

# INTRODUCTION TO MQTT

A MACHINE-TO-MACHINE CONNECTIVITY PROTOCOL

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# INTRODUCTION

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- Message Queuing Telemetry Transport
- ISO 20922
- Now OASIS
- MQTT v3.1.1

- Broker-Client
- Topics
- Messages
- Publish-Subscribe

- TCP
- 1883
- TLS: 8883

- variation of main protocol
- aimed at embedded devices on non-TCP/IP networks, such as Zigbee

- Username
- Passwords
- Client-ID: Must be unique

## TOPICS

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- UTF-8 strings
- Separated by /
- Examples:
  - space/state
  - space/sensors/temperature

- For subscription
- + matches one level
- \* matches multiple levels
- space/+
  - space/status
  - space/foo
  - not space/sensors/temperature

## MESSAGES

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- 0 - At most once (fire and forget)
- 1 - At least once (acknowledged delivery)
- 2 - Exactly once (assured delivery)

- Broker stores the last message on a topic
- Resend to new subscribers

# LAST WILL AND TESTAMENT

- Send inside the CONNECT message
- Broker sends it, when the client disconnects ungracefully

# IMPLEMENTATIONS

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- Mosquitto (C, Python)
- HiveMQ Community Edition (Java)



- Paho MQTT (C, C++, Java, Javascript, Python, Go)
- arduino-mqtt (Arduino)

# MQTT 5.0

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- User properties
- Payload Format Indicator & Content Type
  - Content-Type header can carry a MIME Type

- Shared subscriptions
  - Client Load Balancing
  - Solved over topic subscriptions
- Repeated topic
  - Client sets topic to a zero length string
  - Broker reuses last topic that the client sent a message to

- Publication expiry
- Server can gracefully disconnect clients

- mosquito in v1.6
- No client implementations

## QUESTIONS

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