

# LoopCloud Ports and Protocols

The following ports must be open to access the full set of LoopCloud features:

Acronym	Full Name	Port	Description
HTTP	Hypertext Transfer Protocol	80	This client-server protocol enables web data exchange between browsers and servers.
HTTPS	Hypertext Transfer Protocol - Secure	443	The secure version of the HTTP protocol encrypts all requests and responses with Transport Layer Security (TLS) or Secure Socket Layer (SSL).
LWM2M	Lightweight Machine-to-Machine	5683	This OMA (Open Mobile Alliance) Lightweight Machine-to-Machine (LWM2M) protocol provides device management via client-server application layer communication. Litmus Automation provides the LWM2M server. LWM2M-compatible devices, like LoopEdge-enabled devices, are the clients.
LWM2M with DTLS	Lightweight Machine-to-Machine - Secure	5684	The secure version of the LWM2M protocol uses Datagram Transport Layer Security (DTLS).
BS	Bootstrap	15683	Bootstrap is related to LWM2M. It allows the device to initialize configuration parameters from the bootstrap server when it first powers-on.
BS with DTLS	Bootstrap - Secure	15684	The secure version of Bootstrap uses Datagram Transport Layer Security (DTLS).
MQTT	Message Queuing Telemetry Transport	1883	A lightweight messaging protocol for data transfer to/from IoT devices that is optimized to minimize network bandwidth consumption. MQTT is designed for event-driven interactions with objects that measure physical quantities such as light, gas, temperature, dust, motion, sound, and pressure.
MQTT TLS/SSL	Message Queuing Telemetry Transport - Secure	8883	The secure version of the MQTT protocol uses Transport Layer Security (TLS)/Secure Socket Layer (SSL) to provide a secure connection.
OTA	Over-the-Air	Not Applicable	Over-the-Air updates facilitate device firmware updates. OTA refers to the methods for distributing software, configuration settings, and updating encryption keys.
Minio		9443	Open this port to enable offline deployments from the Minio storage system.
LoopInsights		9444	Main LoopInsights Port for communicating with user browsers. This port must be open to use LoopInsights unless you set up a custom domain with a difference port number.