

MQTT notes

- PubSub protocol
- <https://www.youtube.com/watch?v=J5FJn-y4buM>

Designed for constrained devices and low-bandwidth, high-latency, unreliable networks.

Simple Light Weight Publish-Subscribe Reliable Delivery

Key Concepts

- 01 Publish-Subscribe
- 02 Client & Server
- 03 Topic
- 04 QoS
- 05 Session

QoS 0

 Sensor Reading

QoS 1

 Status Update

QoS 2

 Control Command

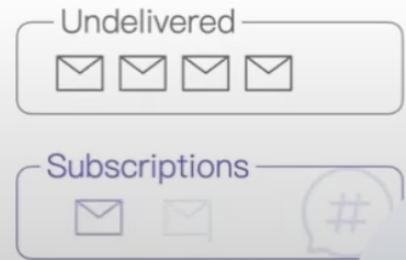
Session



Session in Client



Session in Server



Client

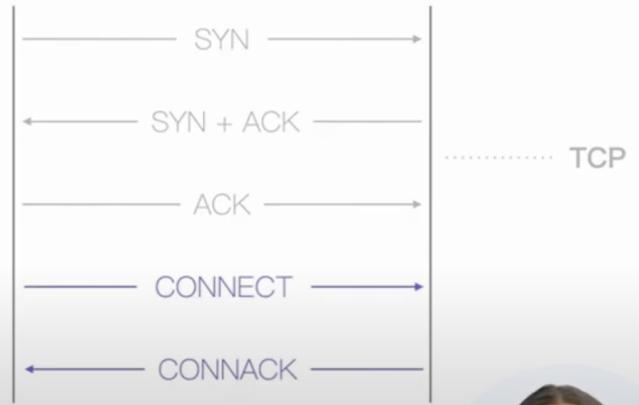
Server

STEP 1

Transport Protocol

STEP 2

MQTT



MQTT Clients

MQTT Server

MQTT Clients



Let the topic convey the information

home / [bedroom](#) / [d2ef08](#) / light 

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home / [livingroom](#) / [ce20fe](#) / light 

command / ... / light status / ... / light telemetry / ... / temperature

- EMQX ports

Type	Bind
ssl	0.0.0.0:8883
tcp	0.0.0.0:1883
ws	0.0.0.0:8083
wss	0.0.0.0:8084

- Mqtt template to write to Influxdb

```
{
  "devices/+/messages": {
    "measurement": "devices",
    "tags": {
      "client_id": "$client_id"
    },
    "fields": {
      "temperature": ["$payload", "temperature"],
      "humidity": ["$payload", "humidity"]
    },
    "timestamp": "$timestamp"
  }
}
```

- InfluxDB

Data organization

The InfluxDB data model organizes time series data into buckets and measurements. A bucket can contain multiple measurements. Measurements contain multiple tags and fields.

- **Bucket:** Named location where time series data is stored. A bucket can contain multiple *measurements*.
 - **Measurement:** Logical grouping for time series data. All *points* in a given measurement should have the same *tags*. A measurement contains multiple *tags* and *fields*.
 - **Tags:** Key-value pairs with values that differ, but do not change often. Tags are meant for storing metadata for each point—for example, something to identify the source of the data like host, location, station, etc.
 - **Fields:** Key-value pairs with values that change over time—for example: temperature, pressure, stock price, etc.
 - **Timestamp:** Timestamp associated with the data. When stored on disk and queried, all data is ordered by time.
- Influxdb config

Set up InfluxDB

The initial setup process for an InfluxDB instance creates the following:

- An organization with the name you provide.
- A primary bucket with the name you provide.
- An admin **authorization** with the following properties:
 - The username and password that you provide.
 - An API token (*operator token*).
 - Read-write permissions for all resources in the InfluxDB instance.

To run an interactive setup that prompts you for the required information, use the InfluxDB user interface (UI) or the `influx` command line interface (CLI).

To automate the setup—for example, with a script that you write— use the `influx` command line interface (CLI) or the InfluxDB `/api/v2` API.

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