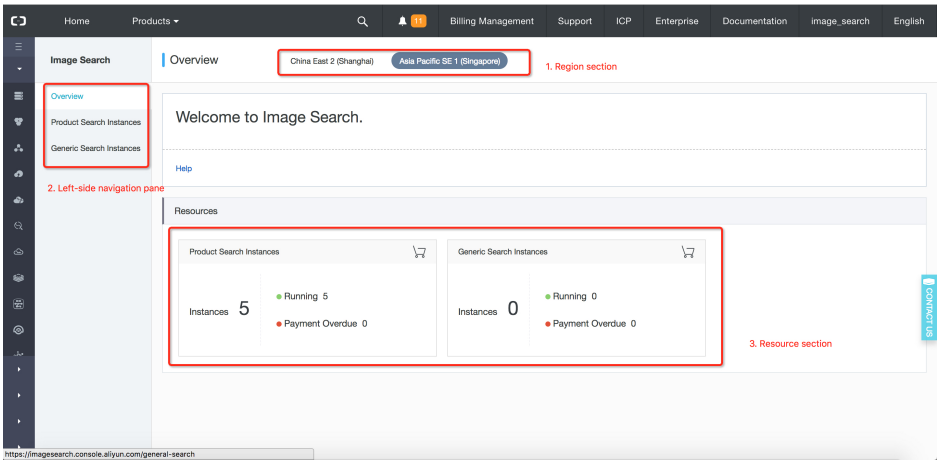
Image Search

User Guide

User Guide

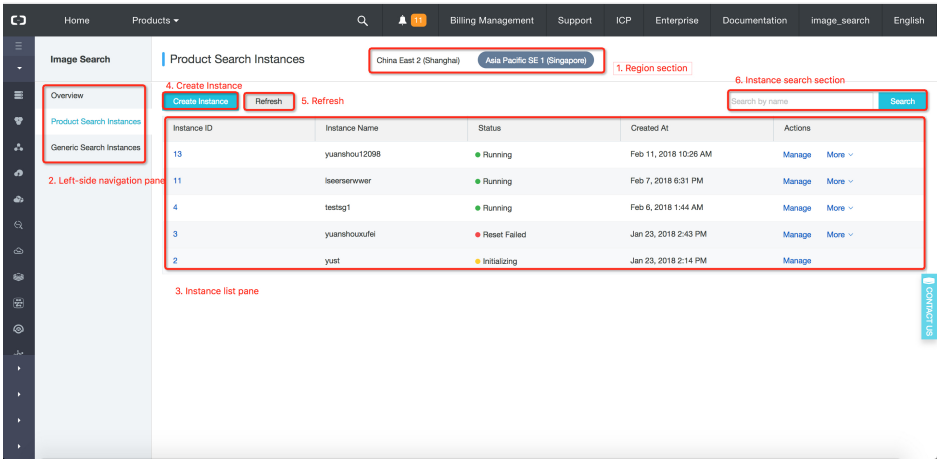
Console

Overview page



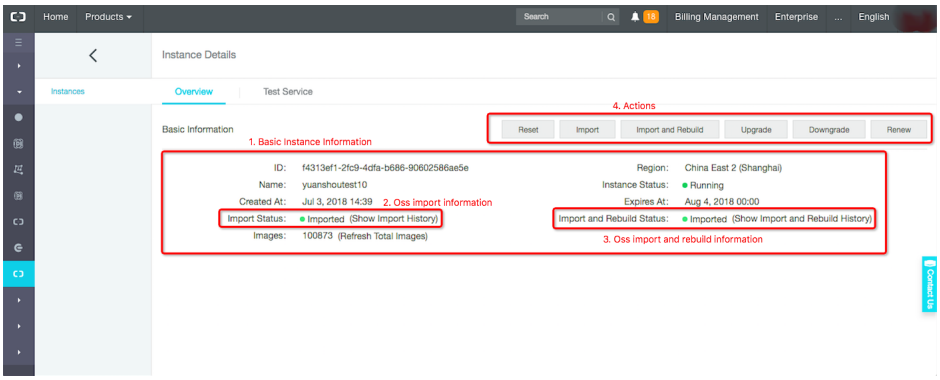
1. Region section: Allows you to switch between different regions.
2. Left-side navigation pane: Allows you to view brief Image Search information or different types of Image Search instances by selecting the relevant menu.
3. Resource section: Allows you to view brief information about instances for different search modes.

Instance list page



1. Region section: Allows you to switch between different regions.
2. Left-side navigation pane: Allows you to view brief Image Search information or different types of Image Search instances by selecting the relevant menu.
3. Instance list section.
    - Instance ID: All instance IDs in a region are unique. You can click an instance ID to view detailed information about the instance.
    - Instance Name: An instance name can contain letters and numbers. All instance names in a region are unique.
    - Instance Status: Status of the instances, including New, Initializing, Initialization Failed, Running, Resetting, Reset Failed, Unpaid, and Stopped. Based on the status, you can perform different actions on the instance.
    - Actions
        - Manage: Click to open the **Instance Details** page.
        - More: Click to select an action based on the status of the instance.
4. Create Instance: Click this button to open the **Purchase Plan** page for purchasing instances.
5. Refresh: Click this button to refresh the instances in the list.
6. Instance search section: Enter an instance name and then click **Search** to find instances that match the name.

Instance details page



1. Basic instance information.

2. OSS import information: Click to view OSS import history.
3. OSS import and rebuild information: Click to view OSS import and rebuild history.
4. Actions that can be performed based on the status of the instance.

Data management

Upload images

Short description

This section allows you to add small numbers of images online.

Method

- Call the API about adding product/image to add new product photos or images, see Add image.
- Call the API about deleting product/image to remove product photos or images, see Delete image.

OSS import

Scenario

The **OSS Import** method is suitable for scenarios where you have to import a large volume of images.

Procedure

To use **OSS Import**, you must activate the Object Storage Service (OSS) and then authorize the required RAM role to your Image Search account as follows:

1. Activate OSS

- For information about activating the OSS service, see Sign up for OSS. **Make sure your Image Search instances and OSS are in the same region.**
- After the OSS service is activated, you must create a bucket. For more information, see Create a bucket.

2. Import images

To import images to an OSS bucket, follow these guidelines:

The path where the images are stored is configurable. After you specify a path, click **OSS Import** to import images.

Make sure that you have created the increment.meta file in the specified path. This file is used to store information about OSS import tasks. The file format must meet the following requirements:

- Each row corresponds only one image.
- All image information is encoded in JSON format as follows:

Name	Type	Description	Remarks
operator	String	Action	This field specifies the action to be taken on the images. ADD means adding new images. DELETE means removing images.
item_id	String	Unique product/image identifier	For product search, this field specifies the product ID. For generic search, this field specifies the image name.
cat_id	Integer	Category information	For product search, this field is not required, it specifies the category to which the images belong. For more information, see Category Reference. This field is not required by generic search. You can leave this field empty or set the value to 88888888.

cust_content	String	Custom content	This field specifies the custom content, which is read-only to the system and is displayed in the search results.
pic_list	Array	Image list	This field specifies a list of image names that you need to import.

Example of the increment.meta file:

```
{"operator":"ADD","item_id":"1000", "cat_id":0, "cust_content":"k1:v1,k2:v2,k3:v3",
"pic_list":["girl_cloth1.jpg"]}
{"operator":"ADD","item_id":"1001", "cat_id":0, "cust_content":"k1:v1,k2:v2,k3:v3",
"pic_list":["girl_cloth2.jpg"]}
{"operator":"ADD","item_id":"1002", "cat_id":0, "cust_content":"k1:v1,k2:v2,k3:v3",
"pic_list":["girl_cloth3.jpg"]}
{"operator":"ADD","item_id":"1003", "cat_id":0, "cust_content":"k1:v1,k2:v2,k3:v3",
"pic_list":["girl_cloth4.jpg"]}
{"operator":"DELETE","item_id":"10005", "pic_list":["fengyi.jpg"]}
{"operator":"DELETE","item_id":"10006"}
```

All images listed in the increment.meta file are stored in the same path as the increment.meta file.

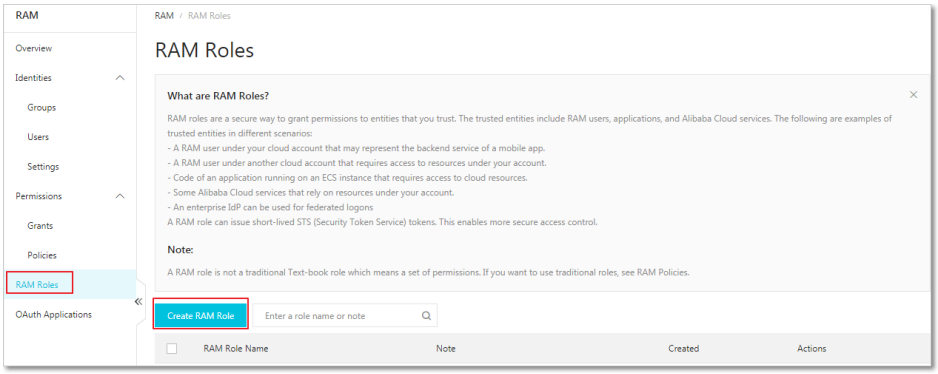
For more information about importing images to OSS, see Upload objects.

3. Authorize RAM roles to your account

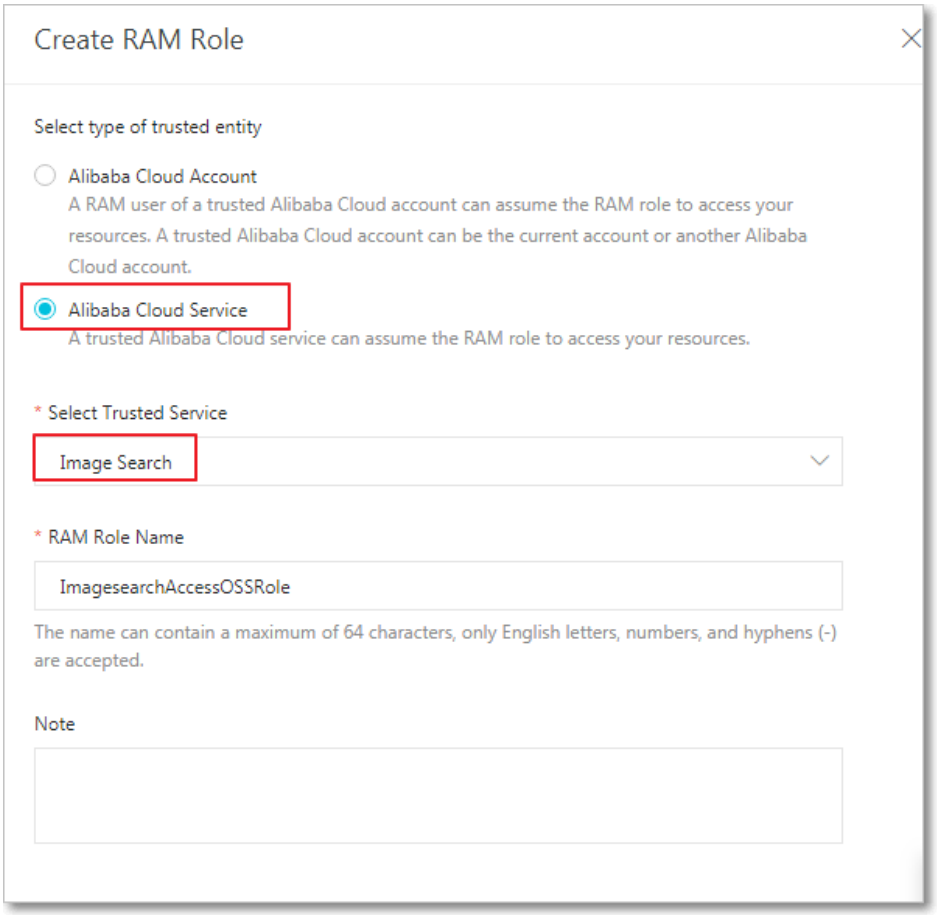
To use **OSS Import**, you must use Security Token Service to grant your Image Search account temporary permissions to access OSS. The procedure is as follows:

Create a role

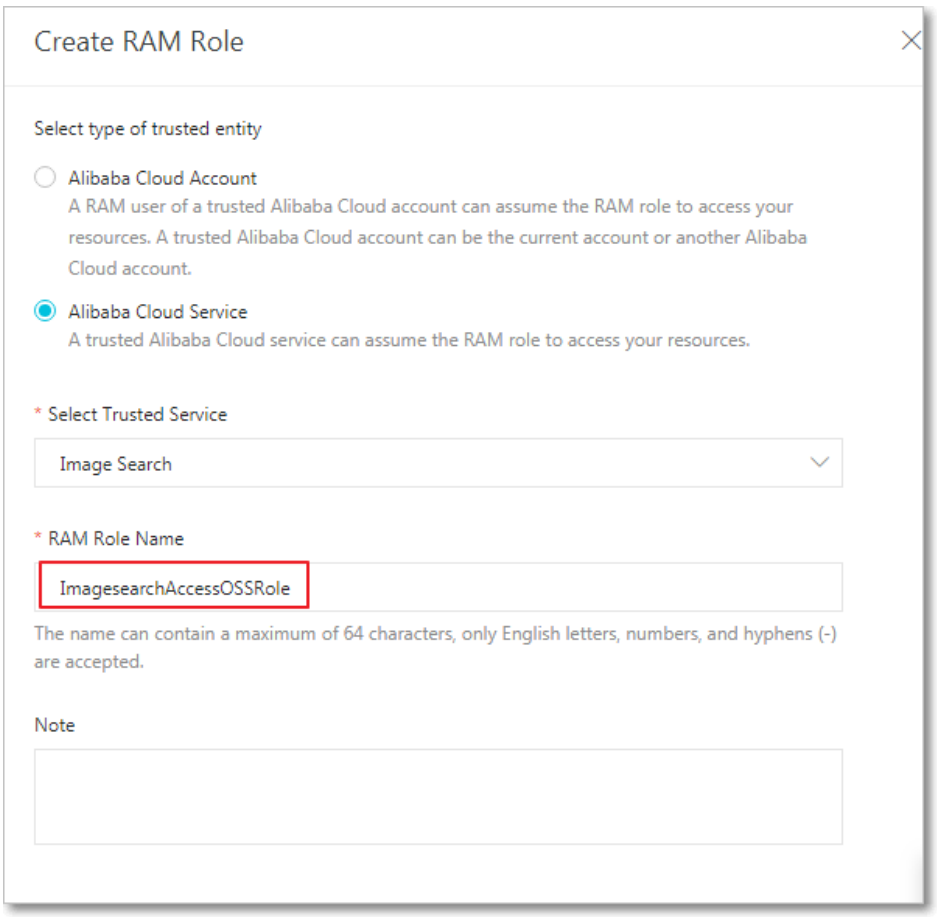
Go to the RAM console, select **RAM Roles** > **Create RAM Role**.



Select **Alibaba Cloud Service** > **Image Search**.



Enter a RAM role name.



Authorize a role

A newly created role does not have any permissions. You must create a policy to acquire the relevant permissions.

To create a policy, use the following format:

```
{
"Version": "1",
"Statement": [
{
"Effect": "Allow",
"Action": [
"oss:GetObject"
],
"Resource": [
"acs:oss:*:*:${bucket}${path}/*"
]
}
]
}
```

- ${bucket}: Specifies a bucket.

- ${path}: Specifies a path for storing the images that you need to import.

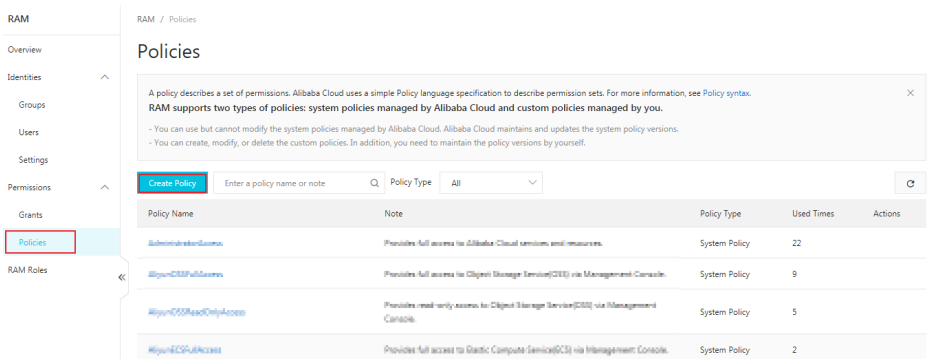
Example

In this example, a policy is created for importing images to the /increment path in the bucket named imagesearch-increment.

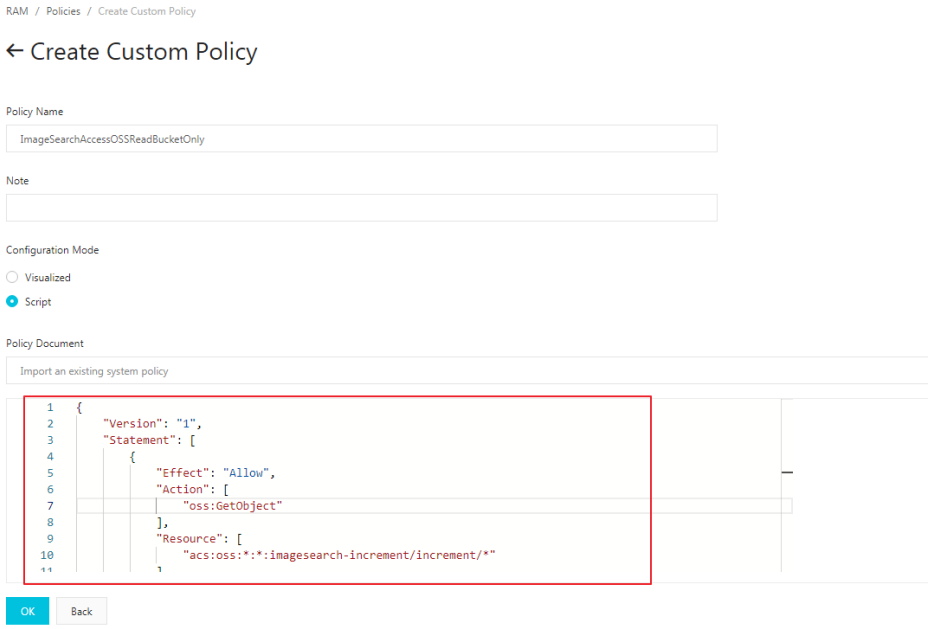
```
{
"Version": "1",
"Statement": [
{
"Effect": "Allow",
"Action": [
"oss:GetObject"
],
"Resource": [
"acs:oss:*:*:imagesearch-increment/increment/*"
]
}
]
}
```

Then authorize the RAM role to your account, follow these steps:

On the RAM console, select **Permissions** > **Policies** > **Create Policy**.



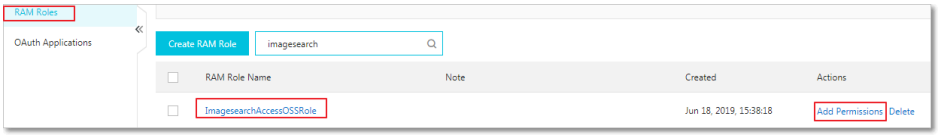
On the **Create Custom Policy** page, enter the **Policy Name**, select **Script** and configure the **Policy Document**.



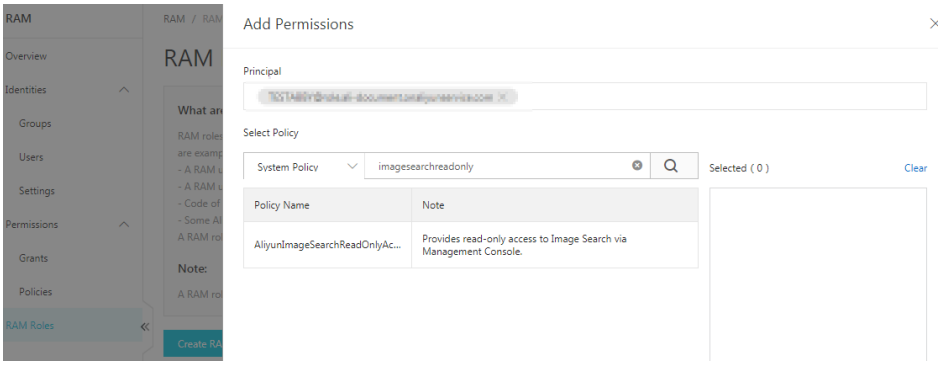
Click **OK**.

Return to the RAM console, select **RAM Roles**.

In the **Role Name** column, select the target RAM role and click **Add Permissions**.

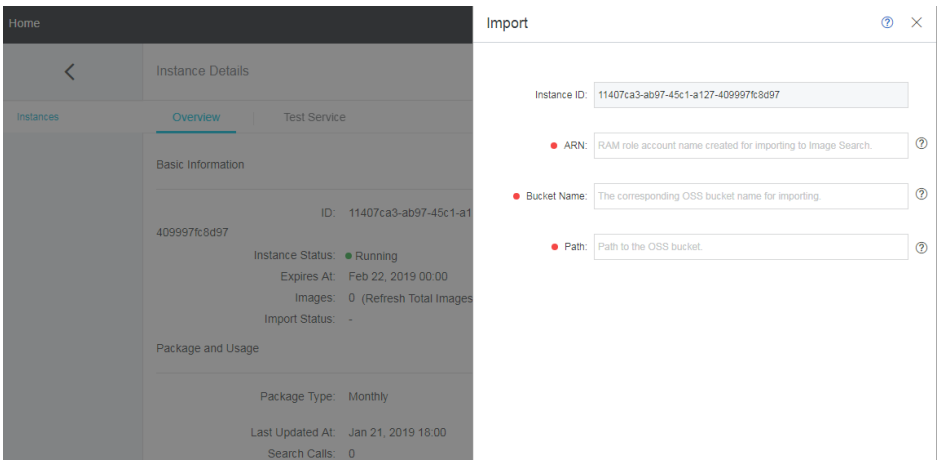


In the Policy Name column on the left, select the created policy and click **OK**.

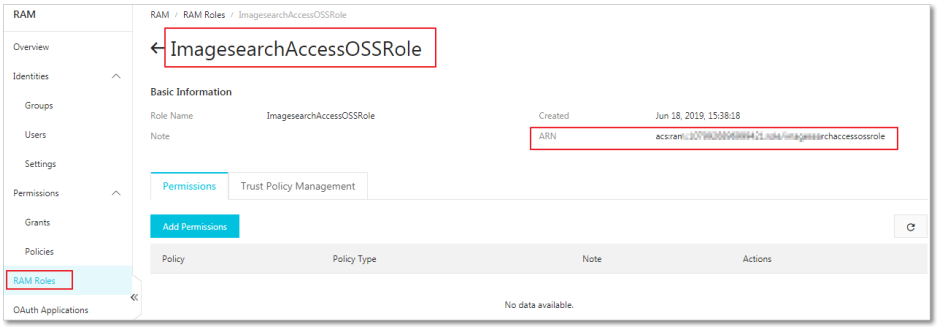


Import images

To import images from OSS, go to the Image Search console, on **Instance Details** page, click **OSS Import**, enter the basic information, and then click **Import**.



ARN: Your RAM role account name created for importing to Image Search. Click your role to view the ARN, as shown in the following figure:



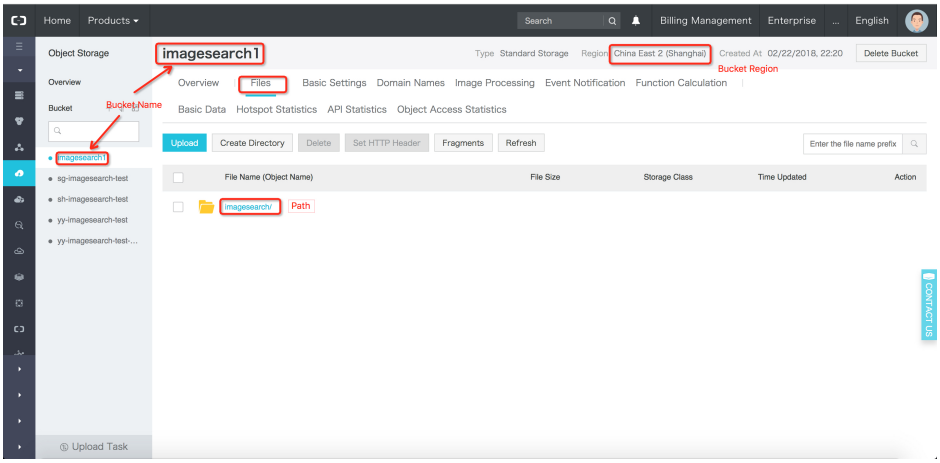
Bucket Name: The name of the bucket that stores your images in OSS.

> **Note:** Make sure your Image Search instance and OSS are in the same region.

Path: The path where your images are stored.

> **Note:** The data path must start with a forward slash (/), for example, /imagesearch.

The following figure shows the data path of /imagesearch in the imagesearch1 bucket:



OSS import history

On the **Instance Details** page, you can click **View History** to view the history of OSS import tasks. When the OSS import task is complete, you receive a message that indicates the result.

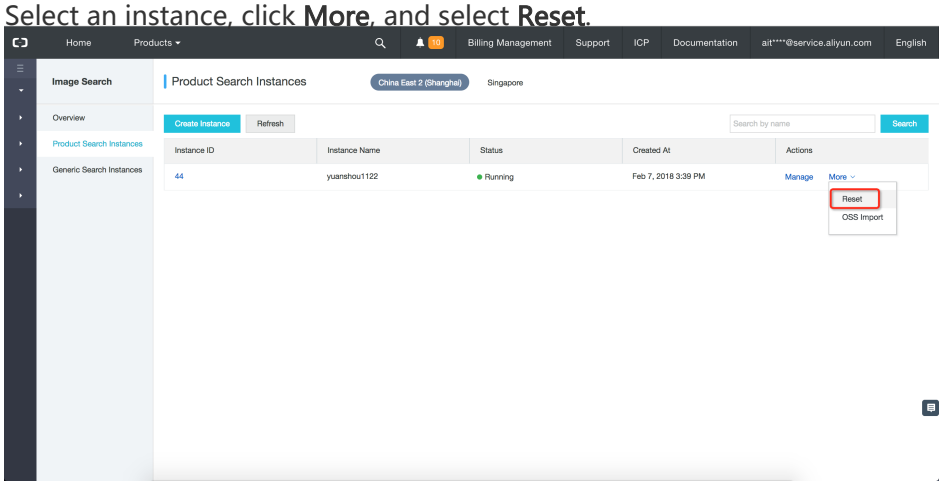
- If some of the images cannot be processed, you receive the following error message: “Some of the images cannot be imported. Download Report.” If this error occurs, you can download the report to view the impacted images and identify the root cause of the error.
- If all of the selected images have been imported, you receive a message indicating that the import task is successful.

Clear data

The Reset operation allows you to clear all image signature information. However, it does not remove the images. This operation is only available in the console. To clear data, there are two methods:

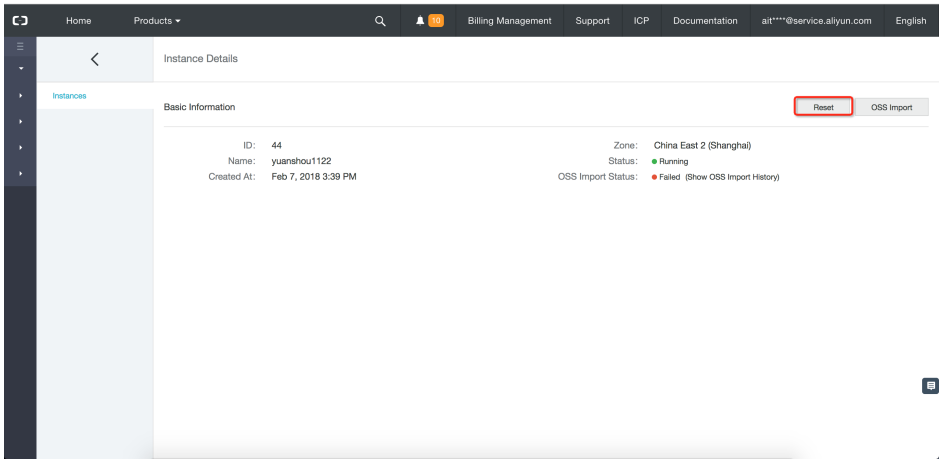
On the instance list page:

Select an instance, click **More**, and select **Reset**.



On the Instance Details page:

Click **Reset** in the upper-right corner of the page.



OSS import and rebuild

Scenarios

- The OSS Import and Rebuild mode is suitable when you want to import more than 10 million images from OSS. You can use this mode when you import a large volume of images for the first time.
- The OSS Import and Rebuild mode is different from the OSS Import mode in that it includes additional processsing after import. After the images are imported, the OSS Import and Rebuild mode rebuilds the indexes and clustering data based on all images, including both the newly imported and the existing images. This process takes longer time. However, if the instance contains a large number of images, an OSS Import and Rebuild operation can significantly improve the search performance. However, this optimization causes subsequent searches to be lossy. Approximately 95% of relevant images are returned in the search results.
- If the average number in each category is less than 2 million items, you typically do not need to perform an OSS Import and Rebuild operation. You can perform an OSS Import operation instead.

Supported version

The OSS Import and Rebuild mode is only available for instances created after April 27, 2018. To upgrade instances with an earlier version, submit a ticket.

Procedure

Follow the same procedure as you do in OSS Import mode.

Search modes

Currently, Image Search supports three search methods for testing: Using the API, Using the SDK, and using the console . We recommend that you use the SDK to perform search.

Using the API

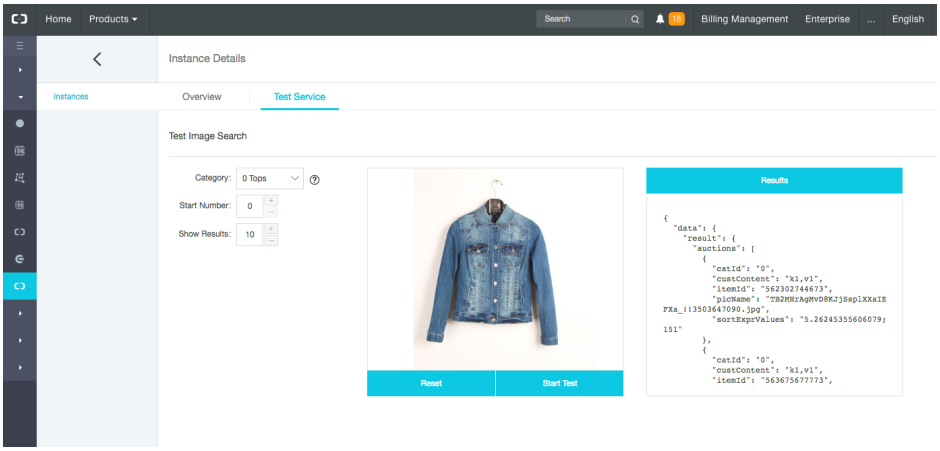
You can use the API to send requests based on HTTP or HTTPS protocol to access the Image Search service. This method requires you to send your request by using the specified authentication mode and POST body format. For more information, see API Reference.

Using the SDK

Currently, Image Search only supports JAVA SDKs. We recommend this method because it is user-friendly, without authentication and body format requirements. For more information, see SDK Reference.

Using the console

After inserting images to your Image Search instance, you can test your image search on the **Test Service** page.
You can enter options, such as **Category**, **Start Number**, and **Show Results**, specify your search image, and then click **Start Test**. Search results will be displayed in the right area. You can click **Start Test** on the **Test Service** page to test your image search.



Resource access management

Resources

Resources that can be Authorized in RAM

Currently, Image Search supports only instances as a resource type. Make sure your Image Search resources are described in a Resource Access Management (RAM) policy as follows:

- Resource type: instance
- Resource description format in a RAM policy:
  acs:imagesearch:$regionid:$accountid:instance/$instance
  - $regionid: The ID of a region. To specify all regions, enter *.
  - $accountid: The numeric ID of your Alibaba Cloud primary account. To specify all accounts, enter *.
  - $instance: The ID of an instance. To specify all instances, enter *.

Actions for different resources

Resource	Actions
instance/*	ClearInstance, DescribeInstance, IncreaseInstance, InitInstance, RemoveInstance, ListInstance, SearchItem, DeleteItem, AddItem, ListIncrement
instance/$instance	ClearInstance, DescribeInstance, IncreaseInstance, InitInstance, RemoveInstance, SearchItem, DeleteItem, AddItem, ListIncrement

Action	Description
ClearInstance	Clear an instance.
DescribeInstance	View detailed information about an instance.
InitInstance	Initialize an instance.
RemoveInstance	Delete an instance.

ListInstance	View instance list.
SearchItem	Search for images.
DeleteItem	Remove images.
AddItem	Add images.
ListIncrement	View OSS import tasks on an instance.

Available regions for RAM

Region	RegionId
Singapore	ap-southeast-1
Shanghai	cn-shanghai

Authorization policies

Account authorization by using custom policies

The system provides two types of custom policies for account authorization.You can choose one of the following policies from the **Available Policies** list:

- AliyunImagesearchReadOnlyAccess: Allows users to access to the Image Search service with read-only permission.
- AliyunImagesearchFullAccess: Allows users to access to the Image Search service with administrator permission.

Note: If these two policies do not meet your requirements, you can create your own policy by referencing the following examples.

Authorization examples

- Variables for the Resource Paramter (for example, $regionid, $accountid, and $instance).
- To specify all instances in the **Resource** parameter, use wildcard(*).

Example one

In this example, a policy is bound to a subaccount of primary account 1234 to permit all Image

Search instances in Shanghai to have full access to the console (excluding the clear and delete permissions). Additionally, only users logged on with the specified IP addresses are allowed to access the services. To perform this task, use the primary account to create a policy on the console and then use Resource Access Management (RAM) or RAM SDK to bind the policy to the subaccount.

1. Create a policy.

```
{
"Statement": [
{
"Action": [
"imagesearch:ListInstance",
"imagesearch:DescribeInstance",
"imagesearch:IncreaseInstance",
"imagesearch:InitInstance",
"imagesearch:ListIncrement"
],
"Condition": {
"IpAddress": {
"acs:SourceIp": "xxx.xx.xxx.x/xx"
}
},
"Effect": "Allow",
"Resource": "acs:imagesearch:cn-shanghai:1234:instance/*"
}
],
"Version": "1"
}
```

2. Bind the policy to your specified subaccount.

Example two

In this example, a policy is bound to a subaccount of primary account 1234 to permit all Image Search services to support regions and all image search instances to have full access to the console and API. To perform this task, use the primary account to create a policy on the console and then use RAM or RAM SDK to bind the policy to the subaccount.

1. Create a policy.

```
{
"Statement": [
{
"Action": [
"imagesearch:*"
],
"Effect": "Allow",
"Resource": "acs:imagesearch:*:1234:instance/*"
}
],
```

```
"Version": "1"
}
```

2. Bind the policy to the subaccount.

Example three

In this example, a policy is bound to a subaccount of primary account 1234 to permit all Image Search services to support regions and instance 12138 to have full access to the console and API. To perform this task, use the primary account to create a policy on the console and then use RAM or RAM SDK to bind the policy to the subaccount.

1. Create a policy.

```
{
"Statement": [
{
"Action": [
"imagesearch:*",
],
"Effect": "Allow",
"Resource": "acs:imagesearch:*:1234:instance/instance12138"
}
],
"Version": "1"
}
```

2. Bind the policy to your specified subaccount.

Filtering

Overview

This feature allows you to set filters when searching images. For example, you can set a filter to return only images with an owner ID of 1000 or with the company name of “alibaba”.

Supported version

The filtering feature is only available for instances created after April 27, 2018. To upgrade instances with an earlier version, submit a ticket.

How to use filtering

This feature currently supports filtering by the int_attr and str_attr fields. The int_attr field is a built-in integer attribute, and the str_attr field is a built-in string attribute.

When you insert an image, you can specify the the int_attr and str_attr fields.

- The following notation is an example that you can use when uploading an image in OSS Import mode.

```
{"operator":"ADD","item_id":"1000", "cat_id":0, "int_attr":0, "str_attr":"value1",
"cust_content":"k1:v1,k2:v2,k3:v3", "pic_list":["girl_cloth1.jpg"]}
```

- Alternatively, you can use the latest version (1.0.3 or later) of the SDK to set these fields. Specifically, you can use the setIntAttr and setStrAttr methods on the AddItemRequest object to set the int_attr and str_attr fields respectively.

You can specify a filter for your search. The int_attr field supports the following operators: >、>=、<、<=、=. The str_attr field supports the following operators: =、!=. You can use the AND and OR operators to combine multiple filtering conditions.
Example:

```
int_attr>=100
str_attr!="value1"
int_attr=1000 AND str_attr="value1"
```

When you use the API to perform a search, you can set the filter parameter to this value.

When you use the SDK to perform a search, you can call the setFilterClause function on the SearchItemRequest object.

Items per category

When you use this feature, make sure that each category contains less than 2 million images. If a category contains more than 2 million images, and if you have not performed an OSS Import and Rebuild operation, search requests can also be handled. However, search requests may be timed out.

Restrictions

Maximum data volume per instance

You can view and select the maximum image capacity for your instance in the **Capacity** configuration option of the Image Search console. Currently, Image Search supports seven image capacity specifications, which are: 2.5 Million Images, 5 Million Images, 10 Million Images, 20 Million Images, 30 Million Images, 40 Million Images, and 50 Million Images.

Maximum requests per second

You can view and select the maximum requests per second for queries and inserts in the **Queries/sec** configuration option. Currently, Image Search supports the specifications of a quota of 5 and 10 QPS
.
Up to 20 delete requests can be made every second.
The system applies throttling based on these limits. To extend these limits, contact Alibaba Cloud customer service or email us at **imagesearch-support@alibaba-inc.com**.

Image sizes for insert and search requests

The file size of each image must be at least 2 MB. Both the height and width must fall into the range from 200 pixels to 1024 pixels.

Maximum HTTP POST content size

When you call an API, the body of the HTTP POST request cannot exceed 8 MB.

Supported image formats

Image Search supports both JPEG and PNG formats. Images cannot contain rotation flags in their metadata.

Maximum results per query

Image Search can return up to 100 results for one search request. However, if you apply pagination, then Image Search can return up to 500 of the top matching results.