

Alibaba Cloud MQTT

SDK Reference

Issue: 20190612

Legal disclaimer

Alibaba Cloud reminds you to carefully read and fully understand the terms and conditions of this legal disclaimer before you read or use this document. If you have read or used this document, it shall be deemed as your total acceptance of this legal disclaimer.

1. You shall download and obtain this document from the Alibaba Cloud website or other Alibaba Cloud-authorized channels, and use this document for your own legal business activities only. The content of this document is considered confidential information of Alibaba Cloud. You shall strictly abide by the confidentiality obligations. No part of this document shall be disclosed or provided to any third party for use without the prior written consent of Alibaba Cloud.
2. No part of this document shall be excerpted, translated, reproduced, transmitted, or disseminated by any organization, company, or individual in any form or by any means without the prior written consent of Alibaba Cloud.
3. The content of this document may be changed due to product version upgrades, adjustments, or other reasons. Alibaba Cloud reserves the right to modify the content of this document without notice and the updated versions of this document will be occasionally released through Alibaba Cloud-authorized channels. You shall pay attention to the version changes of this document as they occur and download and obtain the most up-to-date version of this document from Alibaba Cloud-authorized channels.
4. This document serves only as a reference guide for your use of Alibaba Cloud products and services. Alibaba Cloud provides the document in the context that Alibaba Cloud products and services are provided on an "as is", "with all faults" and "as available" basis. Alibaba Cloud makes every effort to provide relevant operational guidance based on existing technologies. However, Alibaba Cloud hereby makes a clear statement that it in no way guarantees the accuracy, integrity, applicability, and reliability of the content of this document, either explicitly or implicitly. Alibaba Cloud shall not bear any liability for any errors or financial losses incurred by any organizations, companies, or individuals arising from their download, use, or trust in this document. Alibaba Cloud shall not, under any circumstances, bear responsibility for any indirect, consequential, exemplary, incidental, special, or punitive damages, including lost profits arising from the use

or trust in this document, even if Alibaba Cloud has been notified of the possibility of such a loss.

5. By law, all the content of the Alibaba Cloud website, including but not limited to works, products, images, archives, information, materials, website architecture, website graphic layout, and webpage design, are intellectual property of Alibaba Cloud and/or its affiliates. This intellectual property includes, but is not limited to, trademark rights, patent rights, copyrights, and trade secrets. No part of the Alibaba Cloud website, product programs, or content shall be used, modified, reproduced, publicly transmitted, changed, disseminated, distributed, or published without the prior written consent of Alibaba Cloud and/or its affiliates. The names owned by Alibaba Cloud shall not be used, published, or reproduced for marketing, advertising, promotion, or other purposes without the prior written consent of Alibaba Cloud. The names owned by Alibaba Cloud include, but are not limited to, "Alibaba Cloud", "Aliyun", "HiChina", and other brands of Alibaba Cloud and/or its affiliates, which appear separately or in combination, as well as the auxiliary signs and patterns of the preceding brands, or anything similar to the company names, trade names, trademarks, product or service names, domain names, patterns, logos, marks, signs, or special descriptions that third parties identify as Alibaba Cloud and/or its affiliates).
6. Please contact Alibaba Cloud directly if you discover any errors in this document.

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.
Courier font	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>switch {stand slave}</code>

Contents

Legal disclaimer.....	I
Generic conventions.....	I
1 Demo project.....	1
2 Download the SDK.....	3
3 Limits.....	5

1 Demo project

The demo project includes the use instructions on AliwareMQ for IoT in various scenarios. For more information, see the document comments of the application source code.

If you use AliwareMQ for IoT with other backend message storage services, such as RocketMQ, see [Message structure mappings](#)"Understand the message-property mappings."



Note:

The demo project integrity may vary depending on specific languages, which will be updated in the future. If some features do not have any demo, test these features based on the Java example.

Download the demo project

Download the demo project from <https://github.com/AlwareMQ/lmq-demo> to your local device.

Figure 1-1: Download the demo

Demo for LMQ

31 commits

1 branch

1 release

1 contributor

Branch: master ▼ New pull request Find File Clone or download ▼

zhongliang.czl add php demo		Latest commit 3dab8d1 yesterday
lmq-DoNet-demo	add p2p demo	last month
lmq-c-demo/src/c	add p2p demo	last month
lmq-ios-demo/MQTTChatDemo	add ios demo	3 months ago
lmq-java-demo	add php demo	yesterday
lmq-js-demo	add p2p demo	last month
lmq-nodejs-demo	nodejs	29 days ago
lmq-php-demo	add php demo	yesterday
lmq-python-demo	add p2p demo	last month
.gitignore	add lmq android demo	10 months ago
README.md	add php demo	yesterday

Decompress the package after the download is complete. The *lmq - demo* folder is added. Level-1 folders are categorized based on the development language. Perform debugging as needed.

2 Download the SDK

Before using an AliwareMQ for IoT client (referred to here as the MQTT client) to send and receive messages, you need to download an SDK based on the development languages that are supported by AliwareMQ for IoT.

By default, AliwareMQ for IoT supports the standard MQTT 3.1.1 protocol and is theoretically compatible with all MQTT clients. However, some MQTT clients may still have compatibility issues.

Table 2-1: SDK download URL lists the recommended third-party SDKs for languages and platforms that are widely used by MQTT users.

Table 2-1: SDK download URL

Language or platform	Recommended third-party SDK	Download URL
Java	Eclipse Paho SDK	http://www.eclipse.org/paho/clients/java
iOS	MQTT-Client-Framework	https://github.com/ckrey/MQTT-Client-Framework
Android	Eclipse Paho SDK	https://github.com/eclipse/paho.mqtt.android
JavaScript	Eclipse Paho JavaScript	http://www.eclipse.org/paho/clients/js
Python	Eclipse Paho Python SDK	https://pypi.python.org/pypi/paho-mqtt
C	Eclipse Paho C SDK	https://eclipse.org/paho/clients/c
C#	Eclipse Paho C# SDK	https://github.com/eclipse/paho.mqtt.m2mqtt
Golang	Eclipse Paho Golang SDK	https://github.com/eclipse/paho.mqtt.golang
Node.js	MQTT-JS	https://github.com/mqttjs/MQTT.js

Language or platform	Recommended third-party SDK	Download URL
PHP	Mosquitto-PHP	https://github.com/mgdm/Mosquitto-PHP

MQTT client SDKs in other languages have not been tested yet. To download these SDKs, visit <https://github.com/mqtt/mqtt.github.io/wiki/libraries>.

3 Limits

AliwareMQ for IoT imposes restrictions and specifications on certain metrics. When using AliwareMQ for IoT, to avoid application errors, ensure that the relevant limits are not exceeded. The following table lists the limits imposed by AliwareMQ for IoT.

If you are using AliwareMQ for IoT Enterprise Platinum Edition, you can customize some metrics as needed (marked in the following table). For more information, [submit a ticket](#).

Table 3-1: Limits on using AliwareMQ for IoT

Item	Threshold	Description
Topic length	64 characters	The topic length cannot exceed 64 characters when AliwareMQ for IoT is used for sending and receiving messages. Otherwise, you may fail to send or subscribe to messages.
Characters available for topics and client IDs	Digits 0-9, letters a-z or A-Z, hyphen (-), and underscore (_)	AliwareMQ for IoT does not support non-conventional characters such as slashes (/), colons (:), commas (,), and percent signs (%) in client IDs and topics. If these characters are used, connection setup may fail, and messages cannot be sent or received.
Client ID length	64 characters	The client ID length cannot exceed 64 characters when AliwareMQ for IoT is used for sending and receiving messages. Otherwise, the client may be disconnected.

Item	Threshold	Description
Message size	64 KB	The size of a message cannot exceed 64 KB. Otherwise, the message may be discarded. (This metric is customizable in the Enterprise Platinum Edition.)
Message retention period	Three days	Offline messages are retained for a maximum of three days only when QoS = 1 and cleanSession = false. After three days, the offline messages are automatically deleted in a scrolling manner. (This metric is customizable in the Enterprise Platinum Edition.)
Message sending/receiving TPS	Depends on the instance specification.	For a subscription instance , throttling is imposed based on the purchased specifications. Message delivery is not guaranteed when the limit is exceeded . For a Pay-As-You-Go instance, throttling is not imposed, but the monitoring and alarm functions are provided by default. You must adjust the monitoring threshold appropriately.

Item	Threshold	Description
Number of client connections	Depends on the instance specification.	For a subscription instance , throttling is imposed based on the purchased specifications. Connection stability is not guaranteed when the limit is exceeded . For a Pay-As-You-Go instance, throttling is not imposed, but the monitoring and alarm functions are provided by default. You must adjust the monitoring threshold appropriately.
Number of subscription relationships	Depends on the instance specification.	For a subscription instance , throttling is imposed based on the purchased specifications. The integrity of the subscription is not guaranteed when the limit is exceeded . For a Pay-As-You-Go instance, throttling is not imposed, but the monitoring and alarm functions are provided by default. You must adjust the monitoring threshold appropriately.
Topics subscribed by a single client	30	Each MQTT client can subscribe to a maximum of 30 topics at a time when AliwareMQ for IoT is used for sending and receiving messages. New subscriptions cannot be added when the limit is exceeded. (This metric is customizable in the Enterprise Platinum Edition.)

Item	Threshold	Description
QoS and cleanSession	Currently, cleanSession cannot be set to false when QoS is 2.	Currently, the MQTT broker does not support cleanSession = false in case of QoS = 2 during message subscription if AliwareMQ for IoT is used for sending and receiving messages. To receive offline messages, set QoS to 1 and cleanSession to false during message subscription.
Message sequence	Uplink sequence	Currently, only the uplink sequence is guaranteed when AliwareMQ for IoT is used for sending and receiving messages. That is, each MQTT client sends messages in order. If messages must be consumed in order, you must use RocketMQ TCP to receive messages.
Offline message identification delay	10 seconds	When the MQTT broker pushes a message for the first time, it determines whether the message is converted to an offline message only after the message times out or fails. The corresponding delay ranges from 5 seconds to 10 seconds.

Item	Threshold	Description
Number of stored offline messages	1,000,000 (If you require a higher limit, submit a ticket .)	The MQTT broker limits the number of offline messages that are stored by each instance. If the limit is exceeded, the MQTT broker performs message cleansing from the earliest message. Set cleanSession to false appropriately during message subscription to avoid too many useless offline messages.