

Alibaba Cloud MQTT

Quick Start

Issue: 20190914

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Generic conventions

Table -1: Style conventions

Style	Description	Example
	This warning information 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.
	This warning information 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 restore business.
	This indicates warning information, supplementary instructions, and other content that the user must understand.	 Notice: Take the necessary precautions to save exported data containing sensitive information.
	This indicates supplemental instructions, best practices, tips, and other content that is good to know for the user.	 Note: You can use Ctrl + A to select all files.
>	Multi-level menu cascade.	Settings > Network > Set network type
Bold	It is used for buttons, menus, page names, and other UI elements.	Click OK .
<code>Courier font</code>	It is used for commands.	Run the <code>cd / d C :/ windows</code> command to enter the Windows system folder.
<i>Italics</i>	It is used for parameters and variables.	<code>bae log list --instanceid Instance_ID</code>
[] or [a b]	It indicates that it is an optional value, and only one item can be selected.	<code>ipconfig [-all -t]</code>

Style	Description	Example
<code>{}</code> or <code>{a b}</code>	It indicates that it is a required value, and only one item can be selected.	<code>swich {stand slave}</code>

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1 Quick start guide

This topic provides the quick start guide on how to use Message Queue for MQTT to send and receive messages through the MQTT protocol that is supported by default.

If you want to access through a non-MQTT protocol, such as China New Energy Vehicle National Standards or China National GB-808 Standards, you must purchase Message Queue for MQTT Enterprise Platinum Edition. We provide the documentation and Customer Services for the Enterprise Platinum Edition in separate channels.

Background

Message Queue for MQTT must be used with backend MQ.

- An Message Queue for MQTT instance is a stateless gateway instance that is used to maintain client connections and to forward messages in mobile Internet and IoT scenarios. It does not support message data persistence. Therefore, you must configure a message storage instance for message storage and message data persistence.
- Currently, each Message Queue for MQTT instance (gateway instance) must be bound to a storage instance (MQ instance). Non-persistent usage (in direct push mode, where messages are not persistent) will be available in the future.
- Currently, Message Queue for MQTT only supports MQ instances for backend message storage. Message Queue for MQTT will support other types of storage instances in the future, such as Kafka and AMQP (RabbitMQ).
- Currently, you can create a limited number of Message Queue for MQTT instances in a region, and one Message Queue for MQTT instance can be bound to only one MQ instance. For the maximum number of instances that can be created in one region, see the console prompts.

When using Message Queue for MQTT, note the following network access restrictions:

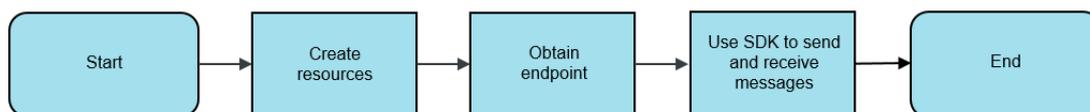
Only the topics and group IDs on the same instance in the same region can be interconnected. For example, if a topic is created on Instance A in China (Beijing), then the topic can be accessed only by the Message Queue for MQTT client

(hereinafter referred to as the client) with the group ID that is created on Instance A in China (Beijing).

Process

Figure 1-1: Quick start process shows how to send and receive messages through Message Queue for MQTT.

Figure 1-1: Quick start process



As shown in **Figure 1-1: Quick start process**, you must create resources before sending and receiving messages on a client. Otherwise, the Message Queue for MQTT broker may deny the connections with invalid client IDs.

Prerequisites

- You have activated the parent MQ service. If not, [activate](#) this service.
- You have an Alibaba Cloud AccessKey. For more information, see [#unique_4](#).

Step 1: Create resources

The resources include:

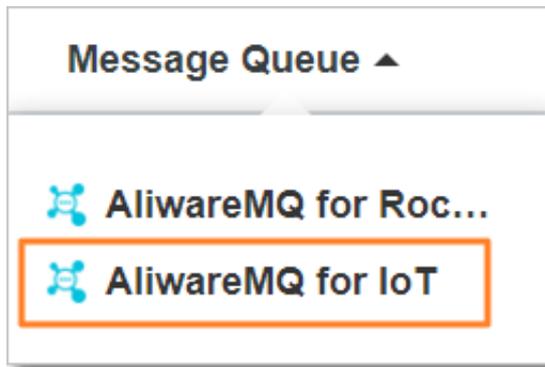
- Message Queue for MQTT Instance (for maintaining client connections and forwarding messages)
- Message storage instance (for message storage, and only MQ instances are currently supported)
- Topic (level-1 topic for message sending and subscription, that is, the parent topic)
- Group ID (for client identification)

1. Select a region.

Determine the region in which the resources are to be created based on your service needs.

- a. Log on to the [MQ console](#).
- b. In the upper-left corner of the console, click the drop-down arrow on the right of the product name to switch Message Queue to AliwareMQ for IoT.

Figure 1-2: Switch services



- c. In the top navigation bar, select a region in which you want to create the resources, such as China (Beijing).

2. Create an Message Queue for MQTT instance.

First, you must create an Message Queue for MQTT instance. Note the following before creating an instance:

- You can create a limited number of instances in each region. For more information, see the console prompts.
- Estimate the TPS, number of connections, and number of subscriptions based on the service scenario. Select the appropriate instance specifications. For subscription instances, if you select an excessively small specification, rate limiting and throttling may be triggered and your services may be affected.
- Pay-As-You-Go instances also have a threshold that is set by default. If the

threshold is exceeded, you need to submit a ticket for allocation. For the specific thresholds, see the default alarm levels of the instance.

- A Standard Edition instance takes effect upon purchase. An Enterprise Platinum Edition instance takes time to deploy and you will be notified when the instance is available.

Follow these steps to create an Message Queue for MQTT instance:

- a. In the left-side navigation pane, click Overview.
- b. On the Instances page, click Create Instance in the upper-right corner.
- c. In the Create Instance dialog box, select an Message Queue for MQTT instance version and go to the Purchase page. Select specifications as needed and complete the purchase as prompted.

Return to the Overview page of the console, where you should be able to see the purchased (created) Message Queue for MQTT instance.

3. Create and bind a data storage instance.

After creating an Message Queue for MQTT instance, you must create an instance for storing topics and messages and bind the message storage instance to the

Message Queue for MQTT instance. (Currently, only MQ instances are supported for data storage.)

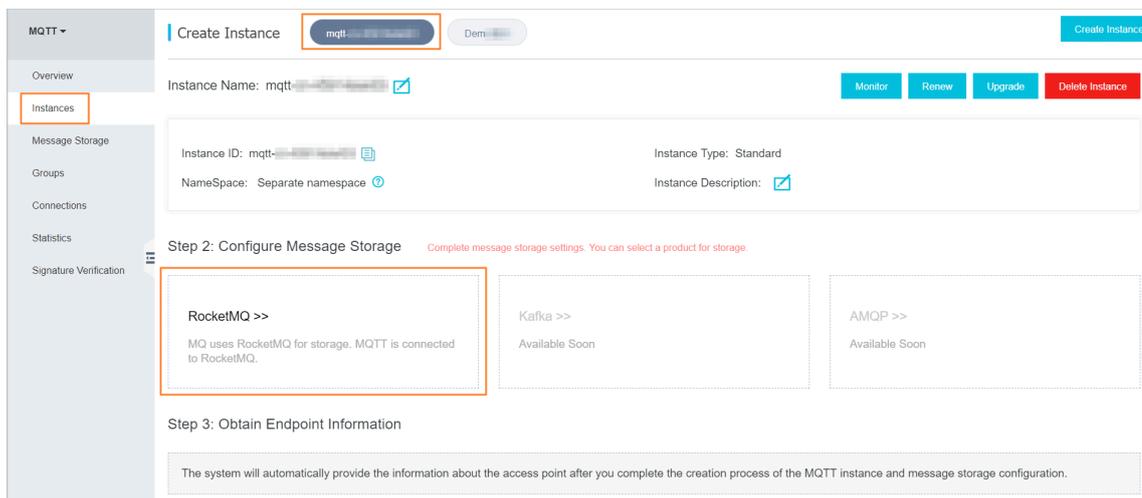
The binding has the following limits:

- An Message Queue for MQTT instance can be bound only once, and its bound message storage instance cannot be changed once the binding is completed.
- Each storage instance can be bound to only one Message Queue for MQTT instance. One-to-multiple binding is not supported.
- The two instances to be bound must have the same namespace type. That is, an instance with an exclusive namespace cannot be bound to an instance with a non-exclusive namespace.
- If you delete the storage instance bound to an Message Queue for MQTT instance in advance, the Message Queue for MQTT instance may be unavailable.

Follow these steps to create and bind a storage instance:

- a. In the left-side navigation pane, click Instances. On the Instances tab page that appears by default, select the created Message Queue for MQTT instance.
- b. In the Step 2: Configure Message Storage section, click the MQ >> box.

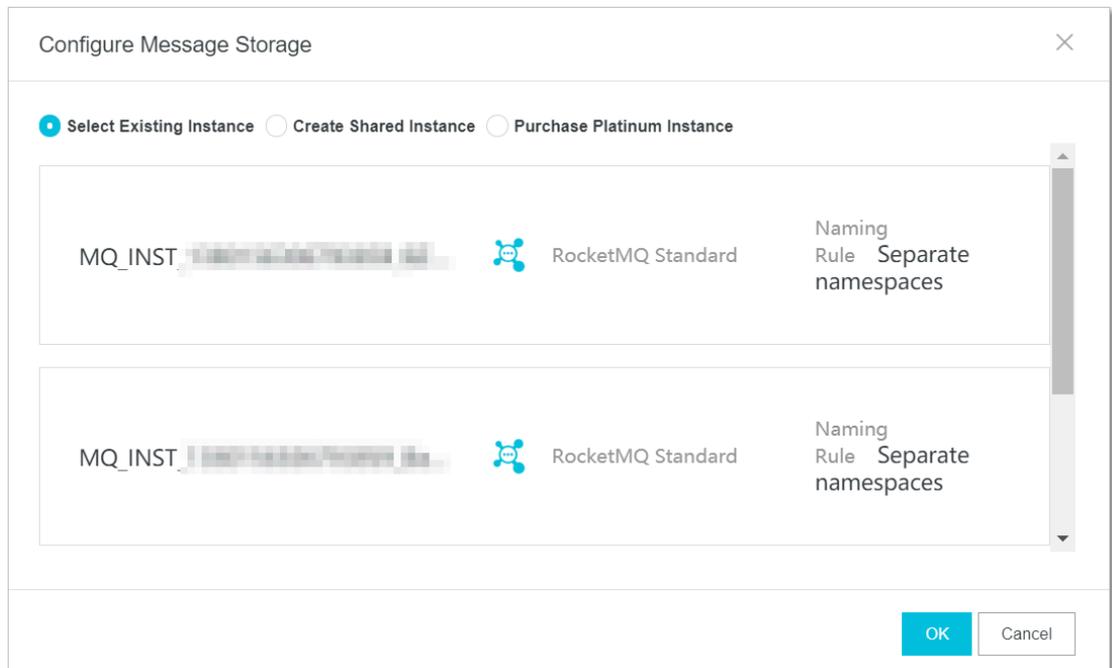
Figure 1-3: Bind an instance



- c. In the Configure Message Storage dialog box, set the parameters based on the instance and your requirements.

- If you have purchased a MQ instance, select **Select Existing Instance**. A list of message storage instances that you have created (purchased) is displayed. Click an existing MQ instance and then **OK** to complete the binding.

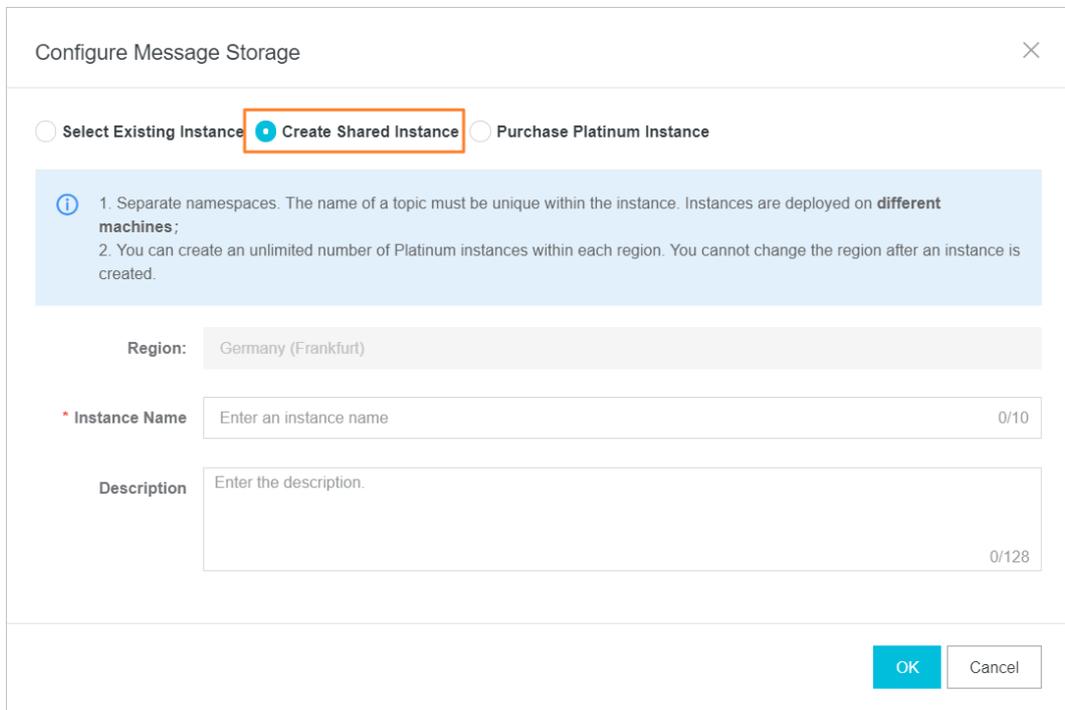
Figure 1-4: Select an existing instance



- If you have not purchased a MQ instance, do as follows:

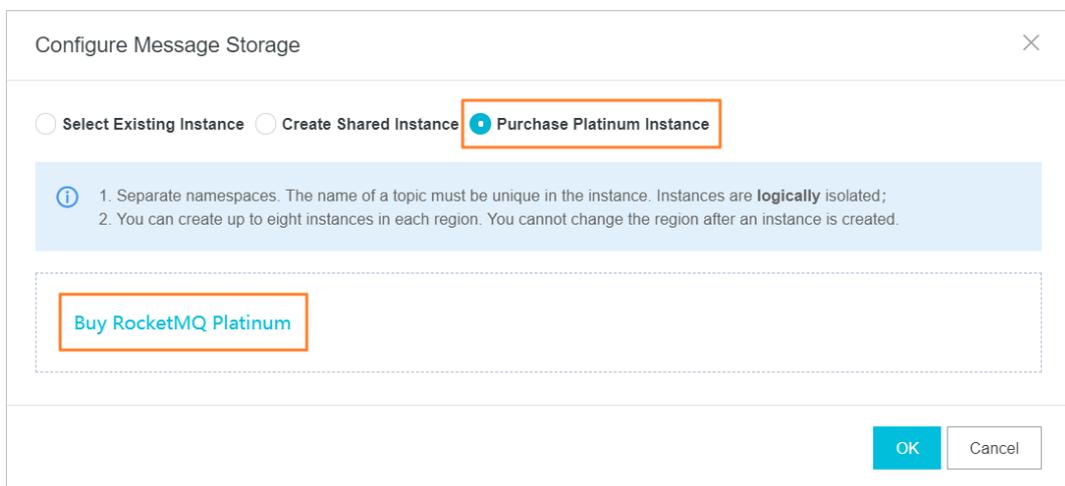
- Click **Create Shared Instance** to create a MQ Standard Edition instance. Enter an instance name and description. Then, click **OK**.

Figure 1-5: Create a shared instance



- Click **Purchase Platinum Instance** to create a MQ Platinum Edition instance. Click **Buy MQ Platinum** and follow the prompts on the page to complete the purchase (creation).

Figure 1-6: Create a Platinum Edition instance



After an instance is created, repeat [Step i](#) and [Step ii](#), select Select Existing Instance, click the created MQ instance, and click OK to complete the binding.

4. Create a Topic.

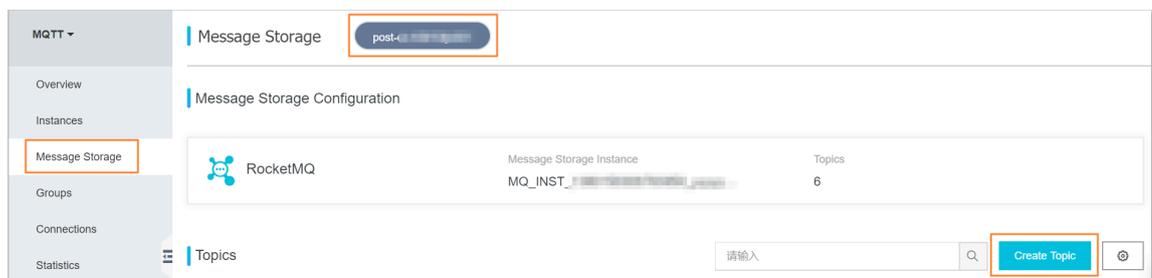
To send and receive messages over MQTT, you must create an MQTT parent topic. Subtopics at different levels can be directly used in code without the need to create them.

A one-to-one binding relationship is established between the Message Queue for MQTT instance and the storage instance. Therefore, the topic is actually created on the storage instance and mapped to the Message Queue for MQTT console. You can also perform all topic operations in the MQ console.

If you have already created a topic on the MQ instance, you can use this topic directly. If you have not created any topics, perform the following steps:

- a. In the left-side navigation pane, click Message Storage.
- b. On the Message Storage page, select the created Message Queue for MQTT instance and click Create Topic.

Figure 1-7: Create a topic



- c. In the Create Topic dialog box, enter a topic name, select the message type of the topic for message storage, sending, and receiving, and enter remarks. Then, click OK.



Note:

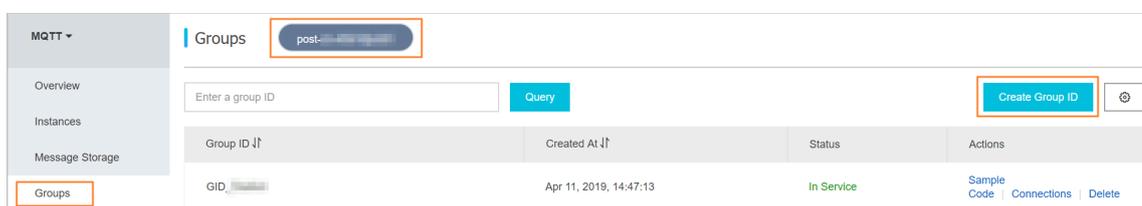
To use an Message Queue for MQTT client to send ordered messages, select the ordered message type. Currently, Message Queue for MQTT clients do not support strongly ordered messages in consumption scenarios.

5. Create a group ID.

A group ID specifies the name of a group of nodes with identical logic and functions, representing a category of devices with the same functions. The group ID and device ID are used together to identify the client ID of an MQTT client. For more information, see [#unique_5](#).

- a. In the left-side navigation pane, click Groups.
- b. On the Groups page, select the created Message Queue for MQTT instance and click Create Group ID.

Figure 1-8: Create a group ID



- c. In the Create Group ID dialog box, enter a group ID and click OK.

The group ID appears on the Groups page after being created. The Groups page shows all your group IDs in the current region.



Note:

- Delete the group ID in a timely manner if it is no longer needed.
- A group ID can only be used by the account that created it. A group ID that is created by the primary account cannot be used by a sub-account. The sub-account must create its own group IDs separately.

Step 2: Obtain an endpoint

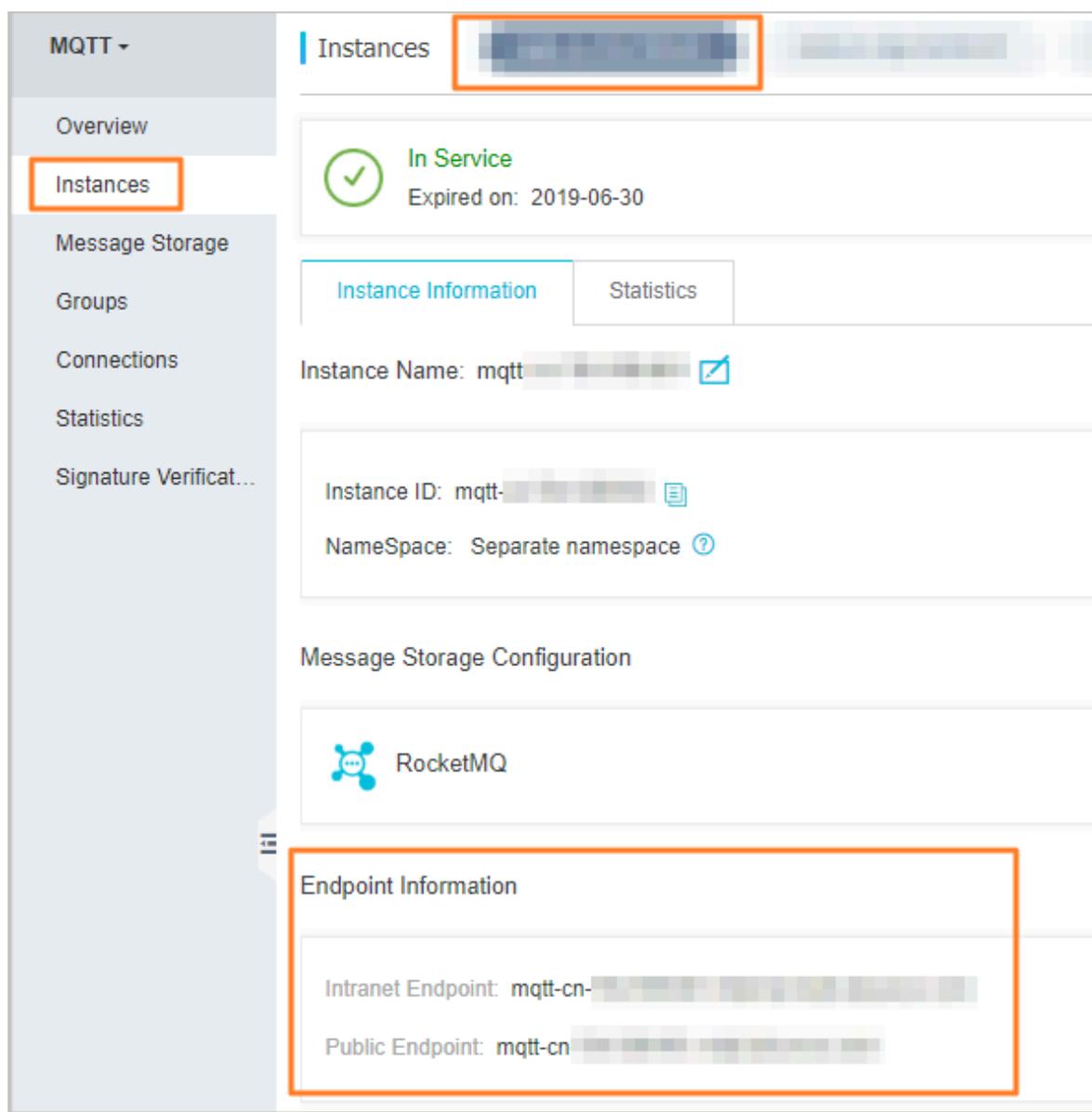
To use an SDK to send and receive messages, you must use an endpoint to access the Message Queue for MQTT instance. An Message Queue for MQTT instance endpoint consists of the instance domain and port.

After the Message Queue for MQTT instance and the MQ instance are bound, the endpoint information is immediately displayed in the Endpoint Information area.

You can also obtain the endpoint information by performing the following steps after binding the Message Queue for MQTT instance and the MQ instance:

1. In the top navigation bar of the console, select the region where the created resource is located, and then choose Instances in the left-side navigation pane.
2. On the Instances tab page that appears by default, select the created Message Queue for MQTT instance and click the Instance Information tab.
3. On the Instance Information tab page, view the domain name of the endpoint in the Endpoint Information area.

Figure 1-9: Obtain the endpoint



Public Endpoint and Intranet Endpoint are available. We recommend that you use public endpoints for clients in IoT and mobile Internet scenarios. Intranet endpoints are for use only in some special scenarios. In general, we recommend that you use the server-side MQ products in cloud server scenarios, such as MQ.

**Note:**

To connect to the service with an endpoint on a client, use the domain name rather than the IP address because the IP address can change at any time. Alibaba Cloud is not responsible for any service interruptions caused by the direct use of IP addresses.

Port

Currently, Message Queue for MQTT supports MQTT on TCP, MQTT SSL, WebSocket, WebSocket SSL/TLS, and Flash. The corresponding service ports are listed in [Table 1-1: Port description](#). Replace the port number in an endpoint as required.

Table 1-1: Port description

MQTT on TCP	SSL	WebSocket	WebSocket SSL /TLS	Flash
1883	8883	80	443	843

Step 3: Send and subscribe to messages by using an SDK

1. Download the client SDK. For the download addresses of SDKs in different languages, see [#unique_6](#).

Message Queue for MQTT supports the standard MQTT protocol by default, so we recommend that you use open source third-party client SDKs. If a client SDK in a desired language is not listed, search for MQTT-compatible SDKs on the Internet.

2. Download the demo project and run the demo to send and subscribe to messages. For the download addresses of demo projects, see [#unique_7](#).

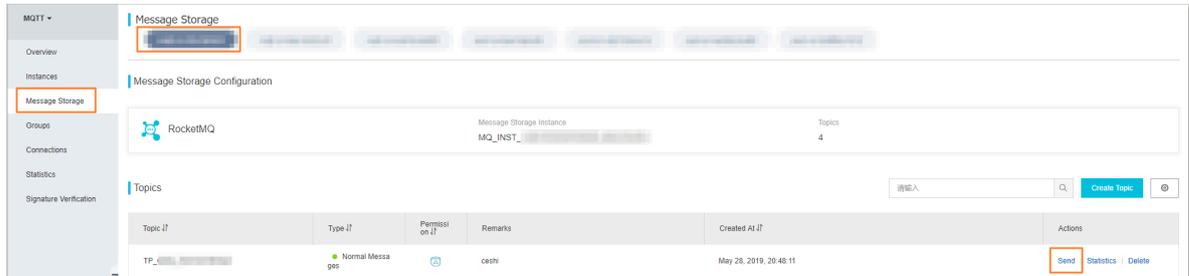
The current demo library only covers some mainstream languages and will be updated later. If the corresponding development language is not covered, download a Java demo for modification. The demo project only demonstrates basic functions. You must modify all the parameters before using them in the actual online environment.

More information**Send messages in the console**

In addition to sending messages by using an SDK or API, you can send messages in the console to quickly verify the availability of the topic. The procedure is as follows:

1. In the left-side navigation pane, click Message Storage.
2. In the Topics list on the Message Storage page, locate the row that contains the created topic and click Send in the Actions column.

Figure 1-10: Send messages



3. In the Send Message dialog box, set the message attributes, enter the message content, and click OK.

The console returns a notification that the message has been sent successfully and the corresponding message ID.

Figure 1-11: Sent successfully

