

Distributed Message Service for RocketMQ

Getting Started

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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 in the same VPC as the instance over a private network 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.

If you already have a Huawei account, skip this step. If you do not have one, see [Signing Up for a HUAWEI ID and Enabling Huawei Cloud Services](#).

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 instances using TCP.
Inbound	TCP	8080		The port is used for private network access to instances using gRPC.
Inbound	TCP	10100		The port is used for private access to 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 a Custom 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.

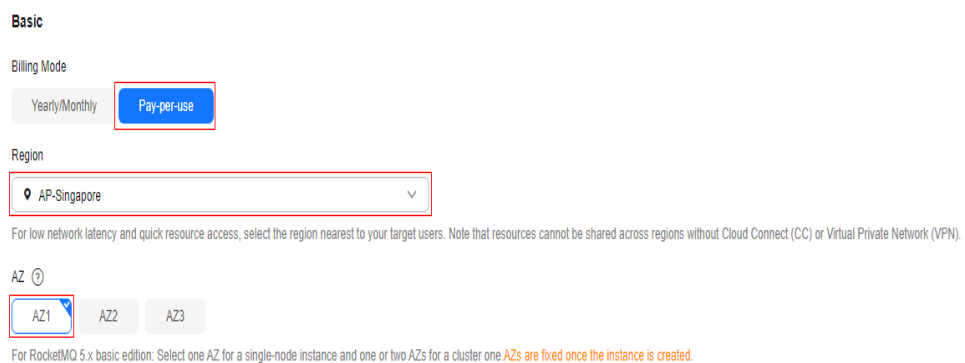
Step 1 Go to the [Buy Instance page](#).

Step 2 On the **Quick Config** tab page, set basic instance configurations shown in [Figure 1-2](#). [Table 1-2](#) lists the configuration details.

Table 1-2 Setting instance basics

Parameter	Description
Billing Mode	Select Pay-per-use , which is a postpaid mode. You can pay after using the service, and will be billed for your usage duration. The fees are calculated in seconds and settled by hour.
Region	DMS for RocketMQ instances in different regions cannot communicate with each other over an intranet. Select a nearest location for low latency and fast access. Select AP-Singapore.
AZ	An AZ is a physical region where resources use independent power supply and networks. AZs are physically isolated but interconnected through an internal network. Select an AZ.

Figure 1-2 Setting instance basics

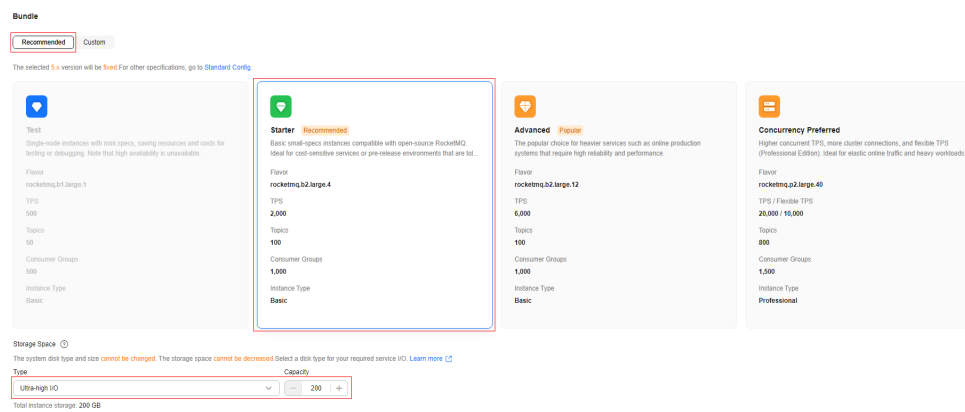


Step 3 Set the instance specifications and storage space, as shown in [Figure 1-3](#). For details, see [Table 1-3](#).

Table 1-3 Setting the instance specifications and storage space

Parameter	Description
Bundle	Choose Recommended > Starter . Basic small-specs instances are compatible with open-source RocketMQ. Ideal for cost-sensitive services or pre-release environments that are tolerant to latency or limited performance.
Storage Space	Select the disk type and specify the disk size as required. After the instance is created, you cannot change the disk type. Select Ultra-high I/O and enter 200 .

Figure 1-3 Setting the instance specifications and storage space

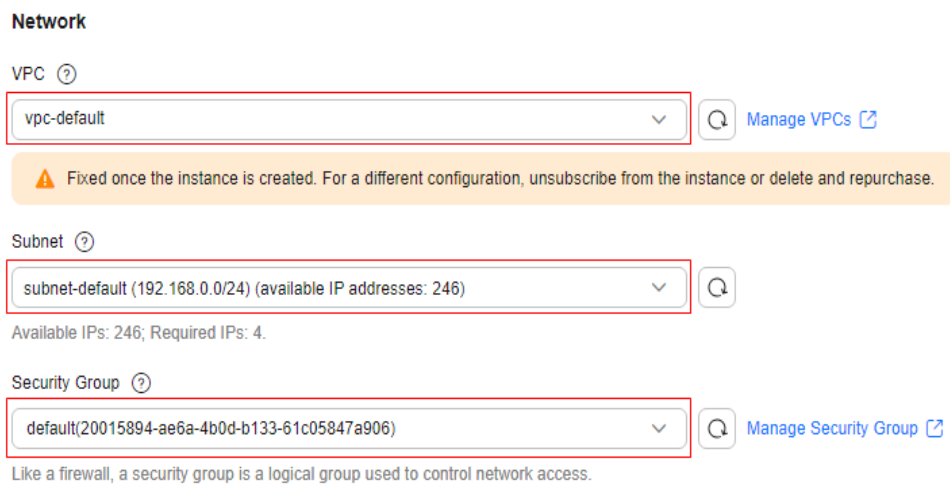


Step 4 Configure the instance network as shown in [Figure 1-4](#). For details, see [Table 1-4](#).

Table 1-4 Configuring the instance network

Parameter	Description
VPC	After the RocketMQ instance is created, its VPC cannot be changed. Select the VPC prepared in Step 3 .
Subnet	After the RocketMQ instance is created, its subnet cannot be changed. Select the subnet prepared in Step 3 .
Security Group	Select the security group prepared in Step 4 .

Figure 1-4 Configuring the instance network

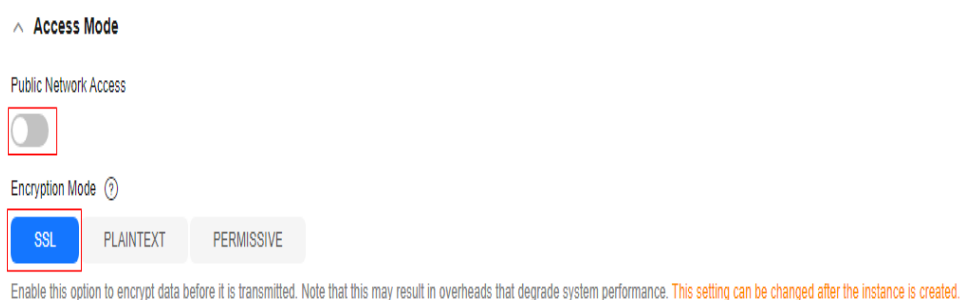


Step 5 Set the instance access mode as shown in [Figure 1-5](#). For details, see [Table 1-5](#).

Table 1-5 Setting the instance access mode

Parameter	Description
Public Network Access	EIPs are required to enable public access. Do not enable it here.
Encryption Mode	Ciphertext access with high security, but lower performance. Select SSL .

Figure 1-5 Setting the instance access mode



Step 6 Configure **Advanced Settings**, as shown in [Figure 1-6](#). For details, see [Table 1-6](#). Retain default settings for other parameters.

Table 1-6 Configuring advanced instance settings

Parameter	Description
Instance Name	You can customize a name that complies with the rules: 4-64 characters; starts with a letter; can contain only letters, digits, hyphens (-), and underscores (_). Enter rocketmq-test .
Enterprise Project	This parameter is for enterprise users. An enterprise project manages project resources in groups. Enterprise projects are logically isolated. Select "default".
ACL	Enabling ACL can manage permissions for message production and consumption. Do not enable it here.
Tags	Identifiers of the RocketMQ instance. Skip it here.
Description	Additional information about the instance. Skip it.

Figure 1-6 Configuring advanced instance settings

^ **Advanced Settings**

Instance Name

rocketmq-test

Enterprise Project ⓘ

default

[View Enterprise Project](#)

ACL

Enable ACL

User management no longer available after ACL is disabled.

Tags

TMS's predefined tags are recommended for adding the same tag to different cloud resources. [Create predefined tags](#)

+ Add Tag

You can add 20 more tags.

Description

Step 7 Click **Confirm**.

Step 8 Confirm the instance information, read and agree to the *Huawei Cloud Customer Agreement*, and submit the request.

Step 9 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 the instance is in the **Creation failed** state, delete it. Then create a new one. If the instance creation fails again, contact customer service.

Step 10 After the instance is created, click its name to go to the instance basic information page.

Step 11 Record the instance connection addresses for later use.

Figure 1-7 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 1-7](#).

Table 1-7 Topic parameters

Parameter	Description
Topic Name	Enter a topic name. Enter Topic01 here.
Message Type	Select the message type. Select Normal here.
Description	Additional information about the topic. Skip it.

Figure 1-8 Creating a topic

Create Topic

★ Topic Name

★ Message Type

Description

0/200 ↗

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 connection address of the RocketMQ instance, that is, the connection address in [Step 11](#).
- **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=C0A800A500002775000000000000060F0, 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, UNIQ_KEY=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 RocketMQ on a Client \(Without SSL\)](#).
- If you need multiple users and grant different topic and consumer group permissions for them, enable ACL and configure ACL users so that permissions are isolated among users. For details, see [Enabling RocketMQ ACL](#) and [Configuring RocketMQ ACL Users](#).
- To enable public access to RocketMQ instances, see [Configuring Public Access for a RocketMQ Instance](#).

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 Instance Metadata from Others	Migrate RocketMQ services from other vendors or your self-built RocketMQ to Huawei Cloud DMS for RocketMQ.
Migrating RabbitMQ Metadata to a RocketMQ Instance	Migrate RabbitMQ metadata to your DMS RocketMQ instance.