

Alibaba Cloud Application Configuration Management

User Guide

Issue: 20191225

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Document conventions

Style	Description	Example
	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 Danger: Resetting will result in the loss of user configuration data.
	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 Warning: Restarting will cause business interruption. About 10 minutes are required to restart an instance.
	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 Notice: If the weight is set to 0, the server no longer receives new requests.
	A note indicates supplemental instructions, best practices, tips, and other content.	 Note: You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click Settings > Network > Set network type.
Bold	Bold formatting is used for buttons, menus, page names, and other UI elements.	Click OK .
Courier font	Courier font is used for commands.	Run the <code>cd /d C:/window</code> command to enter the Windows system folder.
<i>Italic</i>	Italic formatting is used for parameters and variables.	<code>bae log list --instanceid</code> <i>Instance_ID</i>
[] or [a b]	This format is used for an optional value, where only one item can be selected.	<code>ipconfig [-all -t]</code>

Style	Description	Example
{} or {a b}	This format is used for a required value, where only one item can be selected.	switch { <i>active</i> <i>stand</i> }

Contents

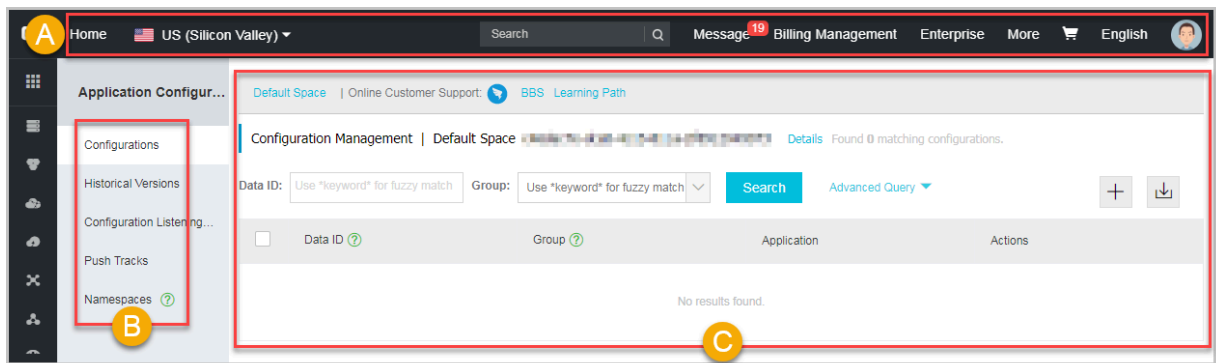
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1 ACM console introduction

The ACM console is the workbench for configuration management. This topic describes the different areas of the ACM console.

The ACM console consists of the following areas:

Figure 1-1: ACM console



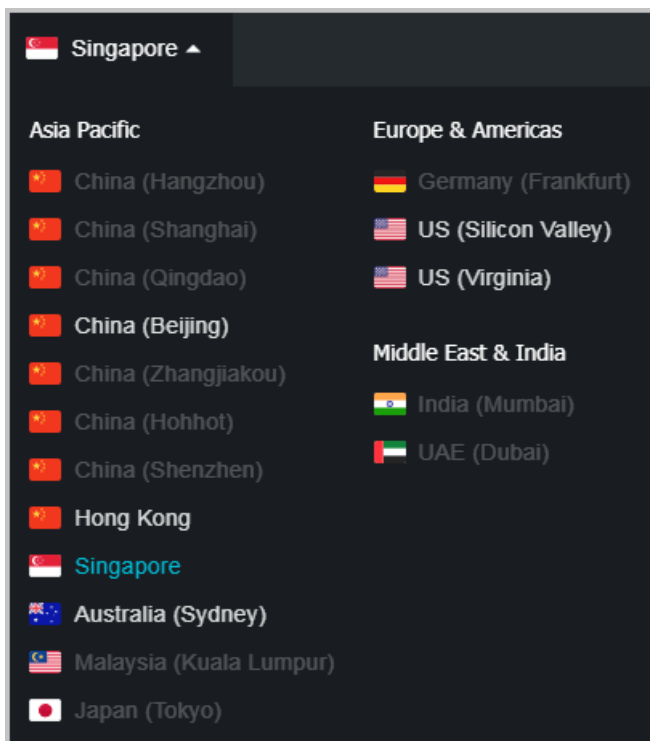
- [A] Top navigation bar: Shows menus of Regions, Messages, Tickets and so on.
- [B] Left-side navigation pane: Allows you to navigate to each sub-module, including configuration list, historical versions, listening query, push tracks, and namespaces.
- [C] Configuration Management: Provides core features to create, query, edit, and delete configurations and more advanced features.

2 Select a region

The machines you purchase can be distributed in different regions, so you have to determine which region you want to publish the configuration to before using the configuration management service.

Procedure

1. Log on to the [ACM console](#).
2. In the top navigation bar, hover the mouse over Singapore, and select the desired region in the overlay.

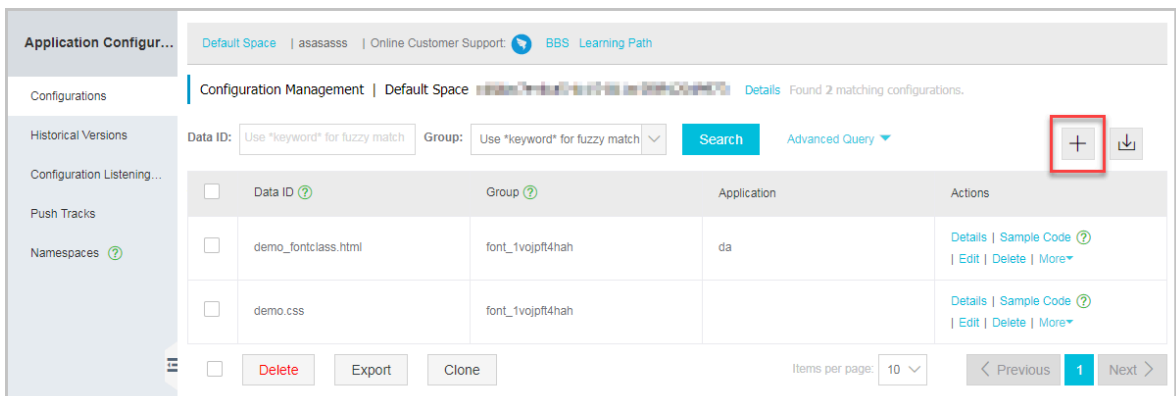


3 Create configuration

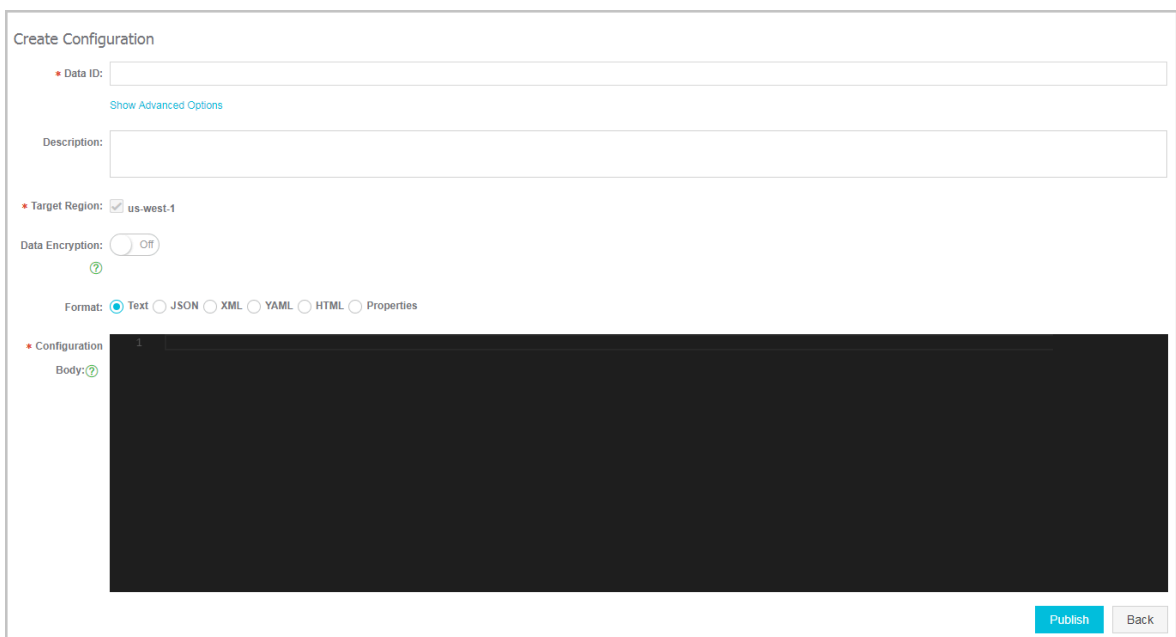
Some variables and parameters can be extracted from code to be managed in a configuration file. The configuration can be retrieved from the configuration file when the code is executed. By doing so, you can change parameters quickly and reduce the code maintenance costs. This topic explains how to create a configuration.

Procedure

1. Log on to the *ACM console*, and select a region as needed in the upper-left corner.
2. In the left-side navigation pane of the console, select **Configurations**, and then click the **+** icon on the right.



The Create Configuration page is displayed.



3. Enter the configuration information on the page according to the following table, and click Publish.



Note:

In ACM, the data model for a configuration is `<Namespace+DataId+Group, Content >`. You don't need to apply for the DataId or Group, as long as they're unique in a *namespace*.

Table 3-1: Fields of the Create Configuration page

Field	Description
Data ID	Configuration ID. Use a naming rule like <i>package.class</i> (for example, <i>com.taobao.tc.refund.log.level</i>) to ensure global uniqueness. It is recommended to indicate business meaning of the configuration in the “class” section. All characters must be in lower case. Only English characters and four special characters ("!", ":", "-", and "_") are allowed. It must not exceed 256 bytes.
Group	Configuration group (namespace). We recommend that you use product name (for example ACM) or module name to guarantee the uniqueness. You can perform authentication by group. Only English characters and four special characters ("!", ":", "-", and "_") are allowed. It must not exceed 128 bytes.
Tags	You can use tags to manage configurations according to your own dimensions . Up to 5 tags are allowed, and the maximum length of each tag is 32 characters.
Description	Configure description information to help others understand the meaning of the configuration. Up to 128 characters are allowed.

Field	Description
Application	Name of the application associated with the configuration. Only English characters and four special characters ("!", ":", "-", "_") are allowed.
Target Region	Most users publish the configuration to the current region only. To publish the configuration to multiple regions, select all target regions.
Data Encryption	If the configuration contains sensitive data, we recommend that you use encrypted storage function to minimize the risk of data leakage. You must activate Key Management Service (KMS), and authorize ACM to encrypt and decrypt with your KMS before you can use this function, because ACM data encryption function uses KMS to encrypt configurations. Note that the Data ID of an encrypted configuration always begins with <code>cipher-</code> . For more information, see Create and use encrypted configuration .
Format	Select a format to have ACM validate the syntax and format for you.
Configuration Body	The body of the configuration. A size of less than 10 KB is preferred, and do not exceed 100 KB at the maximum.

Related documents

[Namespaces](#)

[Create and use encrypted configuration](#)

4 Managing configurations

After you create a configuration item, you can use the configuration in the code.

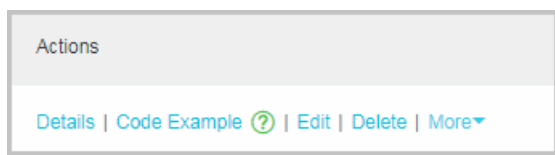
You may need to change configurations, so the ACM console is frequently used. You can search for, view, edit, and delete configurations in the ACM console.

Search for configurations

The ACM console supports searching for a configuration using the Data ID, Group ID, or a combination of both.

To search for a configuration, follow these steps:

1. Log on to the [ACM console](#), and select a Region as needed in the upper-left corner.
2. Select Configurations in the left-side navigation pane of the console. Enter the information you want to search for, and click the Search button.
3. After the target configuration is found, you can view the details of the configuration, or change or delete the configuration, as shown in the following figure.



View configuration details

Click **Details** in the search results to view detailed information about a specific configuration.

Configuration Details

• Data ID:
[Show Advanced Options](#)

Description:

• Region:

• MD5:

Data Encryption: On Off

• Configuration

Body:

```
threadPoolSize=5  
logLevel=WARN
```

Edit configurations

In the search result, click Edit to go to the editing page.

Edit Configuration

* Data

ID:

[Advanced Options](#)

Description

Target Public Network Environment

Region:

Beta Deselected by default. [Deselected by default. Learn more about beta publishing.](#)

Publish:

Data

Encryption

Format: TEXT JSON XML YAML HTML Properties

Configuration Content

```
1 test
```

[Publish](#) [Back](#)

ACM offers the following advanced features on the configuration editing page.

Feature	Description	Usage
Format validation	Provides syntax validation for JSON or XML format. Select a format in the Format field to perform syntax validation for that specific format, which helps reduce issues caused by syntax errors.	Select the format of the text in the Format field before editing the configuration content.
Comparison of changes	ACM supports comparing changes when a changed configuration is submitted for publishing. Check the changes prior to publishing to reduce misoperations.	After the configuration is changed, click Publish to open the content comparison dialog box.
Beta Publish	An error in key configuration changes may cause a major fault, so it is recommended to publish the changed configurations to a few machines for verification first. By only pushing to all machines after the changes are proven to be safe, you can minimize the impact of errors in changes.	Check the Beta Publish checkbox, and enter the IP address of the machines for beta publish (enter the public IP for a local test).

Delete configurations

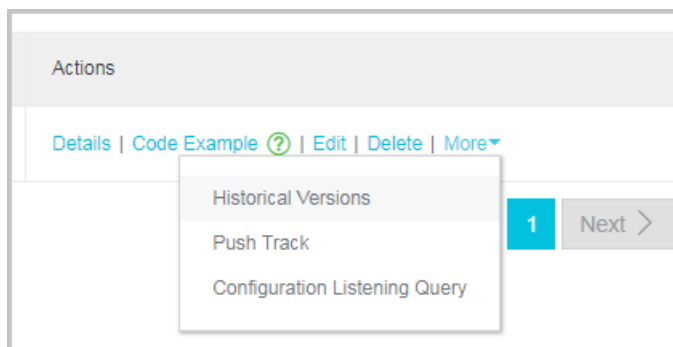
Click Delete to delete a configuration.

5 Query and rollback versions

If you made a mistake when changing a configuration item, you need to roll back immediately. ACM supports querying configuration change history and rolling back configurations.

Procedure

1. Log on to the [ACM console](#), and select a region as needed in the upper-left corner.
2. In the left-side navigation pane, select Configurations , enter the Data ID or Group of the configuration to be queried, and then click Search. Matching results appear in the list.
3. In the search results, select More > Historical Versions on the right side of the target configuration.



The Historical Versions page is displayed.

Search Results: Found 4 configuration items.

Data ID	Group	Last Modified At	Actions
cipher-test	DEFAULT_GROUP	Apr 19, 2018, 23:08:52	Details Roll Back
cipher-test	DEFAULT_GROUP	Apr 19, 2018, 22:42:31	Details Roll Back
cipher-test	DEFAULT_GROUP	Apr 19, 2018, 15:27:49	Details Roll Back
cipher-test	DEFAULT_GROUP	Apr 7, 2018, 22:37:36	Details Roll Back

4. Perform the following tasks as needed on the page.

- **To view the configuration content of a specific version, click Details in the Actions column.**
- **To roll back to a specific version, click Roll Back in the Actions column, and on the Configuration Rollback page, click Roll Back.**



Note:

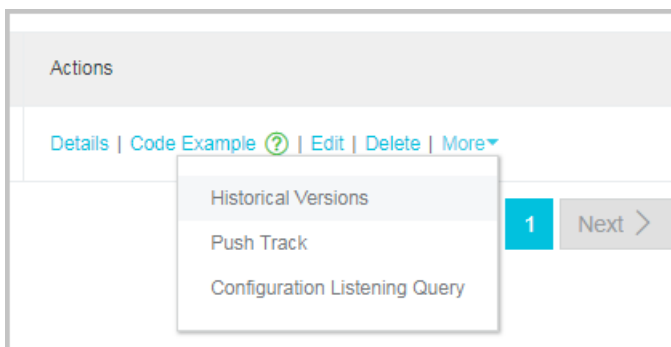
ACM currently saves change histories of up to 30 days.

6 View push status

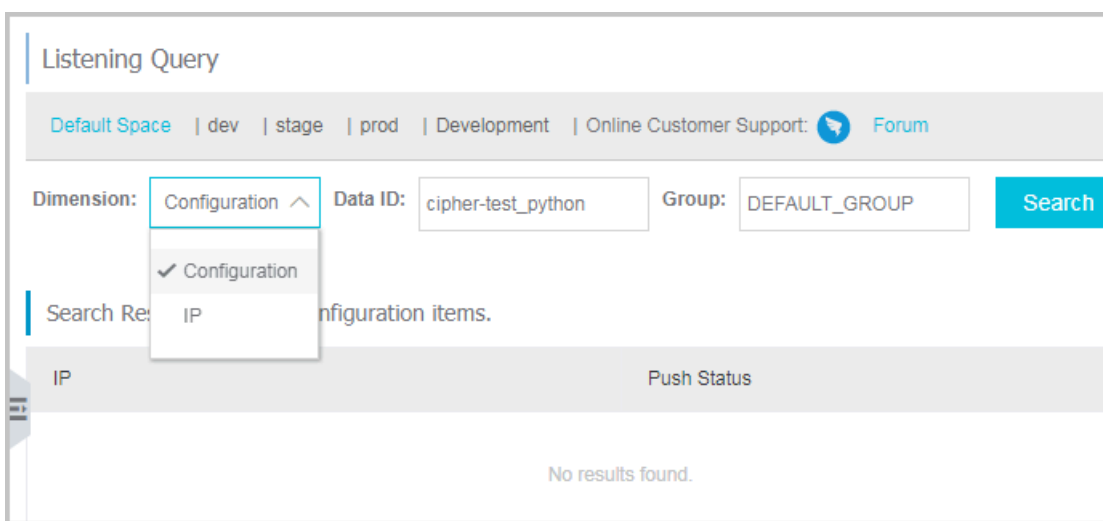
After changing a configuration, you might want to check whether the changed configuration has been pushed to the machine which is listening for this configuration. This query is only effective for clients that use the configuration listening API to listen for configurations.

Procedure

1. Log on to the [ACM console](#), and select a region as needed in the upper-left corner.
2. In the left-side navigation pane of the console, select Configurations, enter the DataID or Group of the configuration to be queried, and then click Search. Matching results appear in the list.
3. In the search results, select More > Configuration Listening Query on the right side of the target configuration.



The Listening Query page is displayed.



4. Enter the Dimension, DataID, or Group on the page, and then click Search.



Note:

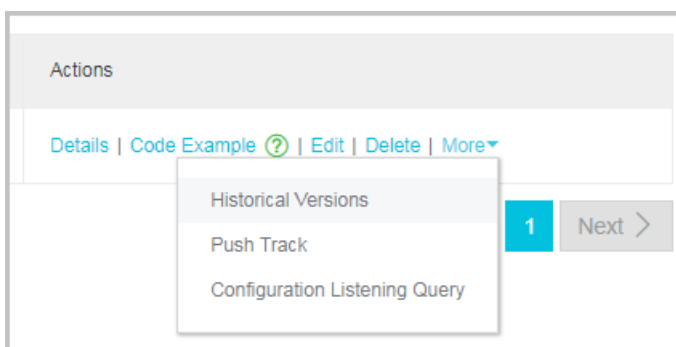
- **If the dimension is set to Configuration: search the machines to which this configuration is pushed and the push status.**
- **If the dimension is set to IP: search the list of configurations that this machine listens for.**

7 Push track query

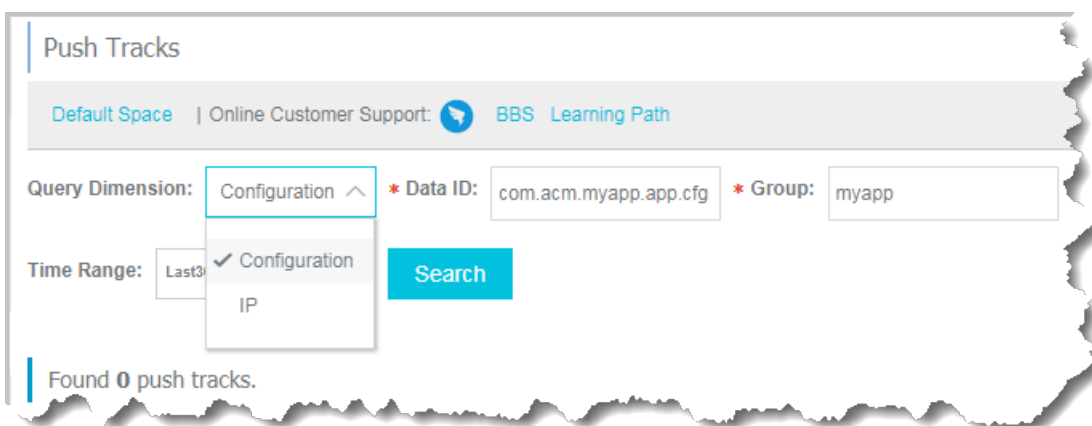
After changing a configuration, you can check whether the configuration has been successfully pushed according to the push track. If you find that the changed configuration does not take effect on a machine, you can follow the push track to check whether the configuration has been pushed to the machine.

Procedure

1. Log on to the *ACM console*, and select a region as needed in the upper-left corner.
2. Select Configurations in the left-side navigation pane of the console. Enter the information you want to search for, and click the Search button.
The matching search results appear in the list.
3. Click More and select Push Track in the dropdown list.



The Push Track page is displayed.



4. Enter the Dimension, Data ID, Group, and Time Range, and click Search.



Note:

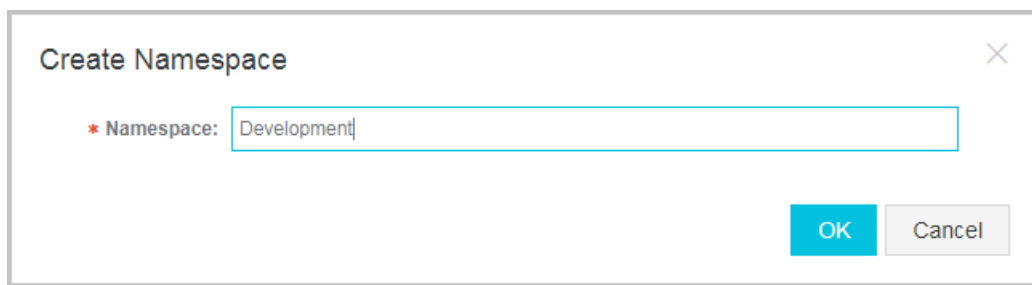
- **If you set the dimension to Configuration, the push track of the specified configuration will be queried.**
- **If you set the dimension to User IP, the configuration access history of the specified client will be queried.**

8 Create a namespace

When different configuration values are required in the official and test environments respectively, you can create namespaces to isolate the configurations in different environments. When the data of multiple product lines needs to be isolated, you can also allocate a namespace to each product line.

Procedure

1. Log on to the *ACM console*, and select a region as needed in the upper-left corner.
2. In the left-side navigation pane of the console, click **Namespaces**.
The Namespaces page is displayed.
3. In the upper-right corner of the page, click **Create Namespace**.
The Create Namespace dialog box opens.



4. Enter a namespace name in the dialog box, and click **OK**.

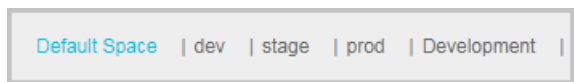


Note:

Currently, one user can create up to five namespaces.

For example, enter `Development`.

The new namespace appears in the table on the Namespaces page, and the namespace selection area at the top of the Configurations page. The data of this namespace and that of other namespaces is completely isolated.

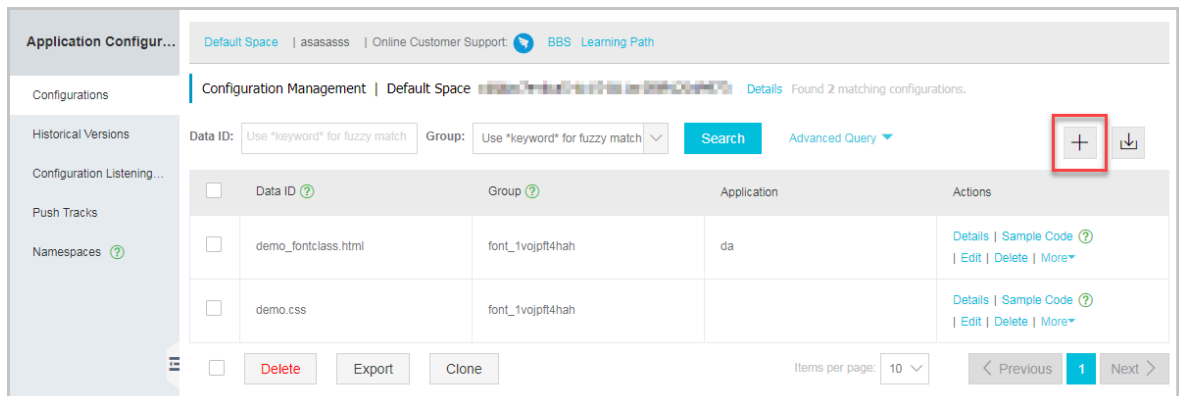


9 Create and use encrypted configuration

ACM provides encrypted configuration to meet the requirement for sensitive configurations (data sources, tokens, usernames, passwords, and so on), and to lower the risk of leaking user configurations. An encrypted configuration is a configuration stored in an encrypted way. This topic explains how to create and use an encrypted configuration.

Create encrypted configuration

1. Log on to the [ACM console](#).
2. In the left-side navigation pane of the console, click **Configurations**, and on the right side of the page, click the **+** icon.



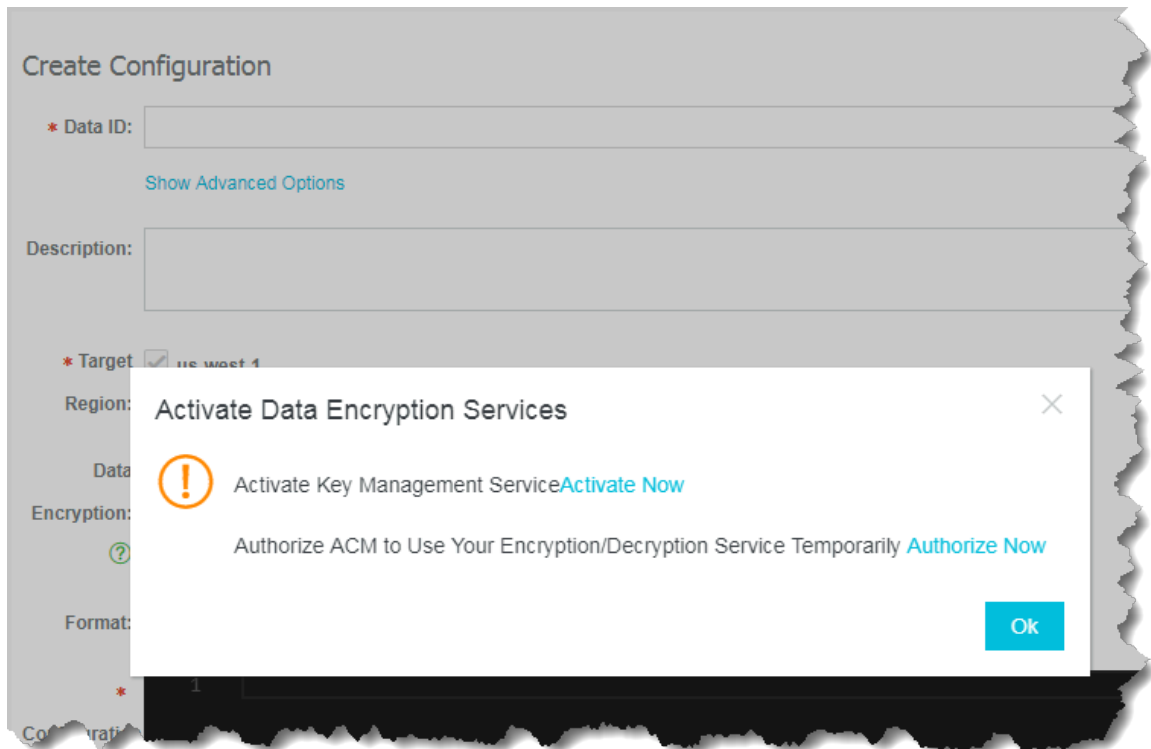
3. On the Create Configuration page, switch on Data Encryption.



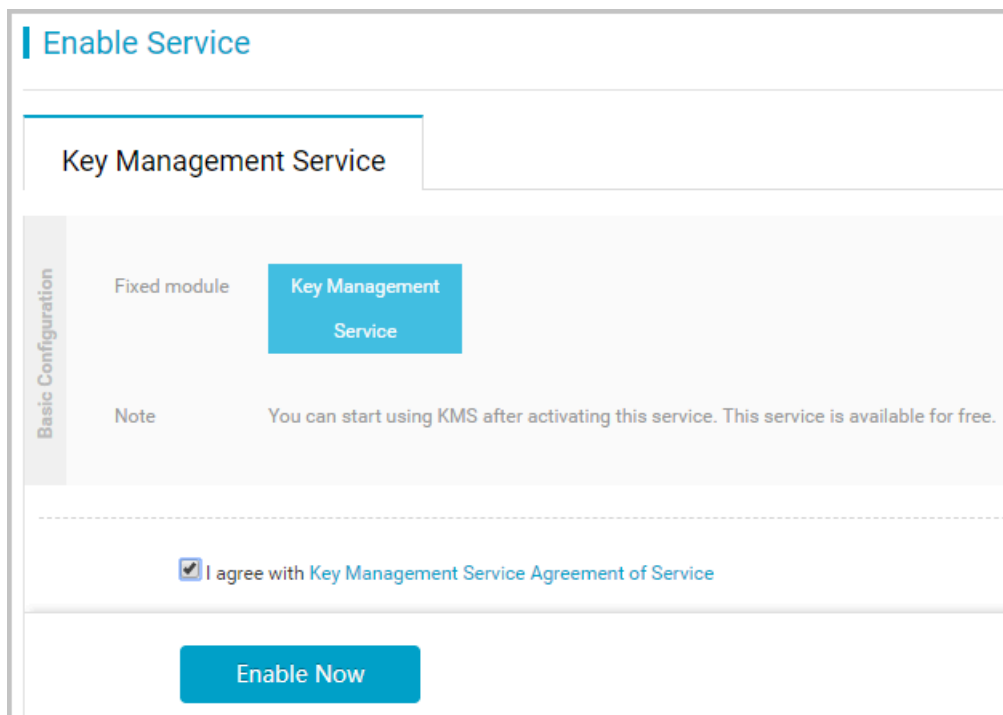
Note:

When you use the data encryption function for the first time, the Activate Data Encryption Services dialog box appears. You must activate the key management service and authorize ACM to encrypt and decrypt with your key management service before you can use this function, because ACM data encryption function relies on key management service to encrypt configurations.

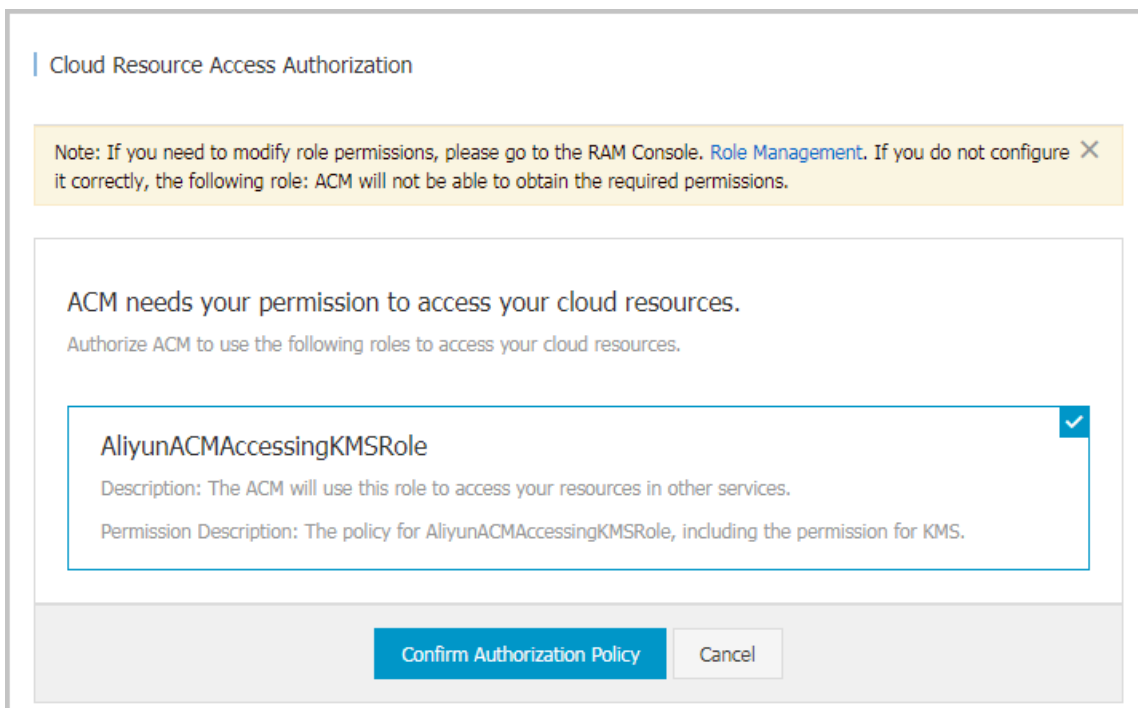
4. In the Activate Data Encryption Services dialog box, perform the following steps.



- a. Click **Activate Now**. On the **Enable Service** page, select **I agree with Key Management Service Agreement of Service**, and then click **Enable Now**.



- b. Click **Authorize Now**. On the **Cloud Resource Access Authorization** page, select the target permission, and click **Confirm Authorization Policy**.



5. On the Create Configuration page, enter the configuration content, and then click **Publish**.

**Note:**

To make it easier for you to manage the configurations, everything is displayed in plain text in the console, although the configurations are actually encrypted.

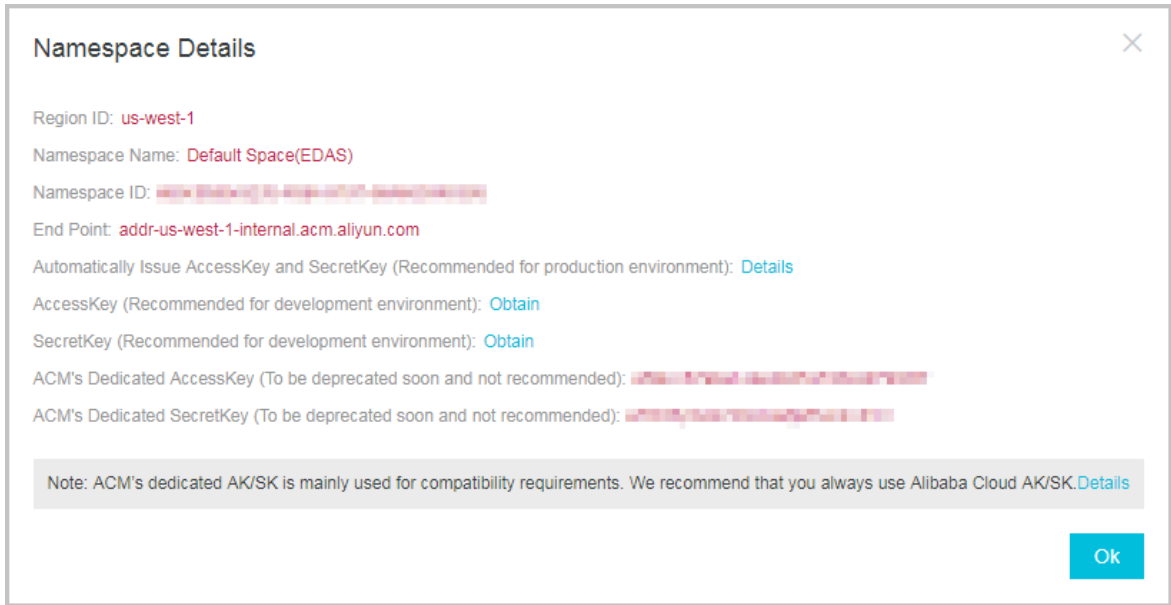
Use encrypted configuration

1. Log on to the [ACM console](#).
2. In the Actions column on the right side of the table, click **Code Example** to get sample code.

**Note:**

Java SDK and Python SDK has incorporated KMS-SDK, so you can add decryption filters for automatic decryption. For more information about decryption of other languages, see [Decrypt](#).

3. Click **Details** above the **Search** button, and click **Obtain** in the **Namespace Details** dialog box to obtain the initialization parameters.

**Note:**

Although you can directly obtain the configuration data with the AccessKey/SecretKey of the primary account, we strongly recommend that you use the AccessKey/SecretKey of sub-accounts for the sake of security. If you use the AccessKey/SecretKey of sub-accounts, then you must grant the sub-account the AliyunACMFullAccess and AliyunKMSCryptoAccess permission. For more information, see [#unique_12](#).

10 Access ACM with instance RAM role (MT)

ACM provides the capability of local ACM-SDK testing, which allows apps to be tested by retrieving configuration locally without remote connection to ACM. While building a local test environment, you can still access the public region in the Internet, however, other regions can only be accessed on the ECs of the same region, such as ACM's Shanghai Region, it can only be accessed on the ECS in Shanghai.

The ACM package currently supports Mac, Linux and Windows platforms, JDK 1.8 and later. The Function Comparison Between the ACM local package and the ACM website is as follows.

Items Compared	ACM website	ACM local
Configure actions	Supported	Yes-
Historical Version	Yes	Unsupported
Listen for queries	Yes	Unsupported
Push track	Yes	Unsupported
Namespaces	Yes	Unsupported

ACM deployment

1. Download the ACM-server package locally (link: [acm-server.tar.gz](#)).
2. Decompress the file, and the acm-server directory will be created under the current directory.

```
tar xzvf acm-server.tar.gz
```

3. Enter the ACM-Server Directory, execute the startup script, run acm-server.

```
cd acm-server/bin
sudo sh catalina.sh run
```

4. Access `localhost:8080/diamond-server` in the browser.

The above logon interface indicates that acm-server is already started.

Create a configuration in the local console

1. Enter `localhost:8080/diamond-server` in the browser to enter the page.
2. On the Configuration Management page, click New configuration.

3. Enter the configured data ID, group ID, and content, and click Publish, this allows you to create a new configuration.

Querying the configuration in the local console

1. On the Configuration Management page, enter the data ID and group that you want to query. ID, clickQuery.



Note:

If you enter only the data ID, the query has the data ID All configurations. If you do not enter any query conditions, then the system queries all configurations.

2. In the actions column of the query results list, click details.
3. View the configuration content in the configuration content text box.

Modify the configuration in the local console

1. In the actions column of the query results list, click Edit.
2. Modify the configuration content in the configuration content text box, and click Publish.

Delete configurations

1. In the actions column of the query results list, click Delete.
2. The message "Are you sure you want to delete this icon?" is displayed. Click OK.

ACM-SDK testing

1. Bind acm.aliyun.com domain name.

Since ACM-SDK uses a maid domain name to connect the ACM, ACM-SDK Ability to access the local, need to modify the host file, bind the local domain name to the local IP 127.0.0.1.

```
vim /etc/hosts
Add 127.0.0.1 acm.aliyun.com
```

2. Prepare ACM-SDK testing cases.

Fill in the dataID and group of the created configuration in ACM-SDK. Successful retrieval of configuration indicates that the ACM local testing environment has been deployed successfully. The local test environment was deployed successfully.

```
public class ACMTTest {
    public static void main(String[] args) throws ConfigException,
        InterruptedException {
```

```
// Initialize the configuration service, and the console
automatically obtains the following parameters via the sample code.
The input parameters are respectively endpoint, namespace, accessKey
, secretKey (private key of ACM, rather than that of Alibaba Cloud)
ConfigService.init("acm.aliyun.com", "", "", "");
String content = ConfigService.getConfig("acm.test", "
DEFAULT_GROUP", 6000);
System.out.println(content);
// Add listeners to the configuration during initialization,
which calls back a notification.
ConfigService.addListener("acm.test", "DEFAULT_GROUP", new
ConfigChangeListener() {
    public void receiveConfigInfo(String configInfo) {
        When the configuration is updated, use this callback
function to output the newest value to the user.
        // Remember not to make blocking operations by callback
function, which otherwise would cause the notification thread to
block.
        System.out.println(configInfo);
    }
});
// sleep does not give way to the main thread
Thread.sleep(100000);
}
}
```