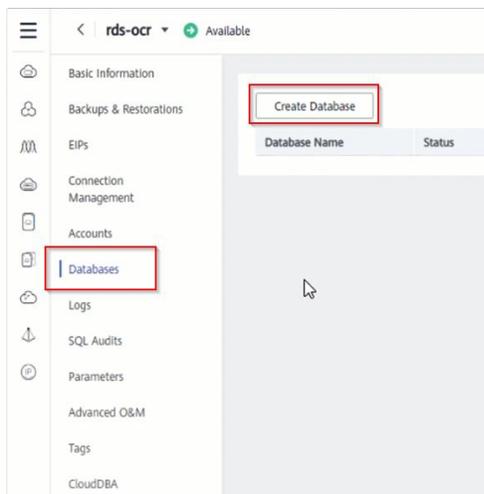
Password

Confirm Password

If you require a fined-grained backup policy, [log in to the database.](#)

Create Database

Click on “Databases” and “Create Database”



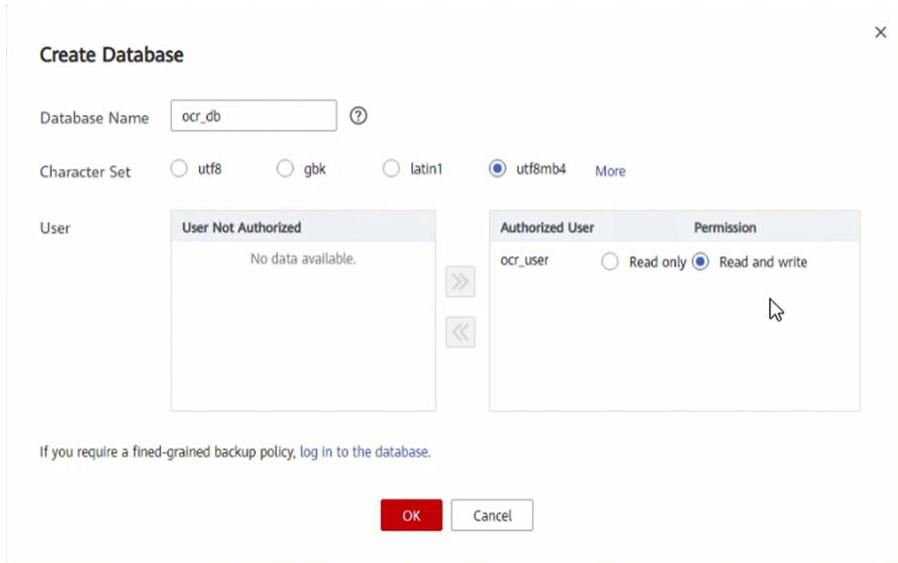
Input parameter

[Database Name]: ocr_db, is used in an example

[Character Set]: Utf8mb4

[Authorized User]: ocr_user, is used in an example. You need to select your database username

[Permission]: Read and write



Create Database

Database Name

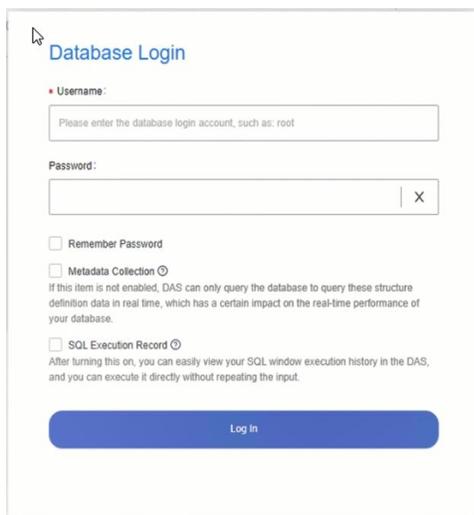
Character Set utf8 gbk latin1 utf8mb4 [More](#)

User	Authorized User	Permission
	ocr_user	<input type="radio"/> Read only <input checked="" type="radio"/> Read and write

If you require a fined-grained backup policy, [log in to the database](#).

HUAWEI CLOUD provide Database Administrative tools, Data Admin Service (DAS) is a one-stop cloud database management platform that allows you to manage databases on a web console. It offers database development, O&M, enterprise-level DevOps, and intelligent diagnosis, facilitating your cloud database usage and maintenance.

Click on Login button on top of screen to Login to RDS Service enter your OCR username and password to access to RDS



Database Login

• Username:

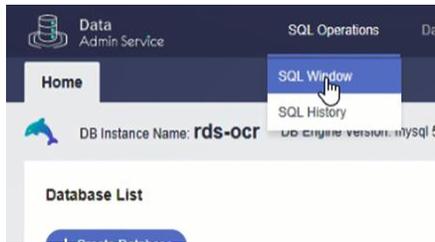
Password:

Remember Password

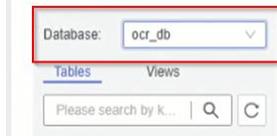
Metadata Collection ⓘ
If this item is not enabled, DAS can only query the database to query these structure definition data in real time, which has a certain impact on the real-time performance of your database.

SQL Execution Record ⓘ
After turning this on, you can easily view your SQL window execution history in the DAS, and you can execute it directly without repeating the input.

Open new SQL Window, Click on SQL Operations > SQL Window

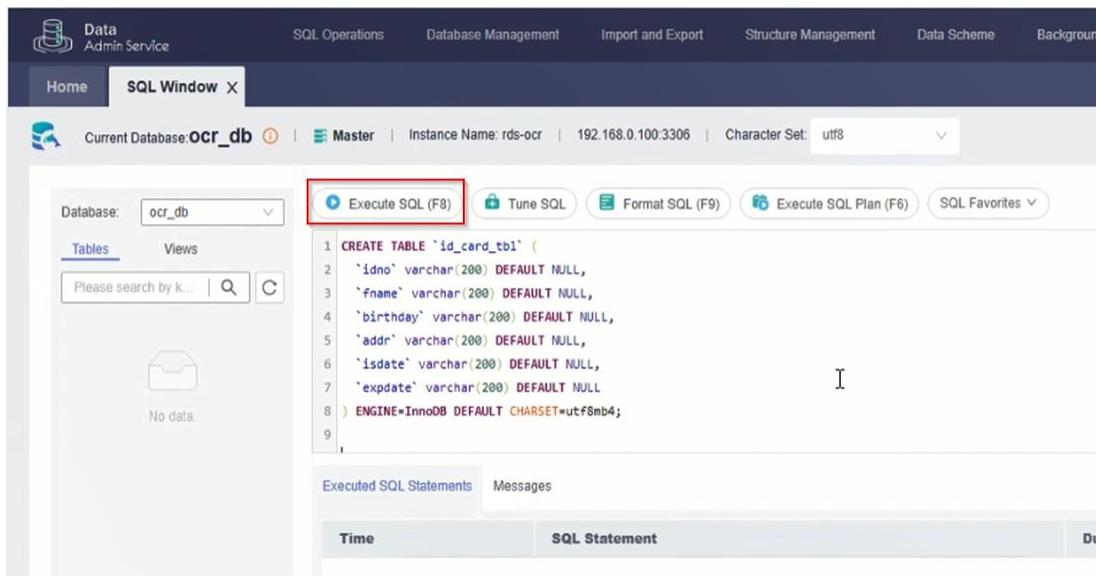


Change Database to ocr_db



Create Table in ocr_db with below structure and click "Execute SQL"

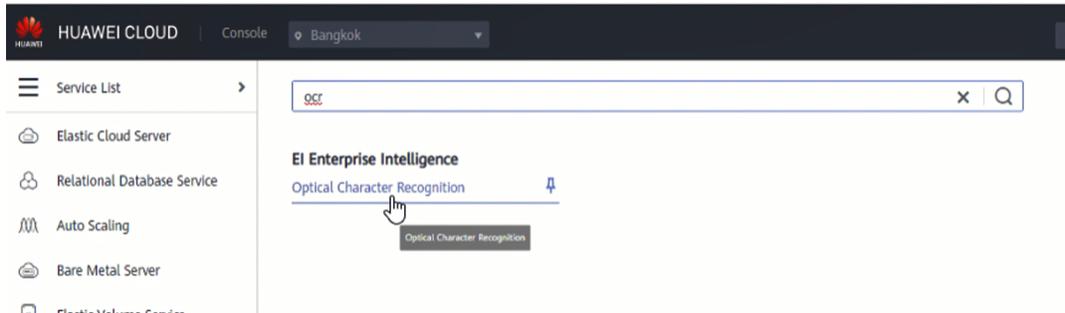
```
CREATE TABLE `id_card_tbl` (  
  `idno` varchar(200) DEFAULT NULL,  
  `fname` varchar(200) DEFAULT NULL,  
  `birthday` varchar(200) DEFAULT NULL,  
  `addr` varchar(200) DEFAULT NULL,  
  `isdate` varchar(200) DEFAULT NULL,  
  `expdate` varchar(200) DEFAULT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```



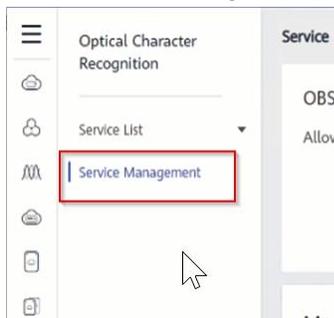
Subscribe Optical Character Recognition Service

In this section, you'll learn how to Subscribe OCR Optical Character Recognition Service.

In the Console, on the top left of the screen, select Navigation menu > EI Enterprise Intelligence > Optical Character Recognition”



Click Service Management,



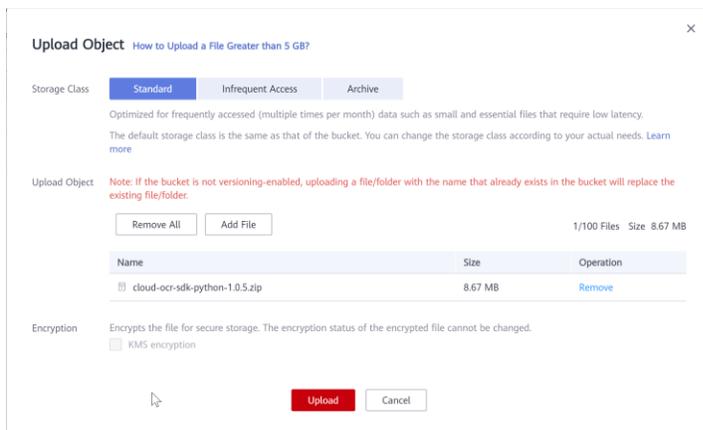
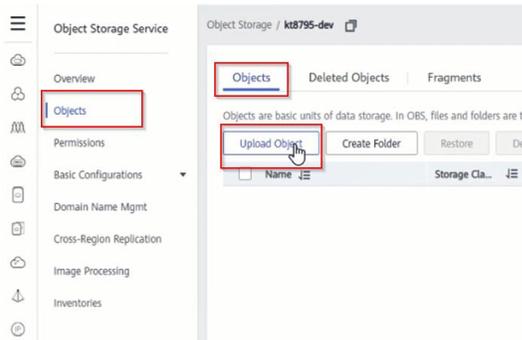
Click Subscribe on “Thai ID Card OCR”



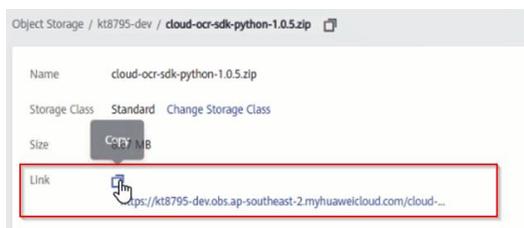
Prepare FunctionGraph environment



Upload file cloud-ocr-sdk-python-1.0.5.zip in C:\HOL-OCR\Func\ to your OBS Dev code Bucket e.g. kt8795-dev, is used as an example, go to Object Storage Service and click on kt8795-dev Bucket, Click on Upload Object ,

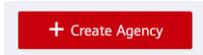
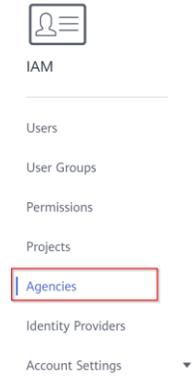


You can check status of upload file at the bottom Task Management bar or click on an object, In this lab will use object Link in next step.



Create Agency, on the top left of the screen, select Navigation menu > Management and Deployment > Identity and Access Management, Click on Agencies

HUAWEI CLOUD agency function enables you to delegate another HUAWEI CLOUD account to implement O&M on your resources based on assigned permissions, in this lab is used for FunctionGraph and assign authorize to access VPC



Click "Create Agency"

Input parameter

[Agency Name]: You define agency name e.g. FunctionGraph, is used in an example.

[Agency Type]: Cloud service

[Cloud Service]: FunctionGraph

[Validity Period]: Unlimited

[Permission]: VPC Full Access, All projects

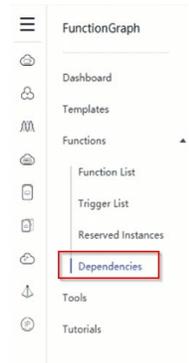
A screenshot of the 'Create Agency' form. The form has a header 'Create Agency' and a back button 'Back to Agency List'. The form fields are: Agency Name (functionGraph), Agency Type (Cloud service selected), Cloud Service (FunctionGraph), Validity Period (Unlimited), Description (0/255), and Permissions (Assign Permissions button). Below the form is a table of permissions.

Policy/Role Name	Type	Description	Project [Region]	Operation
✓ VPC FullAccess	System-defined p...	All permissions of VPC service.	All projects [Existing and future projects]	Remove

At the bottom right of the form are 'OK' and 'Cancel' buttons.

In next step will use this Agency in FunctionGraph environment and allow Function call to HUAWEI RDS Service

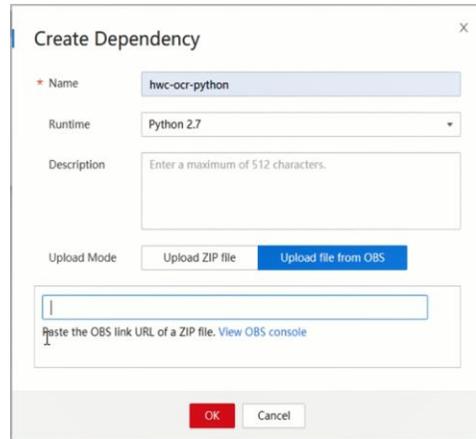
In the Console, on the top left of the screen, select Navigation menu > Compute > FunctionGraph
Create Private Dependencies,



Click “Create Dependency”



To cut time to develop code, you can reuse huawei-sdk development package such as authentication AK/SK and call to package by using Dependency, This lab we pre-build code and test with python2.7.



Input parameter

[Name]: hwc-ocr-python
[Runtime]: Python 2.7
[Upload Mode]: Upload file from OBS
[Link URL]: cloud-ocr-sdk-python-1.0.5.zip Link from previous step

[Note] If package dependency sizing over than 10MB, you need to upload dependency from OBS

Create FunctionGraph with the Console

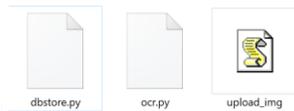
In this section, you'll learn how to create FunctionGraph from the Console.

To complete this lab, you need to completed

- Created OBS and setup permission, website static, CORS
- Created AK/SK
- RDS Setup,
- Prepare FunctionGraph environment

Create First Function upload image with following information

[Template]: Create from scratch
[Function Name]: upload_img, is used in an example
[App]: default
[Agency]: Use no agency
[Description]: keep default
[Runtime]: Node.js 12.13
[Handler]: keep default
[Code Entry Mode]: Edit code inline



Use pre-build function `dbstore.py` `ocr.py` `upload_img` in `C:\HOL-OCR\func\` in this lab.

You should open with editor e.g. Notepad, notepad++ then modify script and copy a content and paste to the code inline console

Upload_img.js

Function upload_img, you need to modify parameter below.

Line 7: `access_key_id: 'replace with your ak',`

Line 8: `secret_access_key: 'replace with your sk',`

Line 64: `Bucket: "replace with your upload OBS bucket name"`, example `kt8795-imgs`, is used in an example

Template Create from scratch Select template

* Function Name
 Enter 1 to 60 characters, starting with a letter and ending with a letter or digit. Only letters, digits, hyphens (-), and underscores (_) are allowed.

* App
 Select an app or define a new app. Enter 1 to 60 characters, starting with a letter and ending with a letter or digit. Only letters, digits, hyphens (-), and underscores (_) are allowed.

Agency Create Agency
 Specify an exclusive agency for function execution

Description
 0/512

Runtime
[Learn how to develop functions in Node.js.](#)

* Handler
 Set a handler with a maximum of 128 characters in the format of [file name].[execution function name].

Code Entry Mode

- Edit code inline Upload ZIP file Upload file from OBS

If the code to be uploaded contains sensitive information (such as account passwords), encrypt the code to prevent information leakage.

[Learn how to use IDE.](#)

```

File Edit Find Go to View
index.js X
1 // init
2 var fs = require('fs');
3 var ObsClient = require('esdk-obs-nodejs');
4
5 // create ObsClient instance
6 var obsClient = new ObsClient({
7   access_key_id: 'replace with your ak',
8   secret_access_key: 'replace with your sk',
9   server: 'obs.ap-southeast-2.myhuaweicloud.com',
10  max_retry_count: 1,
11  timeout: 200,
12  ssl_verify: false,
13  long_conn_param: 0
14 });
15
16 // declare params
17 exports.handler = (event, context, callback) => {
18   console.log('Processing request from apig trigger');
19
20   let bodyStr = event.body;
21   if (event.isBase64Encoded == true){
22     var base64data = new Buffer(event.body, 'base64');
23     bodyStr = base64data.toString();
24   }
25
26   var body = JSON.parse(bodyStr);
  
```

Then, Click Create Now

Create Now

Click on Function name upload_img to modify parameter

Function name	Description	Configuration	Last modified	Operation
upload_img	--	Runtime Node.js 12.13 Memor	Oct 17, 2020 13:31:11 GM...	Operation

Click on Configuration Tab, and Modify Memory (MB) to **256** and Execution Timeout(s) to **300**

Code **Configuration** Triggers File Systems Monitoring Logs Aliases

Description 0/512

Agency Specify an exclusive agency for function execution

Memory (MB) 128 256 512 768 1024 1280 1536 1792 2048 2560 3072 3584 4096

* Execution Timeout (s)

VPC Access An agency with VPC management permissions must be specified for the function. [Learn more](#)

Environment Variables Environment variables are displayed in plain text. Exercise caution to prevent information leakage.

Key	Value	Operation
-----	-------	-----------

Then click Save

Create Second Function with following information

- [Template]: Create from scratch
- [Function Name]: ocr, is used in an example
- [App]: default
- [Agency]: Use no agency
- [Description]: keep default
- [Runtime]: python2.7
- [Handler]: keep default
- [Code Entry Mode]: Edit code inline



Use pre-build function `dbstore.py` `ocr.py` `upload_img` in `C:\HOL-OCR\func\` in this lab.

You should open with editor e.g. Notepad, notepad++ then modify script and copy a content and paste to the code inline console

orc.py

Function `ocr.py`, you need to modify parameter below.

Line 19: `ak = "replace with your ak"`

Line 20: `sk = "replace with your ak"`

Line 21: `imagePath = "https://<replace with your upload OBS bucket name>.obs.ap-southeast-2.myhuaweicloud.com/" + filePath`

for example <https://kt8795-imgs.obs.ap-southeast-2.myhuaweicloud.com/>, is used in an example.

Template Create from scratch Select template

* Function Name
 ⚠ This field cannot be left blank.
 Enter 1 to 60 characters, starting with a letter and ending with a letter or digit. Only letters, digits, hyphens (-), and underscores (_) are allowed.

* App
 Select an app or define a new app.
 Enter 1 to 60 characters, starting with a letter and ending with a letter or digit. Only letters, digits, hyphens (-), and underscores (_) are allowed.

Agency Create Agency
 Specify an exclusive agency for function execution

Description
 0/512

Runtime
[Learn how to develop functions in Python.](#)

* Handler
 Set a handler with a maximum of 128 characters in the format of [[file name].[execution function name]].

Code Entry Mode

Edit code inline Upload ZIP file Upload file from OBS

If the code to be uploaded contains sensitive information (such as account passwords), encrypt the code to prevent information leakage.

[Learn how to use IDE.](#)

```

File Edit Find Go to View
index.py x
1  #-*- coding:utf-8 -*-
2  import json
3  from HWOcrClientAKSK import HWOcrClientAKSK
4  import sys
5  import os
6  import base64
7
8  reload(sys)
9  sys.setdefaultencoding('utf8')
10
11 def handler(event, context):
12     filePath = event["body"]
13     if event["isBase64Encoded"]:
14         filePath = base64.b64decode(event["body"])
15         filePath = filePath.strip(' ')
16         print(filePath)
17
18     region = "ap-southeast-2"
19     ak = "replace with your ak"
20     sk = "replace with your sk"
21     imagePath = "https://replace with your upload OBS bucket.obs.ap-so
22     option = {}
23
24     # Initialize ocr_client
25     ocr_client = HWOcrClientAKSK(ak, sk, region)
26     response = recognizeIdCard(ocr_client, imagePath, option)
  
```

Then, Click Create Now Create Now

Click on Function name ocr to modify parameter

Function name	Description	Configuration	Last modified	Operation
<input type="text" value="ocr"/>	--	Runtime Python 2.7 Memory (Oct 17, 2020 13:47:06 GM...	Operation ▾

In Code tab, Click Select dependency

Code Configuration Triggers File Systems Monitoring Logs Aliases

Runtime Python 2.7 [Learn how to develop functions in Python.](#)

Initialization

* Handler

Dependencies total dependencies: 0; max. dependencies: 20

Code Entry Mode

If the code to be uploaded contains sensitive information (such as account passwords), encrypt the code to prevent information leakage.

Click Private and select hwc-ocr-python, the dependency you have created

All **Private** Public

Name

<input type="checkbox"/>	Name	Runtime	Address	Description
<input type="checkbox"/>	hwc-ocr-python	Python 2.7	https://kt8795-dev.obs...	

Click on Configuration Tab, and Modify Memory (MB) to 256 and Execution Timeout(s) to 300

Code **Configuration** Triggers File Systems Monitoring Logs Aliases

Description

Agency Specify an exclusive agency for function execution

Memory (MB)

* Execution Timeout (s)

VPC Access An agency with VPC management permissions must be specified for the function. [Learn more](#)

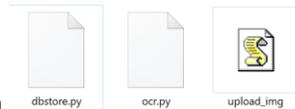
Environment Variables

Key	Value	Operation
-----	-------	-----------

Then click Save

Create third Function store data into database with following information

[Template]: Create from scratch
[Function Name]: dbstore, is used in an example
[App]: default
[Agency]: Function, is used in an example in this lab.
[Description]: keep default
[Runtime]: Python2.7
[Handler]: keep default
[Code Entry Mode]: Edit code inline



Use pre-build function `dbstore.py`, `ocr.py`, `upload_img` in C:\HOL-OCR\func\ in this lab.

You should open with editor e.g. Notepad, notepad++ then modify script and copy a content and paste to the code inline console

dbstore.py

Function `dbstore.py`, you need to modify parameter below.

Line 13: `connection = pymysql.connect(host='your rds MySQL IP', Same IP Address in step create Database example 192.168.0.100 is used in this lab.`

Line 14: `user='your rds mysql username'`, same as you create in step Create Database e.g. `ocr_user`, is used in an example.

Line 15: `password='your rds mysql password'`, same as you create in step Create Database e.g. `Welcome1`, is used in an example.

Line 16: `db='your rds mysql database'`, same as you create in step Create Database e.g. `ocr_db`, is used in an example.

Template Create from scratch Select template

* Function Name
 Enter 1 to 60 characters, starting with a letter and ending with a letter or digit. Only letters, digits, hyphens (-), and underscores (_) are allowed.

* App
 Select an app or define a new app.
 Enter 1 to 60 characters, starting with a letter and ending with a letter or digit. Only letters, digits, hyphens (-), and underscores (_) are allowed.

Agency ↻ [Create Agency](#)
 Specify an exclusive agency for function execution

Description
 0/512

Runtime
[Learn how to develop functions in Python.](#)

* Handler
 Set a handler with a maximum of 128 characters in the format of [file name].[execution function name].

Code Entry Mode

Edit code inline Upload ZIP file Upload file from OBS

If the code to be uploaded contains sensitive information (such as account passwords), encrypt the code to prevent information leakage.

[Learn how to use IDE.](#)

```

File Edit Find Go to View
index.py x
1 # -*- coding:utf-8 -*-
2 import pymysql
3 import json
4 import base64
5
6 print('Loading function')
7
8 def handler (event, context):
9
10     req_body = json.loads(base64.b64decode(event['body']))
11
12     # Connect to the database
13     connection = pymysql.connect(host='your rds MySQL IP',
14                                 user='your rds mysql username',
15                                 password='your rds mysql password',
16                                 db='your rds mysql database',
17                                 charset='utf8mb4',
18                                 cursorclass=pymysql.cursors.DictCursor
19
20     try:
21         with connection.cursor() as cursor:
22             # Create a new record
23             sql = "INSERT INTO `id_card_tbl` (`idno`, `fname`, `birthd
24             cursor.execute(sql,(req_body['idcardno'], req_body['fullna
25
26     # connection is not autocommit by default, So you must commit
  
```

Then, Click Create Now

Create Now

Click on Function name dbstore to modify parameter

Function name	Description	Configuration	Last modified	Operation
dbstore	--	Runtime Python 2.7 Memory (l Oct 17, 2020 14:19:21 GM...		Operation

In Code tab, Click Select dependency

Code Configuration Triggers File Systems Monitoring Logs Aliases

Runtime Python 2.7 [Learn how to develop functions in Python.](#)

Initialization 

* Handler
Set a handler with a maximum of 128 characters in the format of [file name].[execution function name].

Dependencies  total dependencies: 0; max. dependencies: 20

Code Entry Mode

If the code to be uploaded contains sensitive information (such as account passwords), encrypt the code to prevent information leakage.

Click Public and select pymysql-0.7.12

Select Dependency >

 A maximum of 20 dependencies can be added for each function.

All Private **Public** Name

<input type="checkbox"/>	Name	Runtime	Address	Description
<input type="checkbox"/>	obssdk-3.0.2	Python 2.7	https://function-comm...	The OBS SDK is used in...
<input type="checkbox"/>	pandas-0.23.4	Python 2.7	https://function-comm...	Pandas is a Python dat...
<input type="checkbox"/>	huaweicloud-ocr-sdk-1....	Node.js 8.10	https://function-depen...	Optical Character Reco...
<input type="checkbox"/>	pillow-6.2.2	Python 2.7	https://functionstorage...	The Python imaging lib...
<input checked="" type="checkbox"/>	pymysql-0.7.12	Python 2.7	https://functionstorage...	PyMySQL is a Python li...
<input type="checkbox"/>	openstacksdk-1.0.6	Python 2.7	https://functionstorage...	The OpenStack SDK is ...
<input type="checkbox"/>	openstacksdk-1.0.6	Python 2.7	https://function-comm...	Mako is a high-perform...
<input type="checkbox"/>	Jinja2-2.10	Python 2.7	https://function-comm...	Jinja2 is a full featured t...
<input type="checkbox"/>	opencv-4.0.0.21	Python 2.7	https://function-comm...	OpenCV is a cross-platf...
<input type="checkbox"/>	pillow-7.1.2	Python 3.6	https://functionstorage...	The Python imaging lib...

Click on Configuration Tab,
Modify Memory (MB) to **256** and Execution Timeout(s) to **300**
Turn on VPC Access, and select VPC and Subnet which is RDS Service created,
e.g. VPC: vpc-hol-ocr, Subnet: subnet-hol-ocr, is used in an example.

The screenshot shows the AWS Lambda Configuration console. The 'Configuration' tab is active. The 'Description' field is empty. The 'Agency' is set to 'FunctionGraph'. The 'Memory (MB)' slider is set to 256. The 'Execution Timeout (s)' is set to 300. The 'VPC Access' toggle is turned on. The 'VPC' dropdown is set to 'vpc-hol-ocr (192.168.0.0/24)'. The 'Subnet' dropdown is set to 'subnet-hol-ocr (192.168.0.0/24)'. The 'Environment Variables' section is empty.

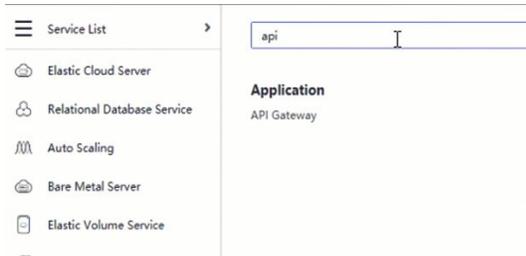
Key	Value	Operation
-----	-------	-----------

Then click Save 

Create an API-Gateway with the Console

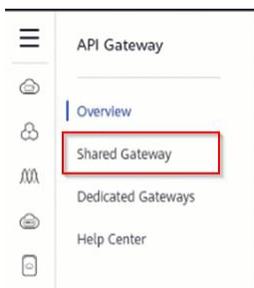
In this section, you'll learn how to create API-Gateway from the Console.

In the Console, on the top left of the screen, select Navigation menu > Application > API Gateway

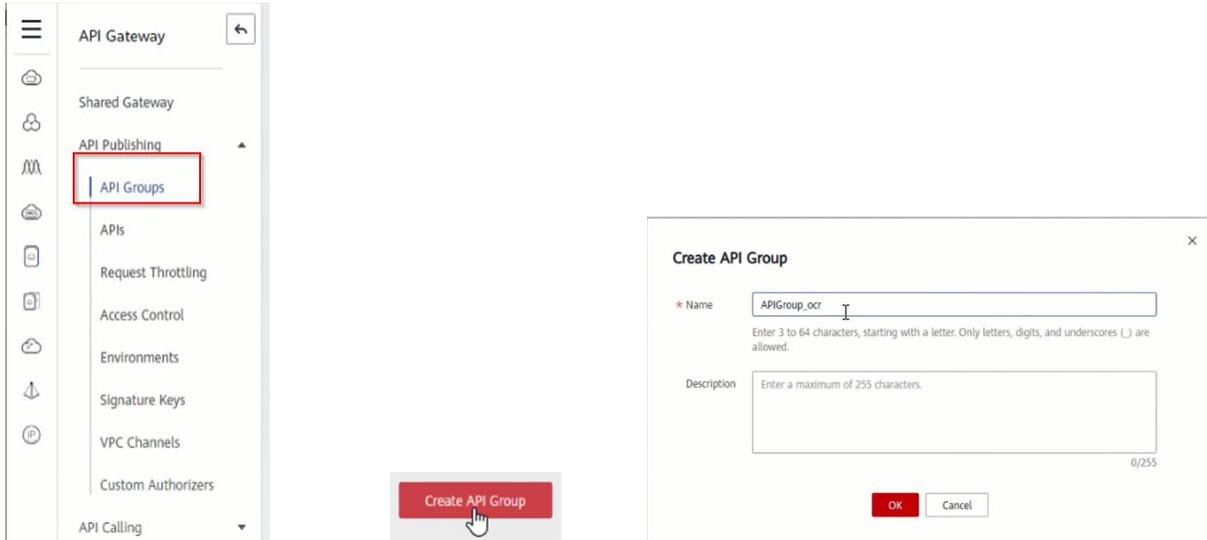


Click “Shared Gateway”

In this lab will use shared Gateway for testing, in your production environment you may need to purchase dedicated Gateway for isolate resource and improve throughput



Click “API Groups” and Create API Group, in this lab will store APIs used for the same service



Then go back to “Share Gateway” page and click “Create API”



Create API with parameter below and publish API

[NAME]: API_ocr, is used in an example
[API Group]: APIGroup_ocr, is used in an example
[Gateway Response]: Default
[Security Authentication]: None

Basic Information

* Name
Enter 3 to 255 characters, starting with a letter. Only letters, digits, and underscores (_) are allowed.

* API Group [Create API Group](#)
There are 6 APIs under the selected API group. You can create 194 more APIs.

* Gateway Response

Visibility Public

Security Authentication App IAM Custom None
No authentication is required. All users are granted access. (Not recommended)

Tag Name [+](#)
A tag name must contain 3 to 24 characters and start with a letter. Only letters, digits, and underscores (_) are allowed. Separate multiple tags with commas (,).

Description
0/255

[Protocol]: HTTP
[Path]: /ocr, is use in an example
[Matching]: Exact match
[Method]: POST
[CORS]: Enable

Define API Request

Domain Name

Protocol HTTP HTTPS HTTP&HTTPS
WebSocket is supported for HTTP and HTTPS.

* Path
Enclose parameters in braces, for example, /a/{b}. In addition, use a plus sign (+) to match parameters starting with specific characters, for example, /a/{b+}.

Matching Exact match Prefix match
API requests will be forwarded to the specified path.

* Method

CORS [Learn more about CORS.](#)

Input Parameters

Body
0/20,480

[Backend Type]: FunctionGraph
[Function URN]: ocr, is use in an example
[Other]: default

Define Backend Request

Backend Type: HTTP/HTTPS **FunctionGraph** Mock

FunctionGraph is a compute service that hosts event-driven functions.

You can add backend policies to differentiate backend definitions. Each backend policy can have multiple conditions, and only require you to create 5 more backend policies.

Default Backend

Basic Information

- * Function URN: urn:fss:ap-southeast-2:0933fc6eb380f5b... Select Function URN
- * Version: LATEST
- * Invocation Mode: Synchronous
- * Timeout (ms): 5000
- Backend Authentication: Specify a custom authorizer to control access to the backend service.

Select Function URN

Create Function:

Function Name	URN	Description
<input type="radio"/> upload_img	urn:fss:ap-southeast-2:0933fc6eb...	--
<input type="radio"/> ocr	urn:fss:ap-southeast-2:0933fc6eb...	--
<input type="radio"/> dbstore	urn:fss:ap-southeast-2:0933fc6eb...	--

[Example Success Response]: 200

Define Response

* Example Success Response: 3/20,480

Example Failure Response: 0/20,480

Then click Finish Publish API

API Name: API_ckhw

Environment: RELEASE Create Environment

Publishing the APIs will overwrite their existing configurations in the environment.

Description:

0/255

Click Publish Publish

Repeat create API step for path /obs, /dbstore and Select Function URN obs and dbstore
Repeat create API step for path /ocr, /obs and /dbstore change method to **OPTIONS** and Backend type to **Mock**

Now you need to find your subdomain Name URL in Summary page of API Group

API Groups / APIGroup_ocr Man...

[Summary](#) | [APIs](#) | [Variables](#) | [Domain Names](#) | [Gateway Responses](#)

Name	APIGroup_ocr ✎	ID	355c41f82de4419ca328c3ef74f04523
Created	Oct 17, 2020 14:48:39 GMT+08:00	Description	--
Subdomain Name	[REDACTED] ✎		

The subdomain can be used only for development and testing and can be accessed 1,00...

Upload static website to OBS

In this section, you'll learn how to upload File to OBS

To complete this lab, you need:

- Finish all lab above
- Modify script code in static website and upload to OBS Static website bucket

Modify java script in folder C:\HOL-OCR\ocr-hol-demo\static\js you need to modify two files

You should open with editor e.g. Notepad, notepad++ then modify script Find and replace with your setup environment in Subdomain Name

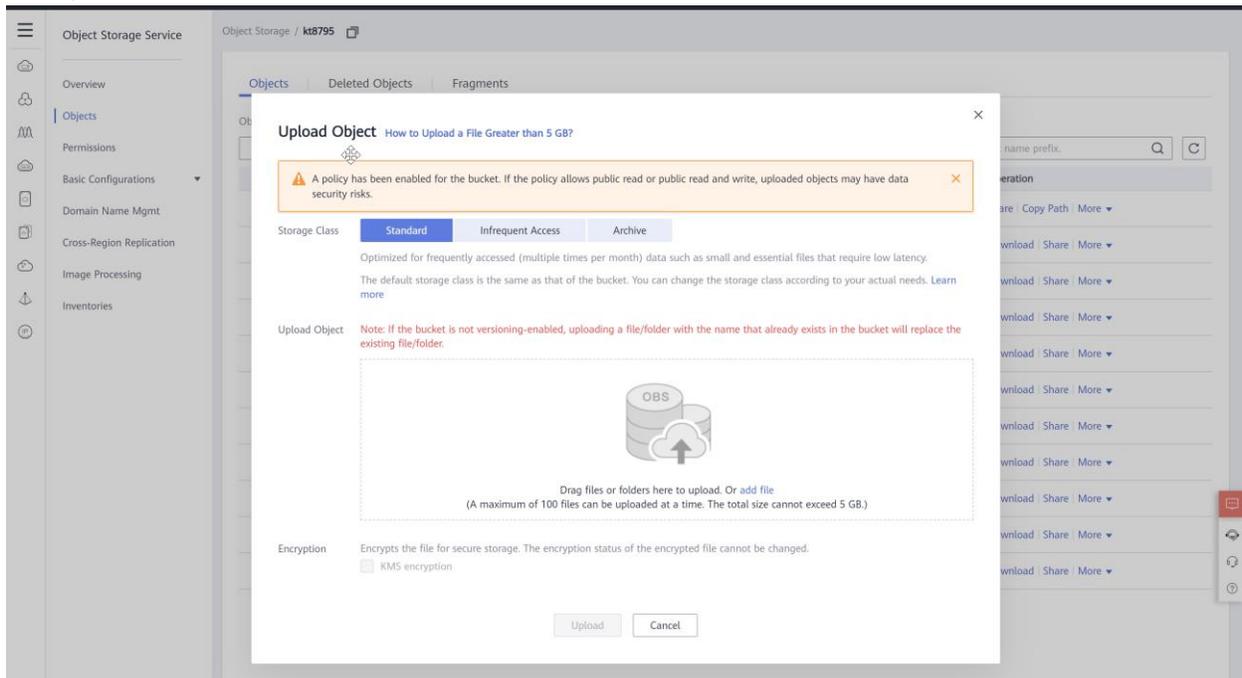
http://replace_with_your_apig_group.apig.ap-southeast-2.huaweicloudapis.com/dbstore

http://replace_with_your_apig_group.apig.ap-southeast-2.huaweicloudapis.com/obs

http://replace_with_your_apig_group.apig.ap-southeast-2.huaweicloudapis.com/ocr

[//replace_with_your_obs_image_bucket.obs.ap-southeast-2.myhuaweicloud.com/](http://replace_with_your_obs_image_bucket.obs.ap-southeast-2.myhuaweicloud.com/)

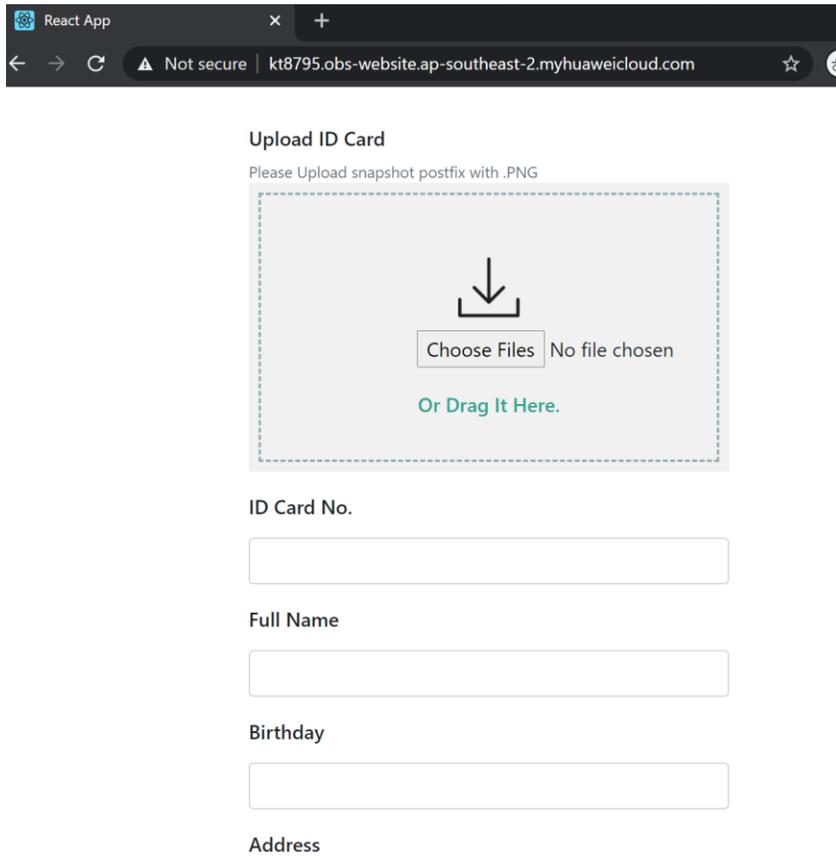
After you modify script, upload all files and folder to OBS Static website bucket. E.g. kt8975, is used in an example.



Validate

Then open OBS bucket URL and try.

For example : <http://kt8795.obs-website.ap-southeast-2.myhuaweicloud.com>, in used in an example



React App

Not secure | kt8795.obs-website.ap-southeast-2.myhuaweicloud.com

Upload ID Card

Please Upload snapshot postfix with .PNG

Choose Files No file chosen

Or Drag It Here.

ID Card No.

Full Name

Birthday

Address

Click Choose Files and select thai-idcard test picture from C:\HOL-OCR\test-data\



Upload ID Card

Please Upload snapshot postfix with .PNG


 thai-id-demo1.png
[Or Drag It Here.](#)

ID Card No.

Full Name

To store data to database click Submit to backend DB

ID Card No.

8302 00044 00 9

Full Name

ม.จ. เพ็ญศิริ ปิติกรกุล

Birthday

11 มี.ค. 2508

Address

23/20 หมู่ที่ 6 ต.กะพ้อ อ.กะพ้อ จ.ภูเก็ต

Issue Date

10 ม.ค. 2549

Expire Date

10 มี.ค. 2555

Submit to backend DB

To valid the data store in RDS, you need to login to DAS, and query the table id_card_tbl.

The screenshot shows the Data Admin Service (DAS) interface. The top navigation bar includes 'Data Admin Service' and various menu items like 'SQL Operations', 'Database Management', etc. The main area displays the 'SQL Window' with a query: `SELECT * FROM id_card_tbl`. Below the query, the 'Executed SQL Statements' tab shows the result set for the query. The result set is a table with 5 rows and 7 columns: idno, fname, birthday, addr, isdate, and expdate. The data is as follows:

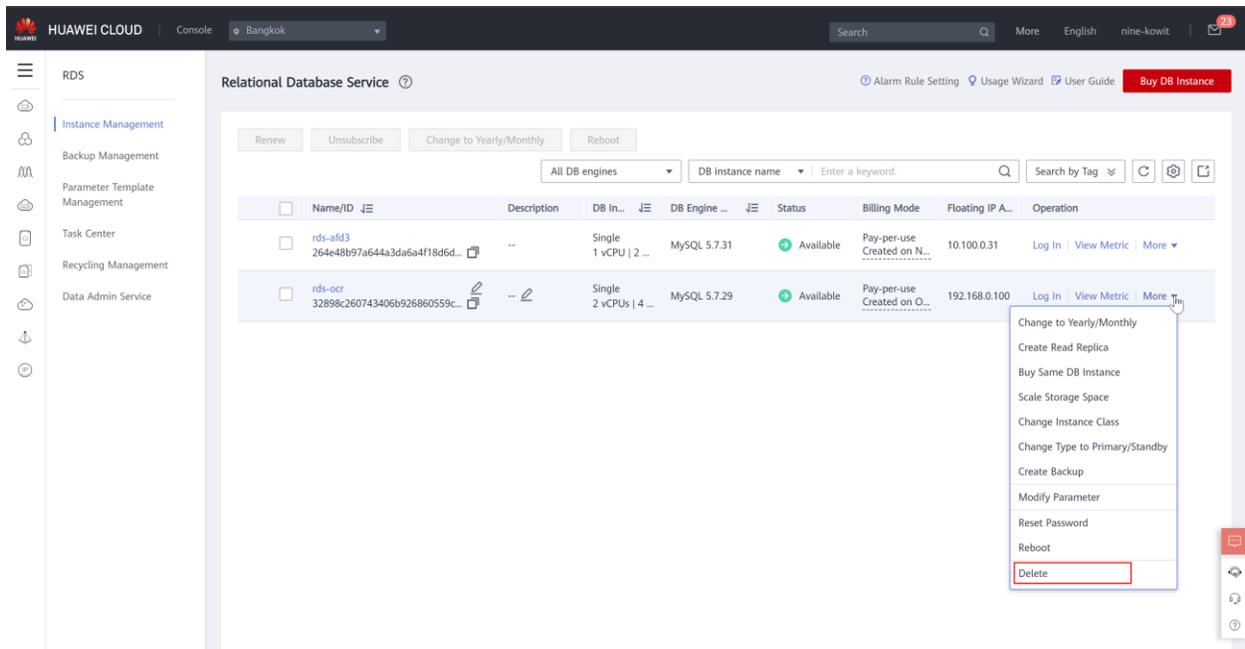
	idno	fname	birthday	addr	isdate	expdate
1	8302 00044 00 9	ม.จ. เพ็ญศิริ ปิติกรกุล	11 มี.ค. 2508	23/20 หมู่ที่ 6 ต.กะพ้อ อ.กะพ้อ...	10 ม.ค. 2549	10 มี.ค. 2555
2	8302 00044 00 9	ม.จ. เพ็ญศิริ ปิติกรกุล	11 มี.ค. 2508	23/20 หมู่ที่ 6 ต.กะพ้อ อ.กะพ้อ...	10 ม.ค. 2549	10 มี.ค. 2555
3	1 7206 00071 41 5	น.ส. สุชาชิน นาคโหม	2 ก.ค. 2535	470 หมู่ที่ 5 ต.ลอนเจดีย์ อ....	14 ส.ค. 2559	1 ก.ค. 2568
4	3 3199 00274 29 8	ร.ว. เวชสวรรค์ สิริประทุม	11 พ.ค. 2511	99/1281 หมู่ที่ 1 ต.พรหมณี ...	30 ส.ค. 2551	10 พ.ค. 2558
5	1 7206 00071 41 5	น.ส. สุชาชิน นาคโหม	2 ก.ค. 2535	470 หมู่ที่ 5 ต.ลอนเจดีย์ อ....	14 ส.ค. 2559	1 ก.ค. 2568

Conclusion

Congratulations on completed. You should now have a solid understanding of the Read Thai ID Card with HUAWEI CLOUD OCR and relate services.

Thank you for participating in the Huawei Cloud Hands-on Labs. Be sure to visit the other HOL to continue your lab experience.

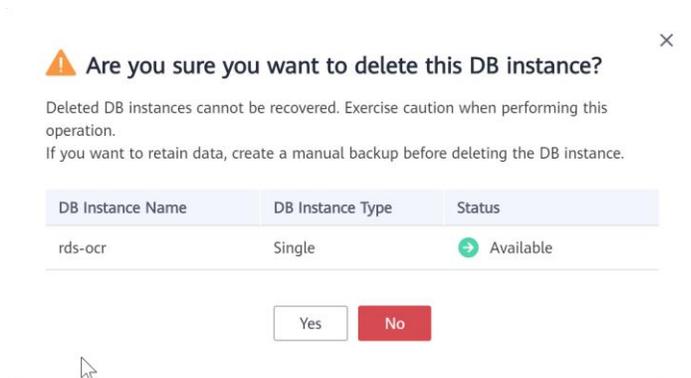
After your finished all tasks then please kindly remove the resource as the step following this. Navigate to “Database” then “Relational Database Service” then “More” and click “Delete” on the DB Instance that your create as Picture below.



The screenshot shows the Huawei Cloud console interface for the Relational Database Service (RDS). The left sidebar contains navigation options like RDS, Instance Management, Backup Management, etc. The main area displays a table of RDS instances. The instance 'rds-ocr' is selected, and its 'More' menu is open, showing various actions. The 'Delete' option is highlighted with a red box.

Name/ID	Description	DB In...	DB Engine ...	Status	Billing Mode	Floating IP A...	Operation
rds-afd3 264e48b97a644a3da5a4f18d6d...	..	Single 1 vCPU 2 ...	MySQL 5.7.31	Available	Pay-per-use Created on N...	10.100.0.31	Log In View Metric More
rds-ocr 32898c260743406b926860559c...	..	Single 2 vCPUs 4 ...	MySQL 5.7.29	Available	Pay-per-use Created on O...	192.168.0.100	Log In View Metric More

Click “Yes” to delete



The dialog box asks for confirmation to delete the DB instance 'rds-ocr'. It includes a warning icon and text stating that deleted instances cannot be recovered. A table shows the instance details, and 'Yes' and 'No' buttons are at the bottom.

Are you sure you want to delete this DB instance?

Deleted DB instances cannot be recovered. Exercise caution when performing this operation.
If you want to retain data, create a manual backup before deleting the DB instance.

DB Instance Name	DB Instance Type	Status
rds-ocr	Single	Available

Yes No

Navigate to “Object Storage Service” then click on the Bucket that you create as picture below.

The screenshot shows the Huawei Cloud Object Storage Service console. The left sidebar contains navigation options like 'Object Storage Service', 'Parallel File System', 'My Packages', 'Data Express Service', 'CDN', and 'Object Storage Migration Service'. The main content area displays 'Object Storage Service' with a search bar and a 'Create Bucket' button. Below this, there are sections for 'OBS Browser+', 'obsutil', and 'obsfs'. A table lists existing buckets:

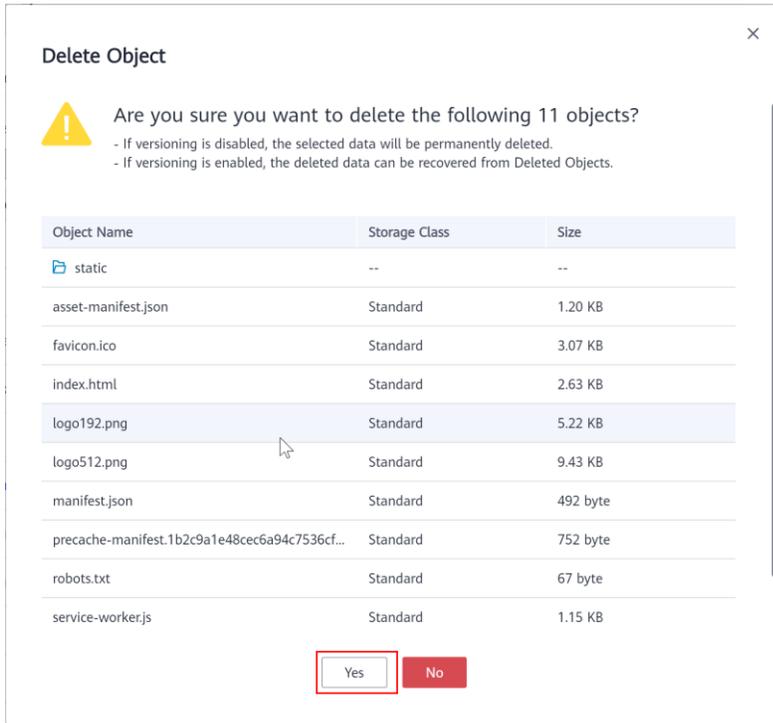
Bucket Name	Storage Class	Region	Used Capacity	Objects	Created	Operation
kt8795-dev	Standard	AP-Bangkok	24.34 MB	2	Oct 17, 2020 09:46:10 G...	Change Storage Class Delete
kt8795-imgs	Standard	AP-Bangkok	15.14 MB	39	Oct 17, 2020 09:45:49 G...	Change Storage Class Delete
kt8795	Standard	AP-Bangkok	1.38 MB	25	Oct 17, 2020 09:41:39 G...	Change Storage Class Delete

Click on Objects, and select all object, then click “Delete”

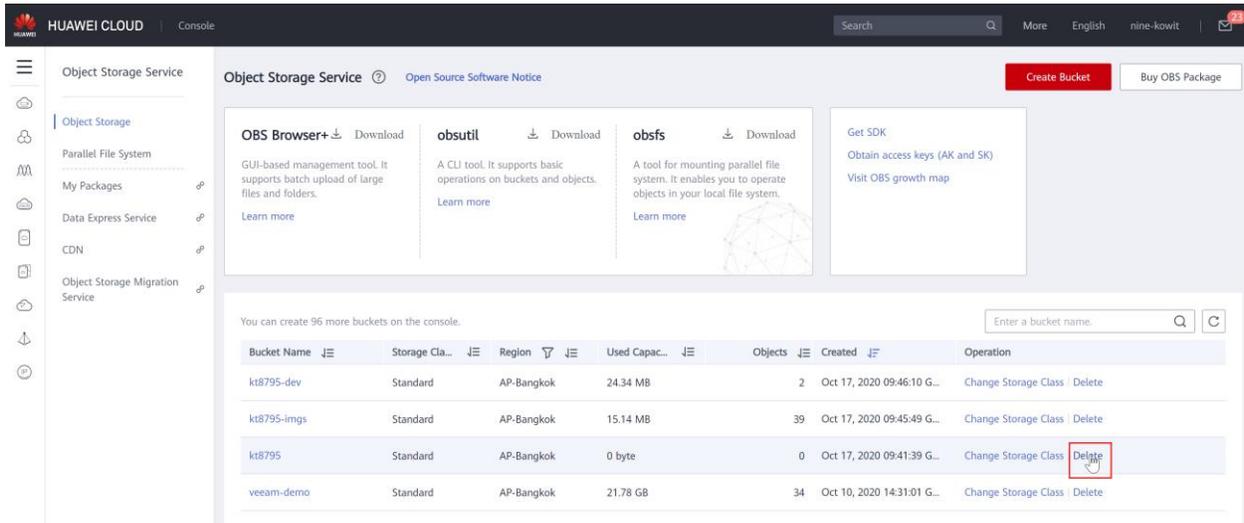
The screenshot shows the 'Objects' tab of the 'kt8795' bucket. The left sidebar has 'Objects' selected. The main content area shows a list of objects with columns for 'Object Name', 'Storage Class', 'Size', 'Encrypted', 'Restoration Status', 'Last Modified', and 'Operation'. The 'Delete' button is highlighted with a red box. All objects in the list have their selection checkboxes checked.

Object Name	Storage Class	Size	Encrypted	Restoration Status	Last Modified	Operation
static	--	--	--	--	--	Share Copy Path More
simple.html	Standard	55 byte	No	--	Oct 17, 2020 14:06:23 GM...	Download Share More
precache-manifest.1b2c9a1e48cec...	Standard	752 byte	No	--	Oct 17, 2020 14:06:23 GM...	Download Share More
service-worker.js	Standard	1.15 KB	No	--	Oct 17, 2020 14:06:23 GM...	Download Share More
robots.txt	Standard	67 byte	No	--	Oct 17, 2020 14:06:23 GM...	Download Share More
manifest.json	Standard	492 byte	No	--	Oct 17, 2020 14:06:23 GM...	Download Share More
logo512.png	Standard	9.43 KB	No	--	Oct 17, 2020 14:06:23 GM...	Download Share More
logo192.png	Standard	5.22 KB	No	--	Oct 17, 2020 14:06:23 GM...	Download Share More
index.html	Standard	2.63 KB	No	--	Oct 17, 2020 14:06:23 GM...	Download Share More
favicon.ico	Standard	3.07 KB	No	--	Oct 17, 2020 14:06:23 GM...	Download Share More
asset-manifest.json	Standard	1.20 KB	No	--	Oct 17, 2020 14:06:23 GM...	Download Share More

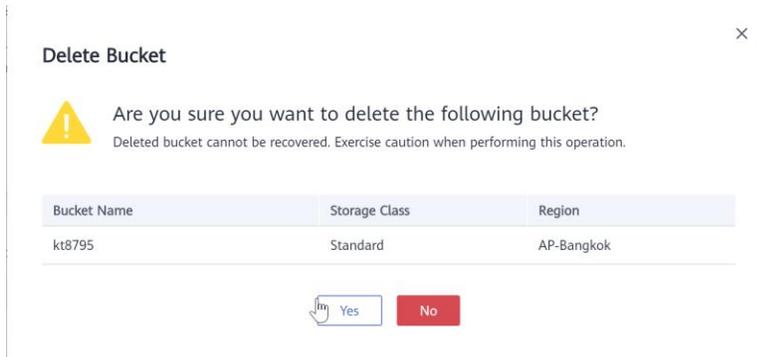
Click "Yes" to confirm delete



Navigate to "Object Storage Service" then click "Delete" on the Bucket that you create as picture below.

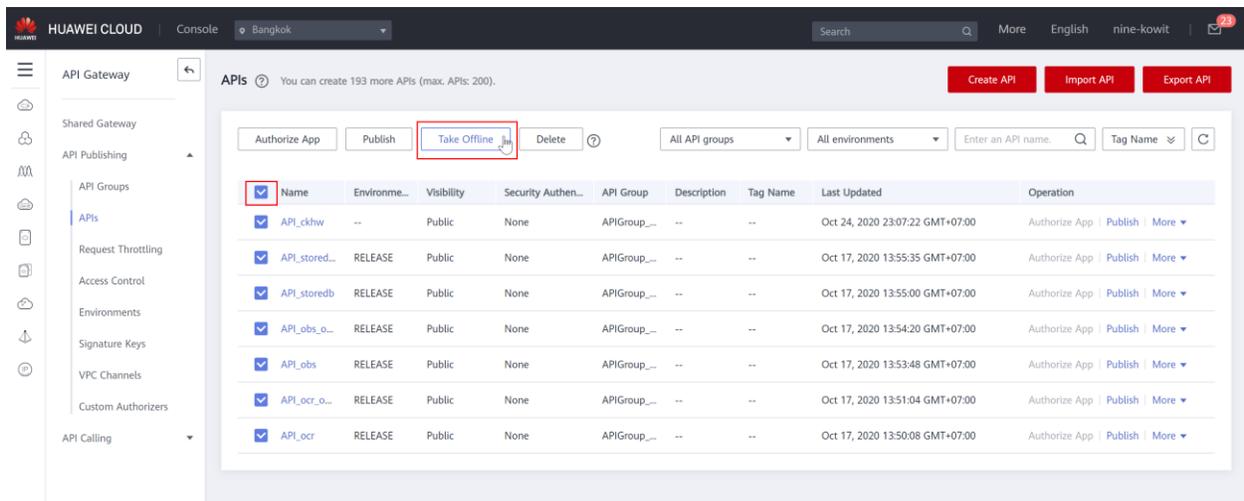


Click “Yes” remove the Bucket



Repeat step to other OBS Bucket.

Navigate to “API Gateway” > “Shared Gateway” > “API Publishing” > “APIs” then Select all API that your create as picture below then click “Take Offline”



Click "Yes" to confirm RELEASE resource

⚠️ Are you sure you want to take the selected 7 APIs offline?

Taking APIs offline from an environment will make them inaccessible to apps and users in the environment. Exercise caution when performing this operation.

Environment: RELEASE

API Name	Environment	Visibility	API Group
API_ckhw	--	Public	APIGroup_ocr
API_storedb_options	RELEASE	Public	APIGroup_ocr
API_storedb	RELEASE	Public	APIGroup_ocr
API_obs_options	RELEASE	Public	APIGroup_ocr
API_obs	RELEASE	Public	APIGroup_ocr

5 Total Records: 7 < 1 2 >

Click "Delete"

The screenshot shows the Huawei Cloud API Gateway console. The left sidebar contains navigation options: API Gateway, Shared Gateway, API Publishing, API Groups, APIs, Request Throttling, Access Control, Environments, Signature Keys, VPC Channels, and Custom Authorizers. The main area displays a table of APIs with columns: Name, Environment, Visibility, Security Authen..., API Group, Description, Tag Name, Last Updated, and Operation. The 'Delete' button in the top toolbar is highlighted with a red box. The table lists several APIs, including API_ckhw, API_storedb_options, API_storedb, API_obs_options, API_obs, API_ocr_options, and API_ocr.

Name	Environment	Visibility	Security Authen...	API Group	Description	Tag Name	Last Updated	Operation
API_ckhw	--	Public	None	APIGroup_ocr	--	--	Oct 24, 2020 23:07:22 GMT+07:00	Authorize App Publish More
API_storedb_options	--	Public	None	APIGroup_ocr	--	--	Oct 17, 2020 13:55:35 GMT+07:00	Authorize App Publish More
API_storedb	--	Public	None	APIGroup_ocr	--	--	Oct 17, 2020 13:55:00 GMT+07:00	Authorize App Publish More
API_obs_options	--	Public	None	APIGroup_ocr	--	--	Oct 17, 2020 13:54:20 GMT+07:00	Authorize App Publish More
API_obs	--	Public	None	APIGroup_ocr	--	--	Oct 17, 2020 13:53:48 GMT+07:00	Authorize App Publish More
API_ocr_options	--	Public	None	APIGroup_ocr	--	--	Oct 17, 2020 13:51:04 GMT+07:00	Authorize App Publish More
API_ocr	--	Public	None	APIGroup_ocr	--	--	Oct 17, 2020 13:50:08 GMT+07:00	Authorize App Publish More

Type "DELETE" in textbox, then click "Yes"

⚠ Are you sure you want to delete the selected 7 APIs?

Deleted APIs cannot be recovered or called. Exercise caution when performing this operation.

Enter **DELETE** into the text box below.

API Name	Environment	Visibility	API Group
API_ckhw	--	Public	APIGroup_ocr
API_storedb_options	--	Public	APIGroup_ocr
API_storedb	--	Public	APIGroup_ocr
API_obs_options	--	Public	APIGroup_ocr
API_obs	--	Public	APIGroup_ocr

5 Total Records: 7 < 1 2 >

Click "API Groups" > "More" > Delete

HUAWEI CLOUD Console Bangkok Search More English nine-kowitz

API Gateway Shared Gateway API Publishing **API Groups** APIs Request Throttling Access Control Environments Signature Keys VPC Channels Custom Authorizers API Calling

API Groups You can create 49 more API groups (max. API groups: 50). Create API Group

Enter an API group name.

Name	Description	Created	Operation
APIGroup_ocr	--	Oct 17, 2020 13:48:39 GMT+07:00	Manage API Edit More

- Manage Variable
- Manage Domain Name
- Export API
- Delete**

Type "DELETE" in textbox, then click "Yes"

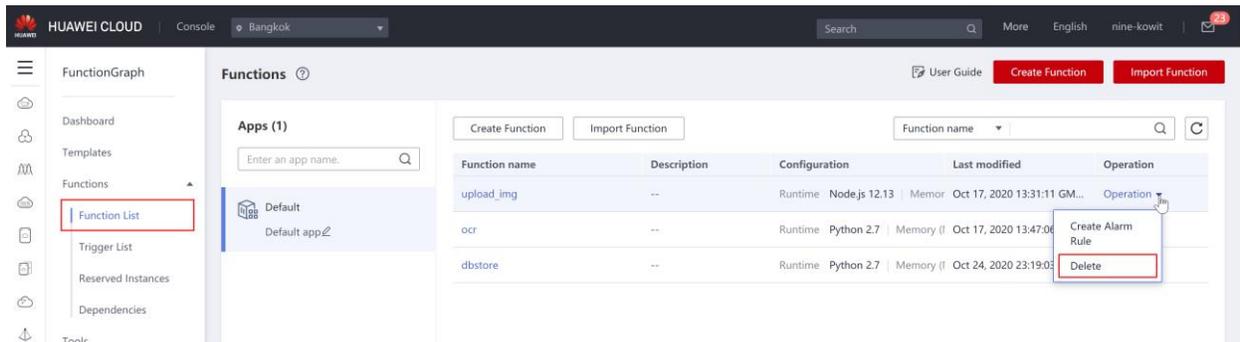
⚠ Are you sure you want to delete this API group?

Delete the APIs in the group before you delete the group. Deleted API groups cannot be recovered. Exercise caution when performing this operation.

Enter **DELETE** into the text box below.

APIGroup_ocr

Navigate to “FunctionGraph” > “Functions” > “Function List” then click on more “Operation” then click “Delete” that you create



Type “DELETE” in textbox, then click “ok” to confirm delete

