

Distributed Message Service for RocketMQ

Getting Started

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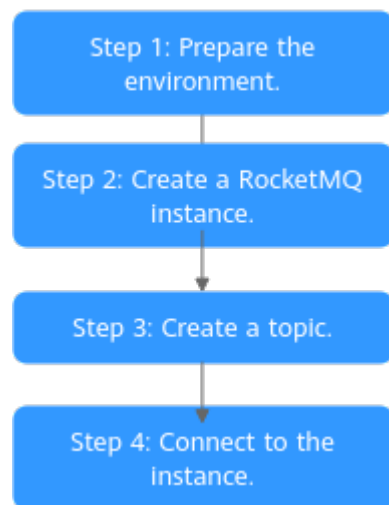
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1 Getting Started with RocketMQ to Produce and Consume Messages

This document takes the example of creating a RocketMQ instance with SSL enabled and accessing it on a client for message production and consumption to get you quickly started with Distributed Message Service (DMS) for RocketMQ.

Procedure

Figure 1-1 Procedure for using DMS for RocketMQ



1. **Step 1: Preparations**

Before creating a RocketMQ instance, an authenticated Huawei Cloud account with balance, users with required permissions, a set of Virtual Private Cloud (VPC) and subnet, a security group, an Elastic Cloud Server (ECS), and an environment should be prepared.

2. **Step 2: Create a RocketMQ Instance**

Enable SSL, disable ACL, and configure the created VPC and subnet, and security group.

3. **Step 3: Create a Topic**

After an instance is created, create a topic for sending and receiving messages.

4. **Step 4: Connect to a RocketMQ Instance to Produce and Consume Messages**

On the client, connect to the instance and use commands to produce and consume messages.

Step 1: Preparations

Step 1 Sign up for a Huawei ID and complete real-name authentication.

If you already have a Huawei account, skip this step. If you do not have one, see [Registering a HUAWEI ID and Enabling HUAWEI CLOUD Services](#) and [Real-Name Authentication](#).

Step 2 Grant RocketMQ instance permissions.

The RocketMQ administrator permission **DMS FullAccess** is required. For details, see [Creating a User and Granting DMS for RocketMQ Permissions](#).

Step 3 Create a VPC and subnet.

 **CAUTION**

The VPC must be created in the same region as the RocketMQ instance.

A RocketMQ instance runs in a Virtual Private Cloud (VPC). Before creating an instance, ensure that a VPC is available. For details about how to create a VPC and a subnet, see [Creating a VPC and Subnet](#).

Step 4 Create a security group.

See [Creating a Security Group](#).

To connect to RocketMQ instances, add the security group rules described in [Table 1-1](#).

Table 1-1 Security group rules


Direction	Protocol	Port	Source	Description
Inbound	TCP	8100	IP address or IP address range of the RocketMQ client	The port is used for private network access to metadata nodes using TCP.
Inbound	TCP	10100–10199		The port is used for accessing service nodes using TCP.

 NOTE

After a security group is created, its default inbound rule allows communication among ECSs within the security group and its default outbound rule allows all outbound traffic. In this case, you can access a RocketMQ instance within a VPC, and do not need to add rules according to [Table 1-1](#).

Step 5 Create an elastic cloud server (ECS) and configure environment variables.

The following takes a Linux ECS as an example. For more information about how to install JDK and configure the environment variables for a Windows ECS, please search the Internet.

1. Log in to the console, click  in the upper left corner, click **Elastic Cloud Server** under **Computing**, and then create an ECS.
For details, see [Purchasing an ECS](#). If you already have an available ECS, skip this step.
2. Log in to an ECS as user **root**.
3. Install the JDK and configure the environment variables **JAVA_HOME** and **PATH**.
 - a. Download the JDK.

 NOTE

Use Oracle JDK instead of ECS's default JDK (for example, OpenJDK), because ECS's default JDK may not be suitable for the sample project. Obtain Oracle JDK 1.8.111 or later from [Oracle's official website](#).

- b. Run the following command to decompress the JDK package.

```
tar -zxvf jdk-8u321-linux-x64.tar.gz
```


Change **jdk-8u321-linux-x64.tar.gz** to your JDK version.
 - c. Run the following command to edit the environment variable file **.bash_profile**:

```
vim ~/.bash_profile
```
 - d. Add the following content to the environment variable file:

```
export JAVA_HOME=/opt/java/jdk1.8.0_321
export PATH=$JAVA_HOME/bin:$PATH
```


Change **/opt/java/jdk1.8.0_321** to the path where you install JDK.
 - e. Press **Esc** to exit the editing mode and run the following command to save the environment variable file:

```
:wq
```
 - f. Run the following command to make the environment variables take effect:

```
source .bash_profile
```
4. Run the following command to check whether the JDK is successfully installed.

```
java -version
```


If the following information is displayed, the JDK is installed successfully:

```
java version "1.8.0_321"
```
 5. Run the following command to download the **rocketmq-tutorial** sample software package.

```
wget https://dms-demos.obs.cn-north-1.myhuaweicloud.com/rocketmq-tutorial.zip
```
 6. Run the following command to decompress **rocketmq-tutorial**.

```
unzip rocketmq-tutorial.zip
```

----End

Step 2: Create a RocketMQ Instance

Before using RocketMQ for message production and consumption, create a RocketMQ instance. The VM resource in the instance store topics.

Step 1 Go to the [Buy Instance page](#).

Step 2 Set the instance information. For details, see [Table 1-2](#).

Table 1-2 Setting instance information

Parameter	Description
Billing Mode	Select the billing mode of the instance. Select Pay-per-use . You will be billed for your usage duration. The fees are calculated in seconds and settled by hour.
Region	For lower network latency and faster access to your resources, select the nearest region. Select EU-Dublin.
Project	Select the project in this region. Select one as required.
AZ	Select one AZ or at least three AZs.
Instance Name	Enter the instance name, for example, rocketmq-test .
Enterprise Project	An enterprise project manages project resources in groups. Enterprise projects are logically isolated. Select "default". This parameter is for enterprise users.
Specifications	Select Default here, which customizes the version, instance type, architecture, flavor, and storage space for the RocketMQ instance.
Version	Select an instance version. Select 4.8.0 . Fixed once the instance is created. Use the same version as your client.
Architecture	Select an instance architecture. Select Cluster here.
Broker Flavor	Select an instance flavor. Select rocketmq.4u8g.cluster here.
Brokers	Specify the instance broker quantity. Enter 1 here.
Storage Space per Broker	Specify the disk type and storage space per broker for storing RocketMQ data. Select Ultra-high I/O and enter 300 . Total storage space of an instance = Storage space per broker × Number of brokers

Parameter	Description
VPC	Select a VPC and a subnet. Here, select the ones created in Step 1: Preparations .
Security Group	Select the security group. Here, select the one created in Step 1: Preparations .
SSL	Ciphertext access with high security, but lower performance. Select SSL .
ACL	Enabling ACL can manage permissions for message production and consumption. Do not enable it here.
Advanced settings	
Public Access	EIPs are required to enable public access. Do not enable it here.
Tags	Identifiers of the RocketMQ instance. Skip it here.
Description	Additional information about the instance. Skip it.

Step 3 Click **Buy**.

Step 4 Confirm the instance information and submit the request.

Step 5 Return to the instance list and check whether the RocketMQ instance has been created.

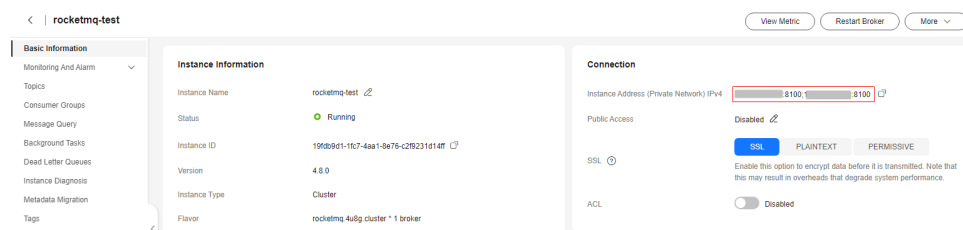
It takes 3 to 15 minutes to create an instance. During this period, the instance status is **Creating**.

- If the instance is created successfully, its status changes to **Running**.
- If an instance fails to be created, view it in the **Instance Creation Failures** area and delete it. Then create a new one. If the instance creation fails again, contact customer service.

Step 6 After the instance is created, click its name to go to the instance basic information page.

Step 7 Record the instance connection addresses for later use.

Figure 1-2 Recording instance connection addresses



----End

Step 3: Create a Topic

A topic is the basic unit for sending and receiving messages. After creating a RocketMQ instance, you must manually create topics before creating and retrieving messages.

Step 1 Click a RocketMQ instance to go to the instance basic information page.

Step 2 In the navigation pane, choose **Topics**.

Step 3 Click **Create Topic**.

Step 4 Configure the topic name and other parameters by referring to [Table 1-3](#).

Table 1-3 Topic parameters

Parameter	Description
Topic Name	Enter a topic name. Enter Topic01 here.
Permission	Permission of the topic. Select Publish/Subscribe here. Producers can publish messages to this topic and consumers can consume the messages from this topic.
Brokers	Associated brokers. Select broker-0 here and enter 3 queues.
Description	Additional information about the topic. Skip it.

Figure 1-3 Creating a topic

The screenshot shows the 'Create Topic' interface. At the top right is a close button (X). The form has the following elements:

- Topic Name:** A text input field containing 'Topic01' with a clear button (X) on the right.
- Permission:** Three radio buttons: 'Publish/Subscribe' (selected and highlighted in blue), 'Publish', and 'Subscribe'.
- Brokers:** A table-like structure with columns 'Broker', 'Queues', and 'Opera...'. Under 'Broker', there is a dropdown menu showing 'broker-0'. Under 'Queues', there are minus, plus, and number '3' buttons, along with a trash icon.
- Add:** A button with a plus sign and the text 'Add'.
- Description:** A large text area for entering a description, with a character count '0/200' and a refresh icon at the bottom right.

Step 5 Click **OK**.

----End

Step 4: Connect to a RocketMQ Instance to Produce and Consume Messages

Step 1 Go to the `rocketmq-tutorial/bin` directory on the ECS.

```
cd rocketmq-tutorial/bin
```

Step 2 Produce normal messages by the following commands.

The following is a command example:

```
JAVA_OPTS=-Dtls.enable=true sh mqadmin sendMessage -n "10.xxx.xxx.89:8100;10.xxx.xxx.144:8100" -t Topic01 -p "hello rocketmq"
```

- **10.xxx.xxx.89:8100;10.xxx.xxx.144:8100**: the **metadata connection address** of the RocketMQ instance, that is, the connection address in [Step 7](#).
- **Topic01**: name of the topic created in [Step 4](#) for the RocketMQ instance.
- **hello rocketmq**: the produced message content.

```
root@ecs-test:~/rocketmq-tutorial/bin# JAVA_OPTS=-Dtls.enable=true sh mqadmin sendMessage -n "10.xxx.xxx.89:8100;10.xxx.xxx.144:8100" -t Topic01 -p "hello rocketmq"
#Broker Name      #QID    #Send Result      #MsgId
broker-0          0       SEND_OK            7F00000126E35E2DE80C8501EC420000
```

Step 3 Consume normal messages by the following commands.

The following is a command example:

```
JAVA_OPTS=-Dtls.enable=true sh mqadmin consumeMessage -n "10.xxx.xxx.89:8100;10.xxx.xxx.144:8100" -t Topic01
```

```
root@ecs-test:~/rocketmq-tutorial/bin# JAVA_OPTS=-Dtls.enable=true sh mqadmin consumeMessage -n "10.xxx.xxx.89:8100;10.xxx.xxx.144:8100" -t Topic01
MSGID: 7F00000126E35E2DE80C8501EC420000 MessageExt [brokerName=broker-0, queueId=0, storeSize=172, queueOffset=0, sysFlag=0, bornTimestamp=1719402695747, bornHost=/192.168.0.85:41292, storeTimestamp=1719402695689, storeHost=/192.168.0.165:10101, msgId=C0A800A50000277500000000000060F0, commitLogOffset=24816, bodyCRC=1932557065, reconsumeTimes=0, preparedTransactionOffset=0, toString()=Message{topic='Topic01', flag=0, properties={MIN_OFFSET=0, MAX_OFFSET=1, CONSUME_START_TIME=1719402793008, UNIKEY=7F00000126E35E2DE80C8501EC420000, CLUSTER=DmsCluster}, body=[104, 101, 108, 108, 111, 32, 114, 111, 99, 107, 101, 116, 109, 113], transactionId='null'}] BODY: hello rocketmq
```

The content of **BODY** is the consumed message content.

To stop consuming messages, press **Ctrl+C** to exit.

----End

Related Information

- Learn more about [RocketMQ Concepts](#).
- In RocketMQ instance creation, SSL can be disabled if ciphertext is not needed in access between the consumer client and the producer client. In this case, to access the RocketMQ instance, see [Accessing a RocketMQ Instance Without SSL Enabled](#).
- To enable public access to RocketMQ instances, see [Configuring Public Access](#).

2 Common Practices

You can use the common practices provided by DMS for RocketMQ to meet your service requirements.

Table 2-1 Common practices

Practice	Description
Migrating RocketMQ Metadata from Another Cloud or Self-hosted RocketMQ	Migrate RocketMQ services from other vendors or your self-built RocketMQ to Huawei Cloud DMS for RocketMQ.