

Distributed Message Service for RabbitMQ

FAQs

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Contents

1 Instances.....	1
1.1 What RabbitMQ Version Does DMS for RabbitMQ Use?.....	1
1.2 What SSL Version Does DMS for RabbitMQ Use?.....	1
1.3 Why Can't I View the Subnet and Security Group Information During Instance Creation?.....	1
1.4 How Are Requests Evenly Distributed to Each VM of a Cluster RabbitMQ Instance?.....	1
1.5 Do Queues Inside a Cluster RabbitMQ Instance Have Any Redundancy Backup?.....	1
1.6 Does DMS for RabbitMQ Support Data Persistence? How Do I Perform Scheduled Data Backups?.....	2
1.7 How Do I Obtain the Certificate After SSL Has Been Enabled?.....	2
1.8 Can I Change the SSL Setting of a RabbitMQ Instance?.....	2
1.9 Can RabbitMQ Instances Be Scaled Up?.....	2
1.10 Does RabbitMQ Support Two-Way Authentication?.....	2
1.11 Does DMS for RabbitMQ Support CPU and Memory Upgrades?.....	2
1.12 How Do I Disable the RabbitMQ Management UI?.....	3
1.13 Can I Change the AZ for an Instance?.....	3
1.14 How Do I Obtain the Region ID?.....	4
1.15 Why Can't I Select Two AZs?.....	4
1.16 How to Change Single-node RabbitMQ Instances to Cluster Ones?.....	4
1.17 Can I Change the VPC and Subnet After a RabbitMQ Instance Is Created?.....	4
1.18 Does Specification Modification Affect Services?.....	4
2 Connections.....	7
2.1 How Do I Configure a Security Group?.....	7
2.2 Why Does a Client Fail to Connect to a RabbitMQ Instance?.....	9
2.3 Does DMS for RabbitMQ Support Public Access?.....	10
2.4 Does DMS for RabbitMQ Support Cross-Region Deployment?.....	11
2.5 Do RabbitMQ Instances Support Cross-VPC Access?.....	11
2.6 Do RabbitMQ Instances Support Cross-Subnet Access?.....	11
2.7 What Should I Do If I Fail to Access a RabbitMQ Instance with SSL Encryption?.....	11
2.8 Can I Access a RabbitMQ Instance Using DNAT?.....	11
2.9 Why Can't I Open the Management Web UI?.....	12
2.10 Can a Client Connect to Multiple Virtual Hosts of a RabbitMQ Instance?.....	12
2.11 Why Does a RabbitMQ Cluster Have Only One Connection Address?.....	12
2.12 Do RabbitMQ Instances Support the Ping Command?.....	13
3 Messages.....	14

3.1 Does DMS for RabbitMQ Support Delayed Message Delivery?..... 14

3.2 How Does Message Accumulation Affect Services? What Can I Do?..... 14

3.3 How Long Are Messages Be Retained?..... 16

3.4 Where Is Message Creation Time Set?..... 17

3.5 What Is the Maximum Size of a Message that Can be Created?..... 17

4 Monitoring & Alarm..... 18

4.1 Why Can't I View the Monitoring Data of a RabbitMQ Instance?..... 18

4.2 What Should I Do If the Number of Channels Keeps Rising?..... 20

1 Instances

1.1 What RabbitMQ Version Does DMS for RabbitMQ Use?

On the RabbitMQ server: 3.8.35, 3.12.13, and AMQP-0-9-1

1.2 What SSL Version Does DMS for RabbitMQ Use?

TLS 1.2.

1.3 Why Can't I View the Subnet and Security Group Information During Instance Creation?

This may be because you do not have the permissions of the server administrator and VPC administrator. For details about how to add user permissions, see [Modifying User Group Permissions](#).

1.4 How Are Requests Evenly Distributed to Each VM of a Cluster RabbitMQ Instance?

A cluster uses Linux virtual servers (LVSs) inside for load balancing, which evenly distribute requests to each VM.

1.5 Do Queues Inside a Cluster RabbitMQ Instance Have Any Redundancy Backup?

Whether queue mirroring (that is, redundancy backup) is implemented depends on your service requirements. If you configure mirroring, queue replicas are stored on multiple brokers in a cluster. If a broker is faulty, queue data is synchronized from another normal broker.

1.6 Does DMS for RabbitMQ Support Data Persistence? How Do I Perform Scheduled Data Backups?

DMS for RabbitMQ supports data persistence, which can be configured by connecting to a RabbitMQ instance using a client, or by configuring persistence when creating queues using the RabbitMQ Management interface.

Unfortunately, data backup scheduling and backup operations on the console are not supported.

1.7 How Do I Obtain the Certificate After SSL Has Been Enabled?

When SSL is enabled, DMS for RabbitMQ 3.x.x uses one-way authentication, and does not involve any certificates.

1.8 Can I Change the SSL Setting of a RabbitMQ Instance?

No. Once the instance has been created, you cannot enable or disable SSL. You are advised to enable SSL when creating the instance.

1.9 Can RabbitMQ Instances Be Scaled Up?

- RabbitMQ 3.x.x: Single-node instances support storage space expansion and specification scaling. Cluster instances support storage space and broker quantity expansion, and specification scaling.
- RabbitMQ AMQP-0-9-1 supports storage space and instance specification expansion.

1.10 Does RabbitMQ Support Two-Way Authentication?

No.

1.11 Does DMS for RabbitMQ Support CPU and Memory Upgrades?

RabbitMQ AMQP-0-9-1 supports instance specification scale-out. RabbitMQ 3.x.x supports specification scaling. For more information, see [Modifying RabbitMQ Instance Specifications](#).

1.12 How Do I Disable the RabbitMQ Management UI?

If you want to disable login to the management UI of a RabbitMQ instance, do not allow inbound access over port 15672 (if SSL is disabled for the instance) or 15671 (if SSL is enabled for the instance) in the security group rules.

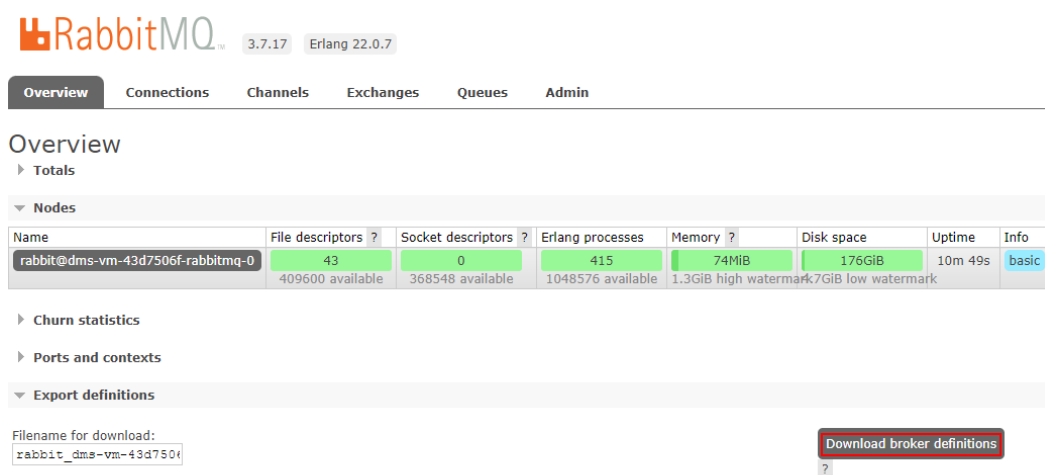
1.13 Can I Change the AZ for an Instance?

No. To use a different AZ, buy another instance and migrate metadata to it.

To migrate RabbitMQ 3.x.x instance metadata, perform the following steps:

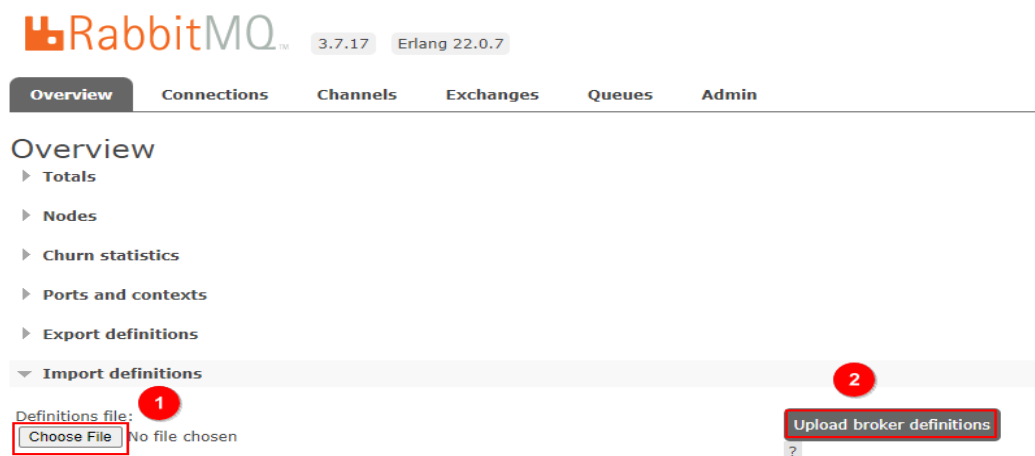
Step 1 Log in to the management UI of the purchased RabbitMQ instance.

Step 2 On the **Overview** tab page, click **Download broker definitions** to export the metadata.

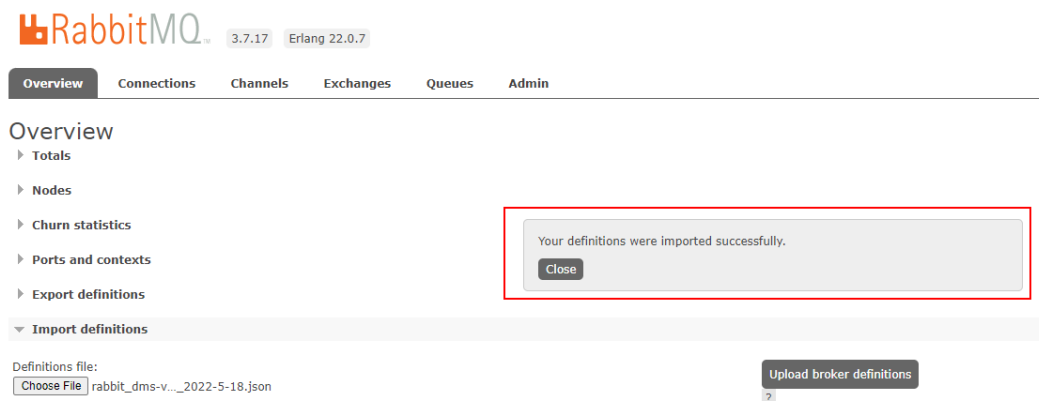


Step 3 Log in to the management UI of the new instance. On the **Overview** tab page, click **Choose File** and select the metadata exported from [Step 2](#).

Step 4 Click **Upload broker definitions** to upload the metadata.



If the upload is successful, the following information is displayed:



----End

1.14 How Do I Obtain the Region ID?

To obtain the region ID, do as follows:

Step 1 Go to the [Regions and Endpoints](#) page.

Step 2 Obtain region IDs from the **Region** column.

----End

1.15 Why Can't I Select Two AZs?

RabbitMQ 3.x.x does not support two AZs. RabbitMQ AMQP-0-9-1 supports two AZs.

Because there are split-brain risks. For higher reliability, you are advised to select three or more AZs when creating a cluster RabbitMQ instance.

1.16 How to Change Single-node RabbitMQ Instances to Cluster Ones?

You cannot perform such a change. To use Cluster RabbitMQ instances, create ones and migrate your services to them.

1.17 Can I Change the VPC and Subnet After a RabbitMQ Instance Is Created?

No.

1.18 Does Specification Modification Affect Services?

Yes. See [Table 1-1](#).

Table 1-1 Impact of specification modification

Modified Object	Impact
Brokers	• During the broker increase, the RabbitMQ workload balance process is restarted, triggering a master/standby switchover and causing services to temporarily stutter. Ensure that your client can auto-reconnect. Modify specifications during off-peak hours. • The change duration depends on the number of added brokers, and is 5–10 minutes per broker. The total change duration = Single change duration × Number of added brokers.
Storage space	• Storage space expansion does not affect services. • You can expand the storage space 20 times. • Available storage space = Actual storage space – Storage space for storing logs – Disk formatting loss For example, if the storage space is expanded to 700 GB, the storage space for storing logs is 100 GB, and the disk formatting loss is 7 GB, then the available storage space after capacity expansion will be 593 GB. • The total change duration is within 5 minutes.

Modified Object	Impact
Broker/ Instance flavor	• For single-node RabbitMQ 3.x.x instances, nodes are restarted and services may temporarily stutter in minutes during the modification. Ensure that your client can auto-reconnect. Modify specifications during off-peak hours. • For cluster RabbitMQ 3.x.x instances not configured with mirrored/quorum queues, nodes are restarted in sequence and services may stutter in minutes during the modification. Ensure that your client can auto-reconnect. Modify specifications during off-peak hours. • For cluster RabbitMQ 3.x.x instances not configured with mirrored/quorum queues, nodes are restarted in sequence and services may stutter for several seconds during the modification. Ensure that your client can auto-reconnect. Modify specifications during off-peak hours. • During the modification of cluster RabbitMQ 3.x.x instances, connections to the changed nodes will be switched to other nodes, posing overload risks (for example, connections excess or memory high watermark) on them. You are advised to use them within the instance specifications. For more information, see Specifications. • RabbitMQ AMQP-0-9-1: For single-node and cluster instances, intermittent disconnections may occur for several seconds during the modification. Ensure that your client can auto-reconnect. Modify specifications during off-peak hours. • Persistent exchanges, queues, and messages are required. Otherwise, messages may be lost after node restarts. For details, see Configuring RabbitMQ Persistence. • Brokers will be restarted in sequence during an instance change, which depends on the number of brokers. The change duration per single broker is 5–10 minutes. The total change duration = Single change duration × Number of brokers.

The following example shows how to configure message retry on a Java client.

```
ConnectionFactory connectionFactory = new ConnectionFactory();  
//Set a service address.  
connectionFactory.setHost("localhost");  
//Set a port.  
connectionFactory.setPort(5672);  
Auto retry:  
connectionFactory.setAutomaticRecoveryEnabled(true);  
connectionFactory.setNetworkRecoveryInterval(5);  
connectionFactory.setTopologyRecoveryEnabled(true);
```

2 Connections

2.1 How Do I Configure a Security Group?

To access a RabbitMQ instance within a VPC or over public networks, configure the security group rules as follows.

- Intra-VPC Access
To access a RabbitMQ instance, you must deploy your client on an ECS in the same VPC as the instance.
In addition, before you can access the instance through your client, you must configure correct rules for the security groups of both the ECS and RabbitMQ instance.
 - a. You are advised to configure the same security group for the ECS and RabbitMQ instance. After a security group is created, network access in the group is not restricted by default.
 - b. If different security groups are configured, you may need to refer to the following configurations:

 NOTE

- Assume that security groups **sg-53d4** and **Default_All** are configured respectively for your ECS and RabbitMQ instance.
- You can specify a security group or IP address as the remote end in the following rules.

Add the following security group rule to allow the ECS to access the RabbitMQ instance.

Figure 2-1 Configuring security group rules for the ECS

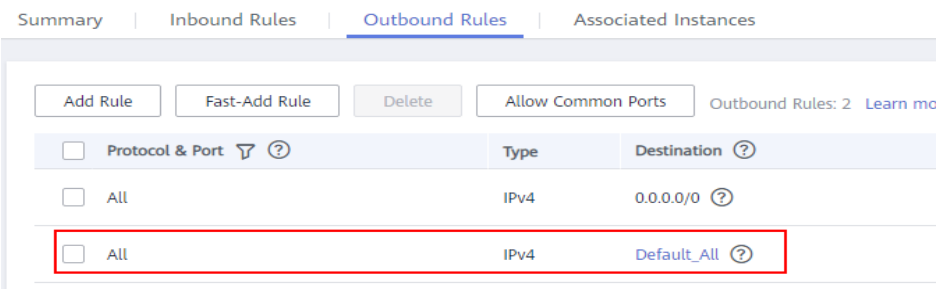


Table 2-1 Security group rule

Direction	Protocol & Port	Destination
Outbound	All	Default_All

To ensure that your client can access the RabbitMQ instance, add the following rule to the security group configured for the RabbitMQ instance.

Figure 2-2 Configuring security group for the RabbitMQ instance

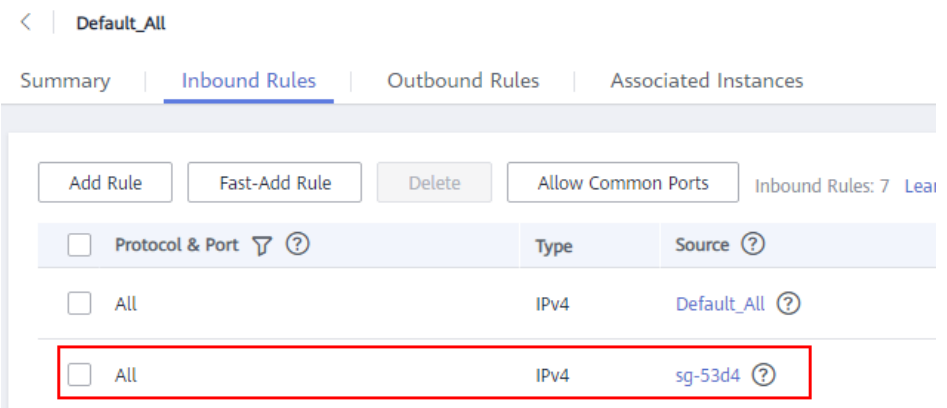


Table 2-2 Security group rule

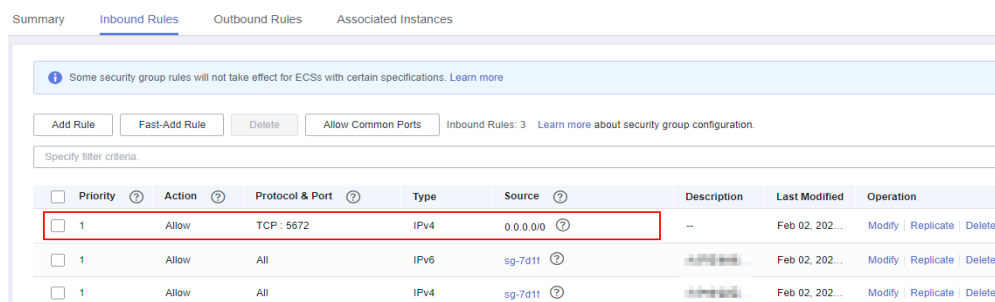
Direction	Protocol & Port	Source
Inbound	All	sg-53d4

- Public access:
To ensure that your client can access the RabbitMQ instance, add the following rule to the security group configured for the RabbitMQ instance.

Table 2-3 Security group rule

Direction	Protocol & Port	Source
Inbound	TCP:5672	IP address or IP address group of the RabbitMQ client

Figure 2-3 show the rules.

Figure 2-3 Rule 1 for the security group

2.2 Why Does a Client Fail to Connect to a RabbitMQ Instance?

This problem occurs when the connection address, port number, username, password, or virtual host name is incorrect, or when there is no virtual host or the maximum allowed number of connections is exceeded.

Possible Cause 1: Incorrect Connection Address

Error message displayed when an incorrect connection address is used during intra-VPC access:

```
[root@ecs-test RabbitMQ-Tutorial]# java -cp ./rabbitmq-tutorial.jar Send 192.168.125.110 5672 user *****
Exception in thread "main" java.net.NoRouteToHostException: No route to host (Host unreachable)
    at java.net.PlainSocketImpl.socketConnect(Native Method)
    at java.net.AbstractPlainSocketImpl.doConnect(AbstractPlainSocketImpl.java:350)
    at java.net.AbstractPlainSocketImpl.connectToAddress(AbstractPlainSocketImpl.java:206)
```

Error message displayed when an incorrect connection address is used during public access:

```
[root@ecs-test RabbitMQ-Tutorial]# java -cp ./rabbitmq-tutorial.jar Send 139.xxx.178 5672 user *****
Exception in thread "main" java.net.SocketTimeoutException: connect timed out
    at java.net.PlainSocketImpl.socketConnect(Native Method)
    at java.net.AbstractPlainSocketImpl.doConnect(AbstractPlainSocketImpl.java:350)
    at java.net.AbstractPlainSocketImpl.connectToAddress(AbstractPlainSocketImpl.java:206)
```

Solution: On the **Basic Information** page of the RabbitMQ console, obtain the private or public network connection address and modify the connection address in the code.

Possible Cause 2: Incorrect Port

Error message displayed when an incorrect port is used during intra-VPC access:

```
[root@ecs-test RabbitMQ-Tutorial]# java -cp ./rabbitmq-tutorial.jar Send 192.168.125.111 5673 user *****
Exception in thread "main" java.net.ConnectException: Connection refused (Connection refused)
    at java.net.PlainSocketImpl.socketConnect(Native Method)
    at java.net.AbstractPlainSocketImpl.doConnect(AbstractPlainSocketImpl.java:350)
    at java.net.AbstractPlainSocketImpl.connectToAddress(AbstractPlainSocketImpl.java:206)
```

Error message displayed when an incorrect port is used during public access:

```
[root@ecs-test RabbitMQ-Tutorial]# java -cp ./rabbitmq-tutorial.jar Send 139.xxx.179 5673 user *****
Exception in thread "main" java.net.SocketTimeoutException: connect timed out
    at java.net.PlainSocketImpl.socketConnect(Native Method)
    at java.net.AbstractPlainSocketImpl.doConnect(AbstractPlainSocketImpl.java:350)
    at java.net.AbstractPlainSocketImpl.connectToAddress(AbstractPlainSocketImpl.java:206)
```

Solution: Change the port number.

Possible Cause 3: Incorrect Username or Password

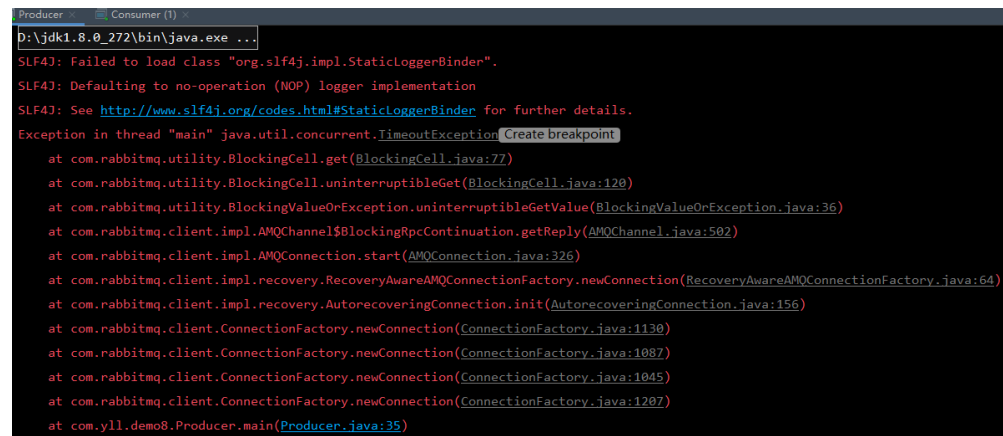
The error information is as follows:

```
[root@ecs-test RabbitMQ-Tutorial]# java -cp ./rabbitmq-tutorial.jar Send 192.168.125.111 5672 user *****
Exception in thread "main" com.rabbitmq.client.AuthenticationFailureException: ACCESS_REFUSED - Login
was refused using authentication mechanism PLAIN. For details
see the broker logfile.
at com.rabbitmq.client.impl.AMQConnection.start(AMQConnection.java:351)
at
com.rabbitmq.client.impl.recovery.RecoveryAwareAMQConnectionFactory.newConnection(RecoveryAwareAMQ
ConnectionFactory.java:64)
```

Solution: Change the username or password. If you forget your password, [reset it](#).

Possible Cause 4: Maximum Number of Connections Exceeded

The error information is as follows:



```
Producer - Consumer (1)
D:\jdk1.8.0_272\bin\java.exe ...
SLF4J: Failed to load class "org.slf4j.impl.StaticLoggerBinder".
SLF4J: Defaulting to no-operation (NOP) logger implementation
SLF4J: See http://www.slf4j.org/codes.html#StaticLoggerBinder for further details.
Exception in thread "main" java.util.concurrent.TimeoutException Create breakpoint
at com.rabbitmq.utility.BlockingCell.get(BlockingCell.java:77)
at com.rabbitmq.utility.BlockingCell.uninterruptibleGet(BlockingCell.java:120)
at com.rabbitmq.utility.BlockingValueOrException.uninterruptibleGetValue(BlockingValueOrException.java:36)
at com.rabbitmq.client.impl.AMQChannel$BlockingRpcContinuation.getReply(AMQChannel.java:502)
at com.rabbitmq.client.impl.AMQConnection.start(AMQConnection.java:326)
at com.rabbitmq.client.impl.recovery.RecoveryAwareAMQConnectionFactory.newConnection(RecoveryAwareAMQConnectionFactory.java:64)
at com.rabbitmq.client.impl.recovery.AutorecoveringConnection.init(AutorecoveringConnection.java:156)
at com.rabbitmq.client.ConnectionFactory.newConnection(ConnectionFactory.java:1130)
at com.rabbitmq.client.ConnectionFactory.newConnection(ConnectionFactory.java:1087)
at com.rabbitmq.client.ConnectionFactory.newConnection(ConnectionFactory.java:1045)
at com.rabbitmq.client.ConnectionFactory.newConnection(ConnectionFactory.java:1207)
at com.yll.demo8.Producer.main(Producer.java:35)
```

Solution: Close unused connections.

Possible Cause 5: No Virtual Host Available or Incorrect Virtual Host Name

The error information is as follows:

```
Couldn't log in: server connection error 530, message: NOT_ALLOWED - vhost /localdev/ not found
```

Solutions:

- If no virtual host is available, go to the **Virtual Hosts** page of the RabbitMQ console and create one.
- If the virtual host name is incorrect, modify the connection URL and configuration file according to the virtual host name displayed on the **Virtual Hosts** page of the RabbitMQ console.

2.3 Does DMS for RabbitMQ Support Public Access?

For RabbitMQ 3.x.x, yes. For RabbitMQ AMQP-0-9-1, no.

RabbitMQ 3.x.x: You can enable public access on the instance creation page when creating the instance, or on the instance details page after the instance has been created.

2.4 Does DMS for RabbitMQ Support Cross-Region Deployment?

No. Currently, only cross-AZ deployment is supported. Cross-region deployment is not supported.

2.5 Do RabbitMQ Instances Support Cross-VPC Access?

Yes. RabbitMQ instances support cross-VPC access. By establishing a peering connection between two VPCs, ECSs in one VPC can access instances in the other VPC.

For details about VPC peering connections, see [VPC Peering Connection](#).

2.6 Do RabbitMQ Instances Support Cross-Subnet Access?

Yes.

If the client and the instance are in the same VPC, cross-subnet access is supported. By default, subnets in the same VPC can communicate with each other.

2.7 What Should I Do If I Fail to Access a RabbitMQ Instance with SSL Encryption?

1. Check the inbound rule of the security group. You must allow access using port 5671 (with SSL encryption) or 5672 (without SSL encryption).

2. Configure one-way SSL authentication as follows:

```
ConnectionFactory factory = new ConnectionFactory();
factory.setHost(host);
factory.setPort(port);
factory.setUsername(user);
factory.setPassword(password);
factory.useSslProtocol();
Connection connection = factory.newConnection();
Channel channel = connection.createChannel();
```

2.8 Can I Access a RabbitMQ Instance Using DNAT?

No. You can only use a proxy, VPN, Direct Connect, FullNAT, or reverse proxy to access a RabbitMQ instance.

2.9 Why Can't I Open the Management Web UI?

Possible cause: The security group of the instance is incorrectly configured.

Solution: Do as follows to reconfigure the security group.

1. In the **Network** section on the **Basic Information** tab page, click the name of the security group.
2. Click the **Inbound Rules** tab to view the inbound rules of the security group.
 - Allow access to port 15672 if SSL is disabled.
 - Allow access to port 15671 if SSL is enabled.

2.10 Can a Client Connect to Multiple Virtual Hosts of a RabbitMQ Instance?

Yes.

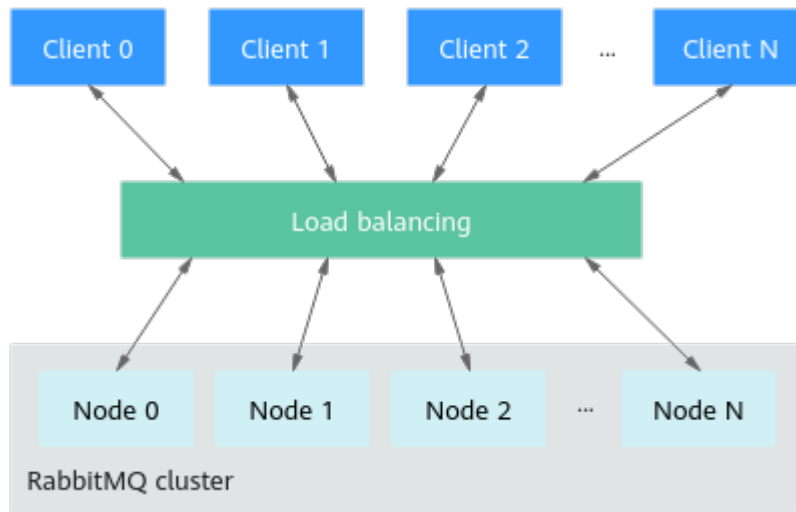
Virtual hosting is a basic feature of RabbitMQ. Each virtual host (vhost) serves as an independent RabbitMQ server. Different vhosts have different data directories but share the same process. Connecting to multiple vhosts does not differ much in performance from connecting to one vhost. The only difference is that the RabbitMQ process has more objects. You are advised to test the performance by using the service model.

For details, see [Virtual Hosts](#) on the official RabbitMQ website.

2.11 Why Does a RabbitMQ Cluster Have Only One Connection Address?

The connection address of a cluster RabbitMQ instance is actually the LVS node address (load balancing address) of the instance. When clients connect to the instance, the load balancer distributes the client request to each node of the cluster instance.

Figure 2-4 Connections



2.12 Do RabbitMQ Instances Support the Ping Command?

Certain RabbitMQ instances do. Specifically:

- Single-node instances support the **ping** command with both private and public connection addresses.
- Cluster instances only support the **ping** command with private connection addresses.

3 Messages

3.1 Does DMS for RabbitMQ Support Delayed Message Delivery?

RabbitMQ 3.x.x has discontinued the delayed message plug-in. You are advised to use scheduled messages of RabbitMQ AMQP-0-9-1 or scheduled/delayed messages of DMS for RocketMQ.

3.2 How Does Message Accumulation Affect Services? What Can I Do?

How Does Message Accumulation Affect Services?

Excessive message accumulation in a queue may cause memory or disk alarms. As a result, all connections will be blocked, other queues cannot be used, and the overall service quality deteriorates.

Causes of Message Accumulation

1. Messages are published much faster than they are retrieved. For example, consumers process messages slowly in a certain period. It may take only 3 seconds to send a message, but 1 minute to retrieve the message. If 20 messages are sent per minute, and only one message is processed by consumers, a large number of messages will be stacked in the queue.
2. Consumers are abnormal and cannot retrieve messages, while publishers keep sending messages.
3. Consumers are normal, but their subscriptions to queues are abnormal.
4. Consumers and their subscriptions to queues are normal, but the code logic of consumers is time-consuming, which reduces the consumption capability and results in a situation similar to [1](#).

Solutions to Message Accumulation

1. If messages are published much faster than they are retrieved, solve the problem in the following ways:
 - Add consumers to accelerate message retrieval.
 - Use publisher confirmation and monitor the publishing rate and duration on the publishing end. When the duration increases significantly, apply flow control.
2. If consumers are abnormal, check whether the consumer logic is correct and optimize the program.
3. Check whether consumers' subscriptions to queues are normal.
4. If the code logic of consumers is time-consuming, set expiration time on messages using either of the following methods:

- Set the value of **expiration** in **properties**. The unit is ms.

```
AMQP.BasicProperties properties = new AMQP.BasicProperties().builder()
    .deliveryMode(2)
    .contentEncoding("UTF-8")
    .expiration("10000")
    .build();
```

```
String message = "hello rabbitmq";
channel.basicPublish(exchange, routingKey, properties,
    message.getBytes(StandardCharsets.UTF_8));
```

- Set the value of **expiration** on the management UI. The unit is ms.
[Log in to the management UI](#). On the **Exchanges** tab page, click an exchange name to view its details. In the **Publish message** area, set **expiration**, as shown in the following figure.



Overview Connections Channels **Exchanges** Queues Admin

Exchange: amq.topic

► Overview

► Bindings

▼ Publish message

Routing key:

Delivery mode: 1 - Non-persistent ▼

Headers: ? = String ▼

Properties: ? **expiration** = 1000

Payload:

Publish message

- Set the queue expiration time by using the **x-message-ttl** parameter. The expiration time starts when messages enter the queue. When the expiration time elapses, the messages are automatically deleted.
- Set the value of **x-message-ttl** in the client code. The unit is ms.

```
Map<String, Object> arguments = new HashMap<String, Object>();
arguments.put("x-message-ttl", 10000);
channel.queueDeclare(queueName, true, false, false, arguments);
```
- Set the value of **x-message-ttl** when creating a queue on the management UI. The unit is ms.

[Log in to the management UI](#). On the **Exchanges** tab page, create a queue and set the value of **x-message-ttl**, as shown in the following figure.

The screenshot shows the RabbitMQ Management UI. At the top, there's a header with the RabbitMQ logo and versions 3.7.17 and Erlang 22.0.7. Below the header is a navigation bar with tabs: Overview, Connections, Channels, Exchanges (selected), Queues, and Admin. The main content area is titled 'Exchanges' and shows a list of all exchanges (7). The table lists various exchange types like direct, fanout, headers, and topic, each with a 'D' icon in the Features column. Below the table is a form to 'Add a new exchange'. The form includes fields for Name, Type (fanout), Durability (Durable), Auto delete (No), and Internal (No). The Arguments section shows 'x-message-ttl' set to '10000' with a unit dropdown set to 'Number'.

Name	Type	Features	Message rate in	Message rate out	+/-
(AMQP default)	direct	D			
amq.direct	direct	D			
amq.fanout	fanout	D			
amq.headers	headers	D			
amq.match	headers	D			
amq.rabbitmq.trace	topic	D I			
amq.topic	topic	D			

▼ Add a new exchange

Name:

Type:

Durability:

Auto delete:

Internal:

Arguments:

x-message-ttl	=	10000	Number
	=		String

Add Alternate exchange ?

3.3 How Long Are Messages Be Retained?

RabbitMQ 3.x.x

Normally, messages are retained until they are consumed. But if a message has a time to live (TTL), it will be retained until expiry.

RabbitMQ AMQP-0-9-1

If a message has a time to live (TTL), it will be deleted or stored to a dead letter queue after expiry. A TTL is 48 hours by default.

3.4 Where Is Message Creation Time Set?

The message creation time is set by the producer during message production.

3.5 What Is the Maximum Size of a Message that Can be Created?

- RabbitMQ 3.x.x: 50 MB. Larger messages will fail to be produced.
- RabbitMQ AMQP-0-9-1: 4 MB. Larger messages will fail to be produced.

4 Monitoring & Alarm

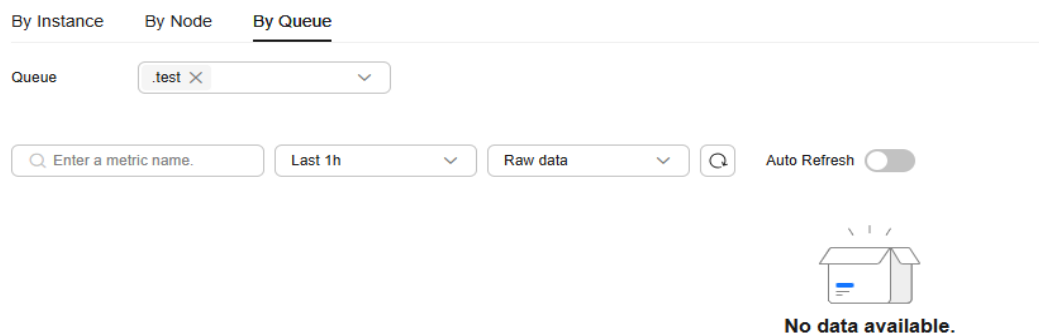
4.1 Why Can't I View the Monitoring Data of a RabbitMQ Instance?

RabbitMQ 3.x.x Instance

Monitoring data may fail to be displayed if the queue name or virtual host name of a RabbitMQ 3.x.x instance meets any of the following conditions:

- The queue name starts with a special character, for example, a dot (.). You are advised to delete queues whose names contain special characters.
- The virtual host name starts with a special character, for example, a dot (.). You are advised to delete virtual hosts whose names contain special characters. The queue name of a RabbitMQ 3.x.x instance is displayed in two ways on the monitoring page. The name of a queue is displayed if the queue is on the default virtual host. If a queue is not on the default virtual host, the queue name is displayed in the format "*Name of the virtual host where the queue is*__*Queue name*". For example, if the **test01** queue is on **Vhost-13142708**, the queue name displayed on the monitoring page is **Vhost-13142708__test01**.

Figure 4-1 No monitoring data available



When the queue or virtual host name of a RabbitMQ 3.x.x instance contains special characters, such as %, |, and /, the special characters are displayed as underscores (_) on the monitoring page. For example, the name of queue Queue.1%|2_3/ in the default virtual host is displayed as **Queue.1_1_2_3_** on the monitoring page.

Figure 4-2 Queue name on the virtual host details page

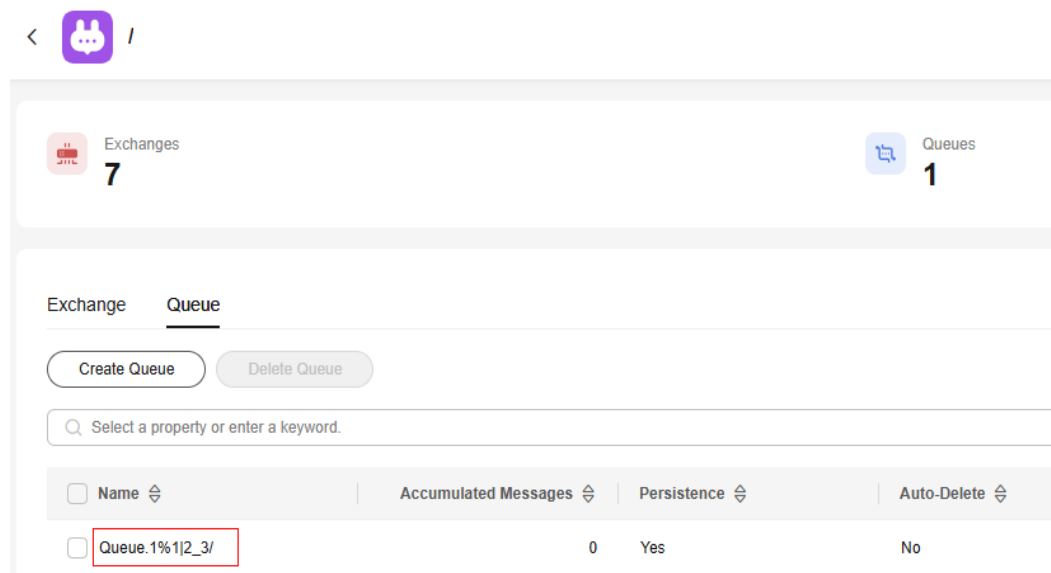
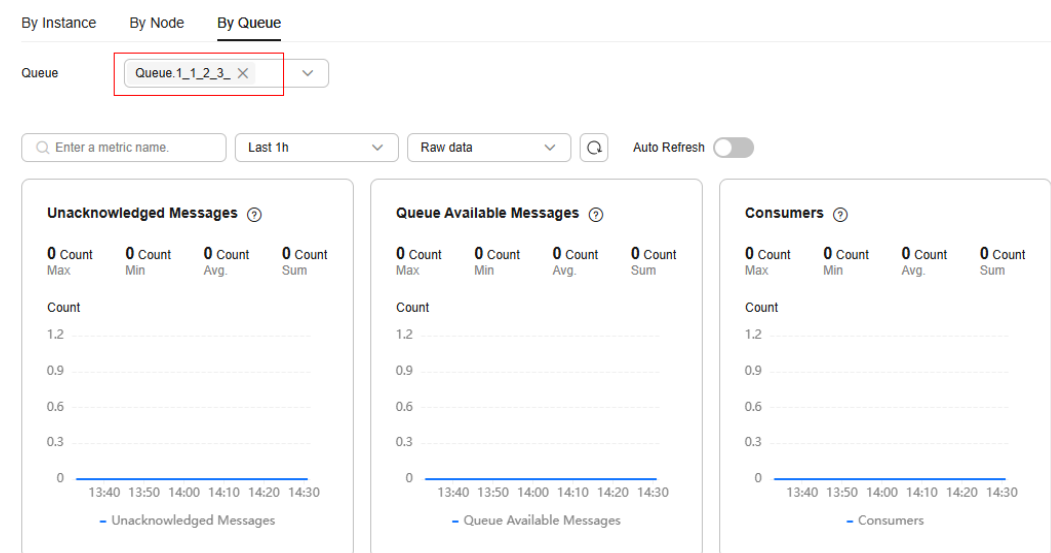


Figure 4-3 Queue name on the monitoring page



RabbitMQ AMQP-0-9-1 Instance

When the Queue, virtual host, or exchange name of a RabbitMQ AMQP-0-9-1 instance contains special characters, such as %, |, /, and ., the special characters are displayed as underscores (_) on the monitoring page. For example, the name of queue Queue.1%|2_3/ is displayed as **Queue_1_1_2_3_** on the monitoring page.

Figure 4-4 Queue name on the virtual host details page

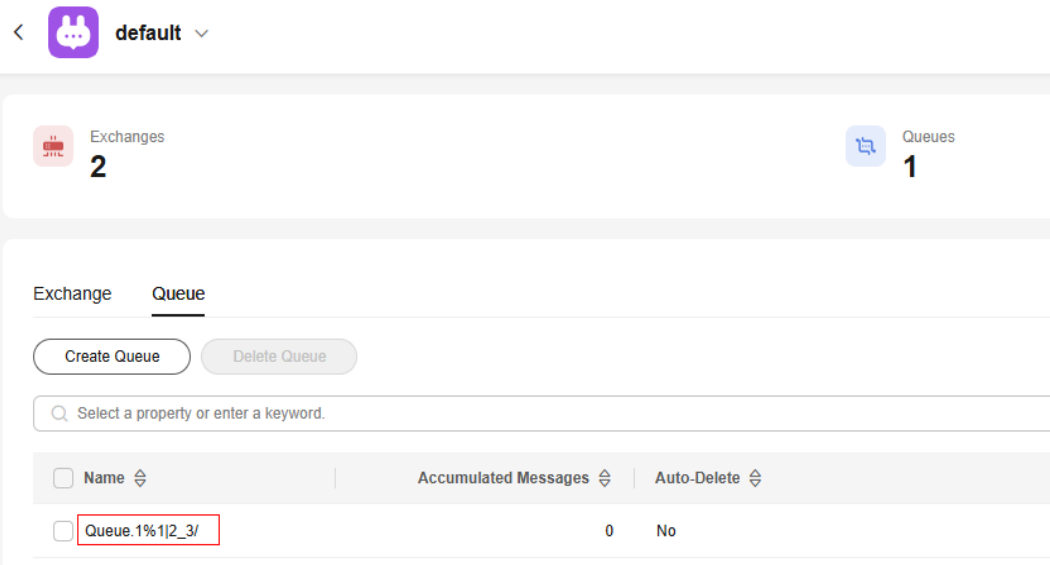
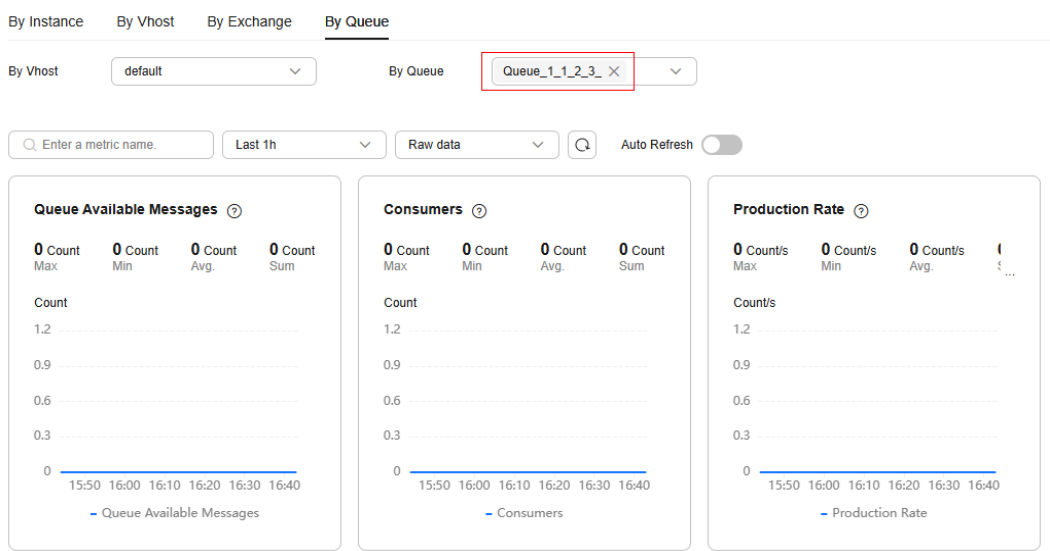


Figure 4-5 Queue name on the monitoring page



4.2 What Should I Do If the Number of Channels Keeps Rising?

A maximum of 2,047 channels are allowed in each RabbitMQ 3.x.x connection. A maximum of 2,000 channels are allowed in each RabbitMQ AMQP-0-9-1 connection. If such limits are exceeded, new channels cannot be created. Check if unused resources are not released.