



APUSIC
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Technical Specification

Apusic Distributed Message Queue V2.0.6_for_mqtt

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1 Preface

This document is a functional specification for Apusic Distributed Message Queue for MQTT (Apusic Distributed Message Queue, referred to as: ADMQ for MQTT), helping users understand in detail the product functions and technical specifications of ADMQ for MQTT.

1.1 Target Audience

This document is intended for IT information business leaders, R&D managers, software project managers, software architects, and operations engineers.

1.2 Related Documents

To learn more about ADMQ for MQTT, please refer to the following ADMQ for MQTT product documentation set:

No.	Document	Description
1	Apusic Distributed Message Queue for MQTT Quick Start Guide	Briefly introduces how to quickly get started with ADMQ for MQTT.
2	Apusic Distributed Message Queue for MQTT Installation Guide	Details how to install ADMQ for MQTT on various operating systems, as well as service start/stop operations.
3	Apusic Distributed Message Queue for MQTT Message Engine User Manual	Details the use, configuration, and management of ADMQ for MQTT message engine features and supporting tools.
4	Apusic Distributed Message Queue for MQTT Console User Manual	Details the use and operation of the ADMQ for MQTT console.
5	Apusic Distributed Message Queue for MQTT Development Guide	Details how to develop ADMQ for MQTT client applications in various development languages.
6	Apusic Distributed Message Queue for MQTT Migration Guide	Details the migration from MQTT Broker to ADMQ for MQTT.
7	Apusic Distributed Message Queue for MQTT Operations Manual	Details monitoring, operations, and security hardening for ADMQ for MQTT.
8	Apusic Distributed Message Queue for MQTT Performance Optimization Guide	Details performance tuning for ADMQ for MQTT.

1.3 Technical Support

ADMQ for MQTT provides comprehensive technical support services. You can obtain technical support through the following channels:

- Website: www.apusic.com
- Phone: 400-855-5800
- Email: support@apusic.com
- Kingdee Cloud Community: <https://vip.kingdee.com/?productId=73&productLineId=14&lang=zh-CN>

When seeking technical support, please provide the following information:

1. Your name
2. Company information and contact details
3. Operating system and its version
4. Product version number
5. Detailed information such as logs and screenshots of the exception or error

2 Product Version and Compatibility

2.1 Version Information

Attribute	Description
Product Name	Apusic Distributed Message Queue
Product Version	ADMQ for MQTT V2.0.6.587
Release Date	March 2026

2.2 Protocol Compatibility

Protocol	Status	Description
MQTT 3.1	Supported	Basic MQTT protocol
MQTT 3.1.1	Supported	Mainstream MQTT protocol version
MQTT 5.0	Supported	Latest MQTT protocol version, supporting more features
MQTT over TCP	Supported	Standard TCP access
MQTT over SSL/TLS	Supported	Encrypted TCP access
MQTT over WebSocket	Supported	Web client access
MQTT over WebSocket Secure	Supported	Encrypted WebSocket access
MQTT over QUIC	Supported	Low-latency access based on QUIC

2.3 Client Compatibility

ADMQ for MQTT V2.0.6.587 is compatible with the following MQTT clients:

Client Type	Supported Version	Description
Eclipse Paho Java	1.2.x+	Official Java client
Eclipse Paho Python	1.5.x+	Official Python client
Eclipse Paho C	1.3.x+	Official C client
MQTT.js	4.x+	Node.js/Browser client

EMQX Client	5.x+	Official EMQX client
Other Standard MQTT Clients	-	Any third-party client following the MQTT protocol

3 Core Feature Specifications

3.1 MQTT Basic Features

Feature	Description	Status
Publish/Subscribe Model	Supports one-to-many message distribution mode	Supported
QoS 0	At most once message delivery	Supported
QoS 1	At least once message delivery	Supported
QoS 2	Exactly once message delivery	Supported
Retained Message	Retains the last message for a topic, new subscribers receive immediately	Supported
Will Message	Automatically publishes a message when client disconnects abnormally	Supported
Session Persistence	Saves subscription relationships and offline messages	Supported
Clean Session	Supports clean session mode	Supported
MQTT 5.0 New Features	Message expiry, topic alias, user properties, shared subscriptions, etc.	Supported

3.2 Access Methods

Feature	Description	Status
TCP Access	Standard MQTT TCP port 1883	Supported
SSL/TLS Access	Encrypted MQTT TCP port 8883	Supported
WebSocket Access	Port 8083	Supported
WebSocket Secure Access	Port 8084	Supported
QUIC Access	Port 14567	Supported

3.3 Authentication and Authorization

Feature	Description	Status
Built-in Database Authentication	Username/password authentication	Supported
JWT Authentication	JSON Web Token based authentication	Supported
SCRAM Authentication	SCRAM challenge-response mechanism	Supported
MySQL/PostgreSQL/HTTP Authentication	External data source authentication	Supported
ACL Access Control	Permission control based on username/client ID/topic	Supported
Super User	Bypasses all ACL checks	Supported

3.4 High Availability and Clustering

Feature	Description	Status
Stateless Node Cluster	Stateless sharing between nodes, supports horizontal scaling	Supported
Automatic Failure Recovery	Automatically removes faulty nodes and restores service	Supported
Session Persistence	Supports session data persistence	Supported
Data Backup and Restore	Supports cluster configuration and data backup/restore	Supported

3.5 Extension Capabilities

Feature	Description	Status
Rule Engine	SQL-based message processing rules	Supported
Data Bridge	Integration with databases, message queues, HTTP services, etc.	Supported
Topic Rewrite	Automatically replaces source topic with destination topic	Supported
Auto Subscribe	Automatically subscribes to specified topics after client connection	Supported
Shared Subscription	MQTT 5.0 shared subscription, load-balanced distribution	Supported

3.6 Security Features

Feature	Description	Status
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TLS/SSL Encryption	Supports transport layer encryption	Supported
National Secret SSL	Supports national secret algorithm encryption transmission	Supported
Allow/Deny List	Supports banning by client ID, username, IP dimension	Supported
Audit Logs	Records key operation logs	Supported
RBAC Role Management	Supports role-based access control	Supported

3.7 Operations Management

Feature	Description	Status
Prometheus Metrics	Supports Prometheus metrics export	Supported
Grafana Dashboard	Supports visual monitoring	Supported
Log Management	Supports log level configuration and log rotation	Supported
Alert Management	Supports system alert viewing and clearing	Supported
Slow Subscription Detection	Detects subscriptions with long message delivery time	Supported
Log Trace	Supports client/topic/IP level log tracing	Supported

4 Technical Specifications

4.1 System Requirements

Component	Minimum Requirement	Recommended Configuration
CPU	4 cores	8 cores or more
Memory	8 GB	16 GB or more
Disk	100 GB SSD	500 GB or more SSD
Network	1 Gbps	10 Gbps
Operating System	Linux (CentOS 7+, Ubuntu 18.04+, Kylin, UnionTech)	-

4.2 Cluster Scale

Deployment Mode	Node Count	Description
Standalone	1	Development and test environment
Cluster	3-5	Minimum production environment configuration
Large Scale	5+	Massive device access scenarios

4.3 Performance Metrics

Metric	Single Node	3-Node Cluster	Description
Concurrent Connections	500K	1M+	MQTT client concurrent connections
Message Throughput	100K/s	300K/s	Message send/receive rate
Latency	1ms	1ms	P99 message delivery latency
Failure Recovery	<30s	<30s	Node failover time

4.4 Network Ports

Port	Purpose	Description
1883	MQTT TCP	Standard MQTT access

8883	MQTT over SSL	Encrypted MQTT access
8083	MQTT over WebSocket	WebSocket access
8084	MQTT over WSS	Encrypted WebSocket access
14567	MQTT over QUIC	QUIC protocol access
18083	Dashboard HTTP	Management backend web interface
12305	Console HTTP	Console web interface (HTTP)
12306	Console HTTPS	Console web interface (HTTPS)
4370	Erlang Distribution	Inter-node cluster communication
5370	Erlang Distribution	Inter-node cluster communication (SSL)

4.5 Supported Storage

Type	Support	Description
EXT4	Supported	Linux standard filesystem
XFS	Recommended	High-performance filesystem
NFS	Supported	Network filesystem (requires configuration)
Multi-disk Mounting	Supported	Supports multiple data directories

5 Deployment Modes

Deployment Mode	Node Count	Description
Standalone Mode	1	Suitable for development and test environments, no high availability guarantee
Cluster Mode	3-10+	Suitable for production environments, supports high availability and horizontal scaling
Multi-Cluster Mode	Multiple clusters	Suitable for cross-region, multi-data center deployment

6 Backup and Disaster Recovery

6.1 Data Backup

Backup Method	Description
Configuration Backup	Backs up cluster configuration information
Data Backup	Backs up user data, ACL rules, retained messages, etc.
Cross-Cluster Replication	Implements cross-cluster message synchronization through data bridge

6.2 Disaster Recovery Capabilities

Disaster Recovery Level	Capability
Node Failure	Automatic failover to ensure service continuity
Disk Failure	Multi-node deployment, single disk failure does not affect service
Data Center Level	Supports cross-data center active-active deployment
Data Security	Supports periodic backup and restore

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4008-555-800

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