[**https://github.com/minio/minio/issues/21624**](https://github.com/minio/minio/issues/21624)

**Notifications using MQTT with certificate authentication**

**(Community Triage Case)**

Case Study 1 – Question 9

MinIO Event Notifications let the server automatically trigger actions when an object event occurs (like upload, delete, etc.).

These notifications can be sent to various targets — Kafka, NATS, Webhook, AMQP, Redis, and MQTT.

MQTT (Message Queuing Telemetry Transport) is a lightweight messaging protocol often used in IoT and event-driven systems.

It supports secure connections using TLS certificates for authentication.

So, when you configure MQTT with certificate-based authentication, MinIO sends object event notifications through a TLS-secured MQTT broker (like Mosquitto, HiveMQ, or EMQX).

**The Issue (Community Triage)**

Users reported problems setting up MQTT notifications with certificate authentication — even though basic username/password authentication worked fine.

**Typical symptoms:**

MinIO startup fails with an MQTT configuration error.

**Log shows:**

Failed to connect to MQTT broker: x509: certificate signed by unknown authority

or

mqtt: unable to load client certificate or key

Events are not delivered, even though MQTT connection seems established.

**Root Cause**

This issue usually occurs due to improper certificate configuration or path errors.

MinIO needs to verify the broker’s TLS certificate and optionally use its own client certificate for mutual authentication.

**Common causes:**

Cause Description

Invalid or missing CA certificate - MinIO can’t validate the MQTT broker’s TLS cert because CA isn’t trusted or path is wrong.

Incorrect file paths - The configured cert/key paths in MINIO\_NOTIFY\_MQTT\_\* environment variables are invalid or inaccessible.

Certificate chain incomplete - Broker’s certificate missing intermediate CA.

MinIO version Older MinIO builds had limited support for MQTT cert auth (fixed in newer releases).

File permissions - MinIO process lacks read permission to cert or key files.

Correct Configuration

Example configuration using environment variables:

MINIO\_NOTIFY\_MQTT\_ENABLE\_MQTT1=on

MINIO\_NOTIFY\_MQTT\_BROKER\_MQTT1="tls://mqtt-broker.example.com:8883"

MINIO\_NOTIFY\_MQTT\_TOPIC\_MQTT1="minio/events"

MINIO\_NOTIFY\_MQTT\_CLIENT\_CERT\_MQTT1="/etc/minio/certs/public.crt"

MINIO\_NOTIFY\_MQTT\_CLIENT\_KEY\_MQTT1="/etc/minio/certs/private.key"

MINIO\_NOTIFY\_MQTT\_CA\_CERT\_MQTT1="/etc/minio/certs/ca.crt"

MINIO\_NOTIFY\_MQTT\_USERNAME\_MQTT1="minio-publisher"

MINIO\_NOTIFY\_MQTT\_PASSWORD\_MQTT1="strongpassword"

Then restart MinIO for the configuration to load.

Testing Connection

You can verify connection and message flow using:

mosquitto\_sub --cafile ca.crt -h mqtt-broker.example.com -p 8883 -t "minio/events" -v

Upload an object to MinIO and check whether the event message is received.