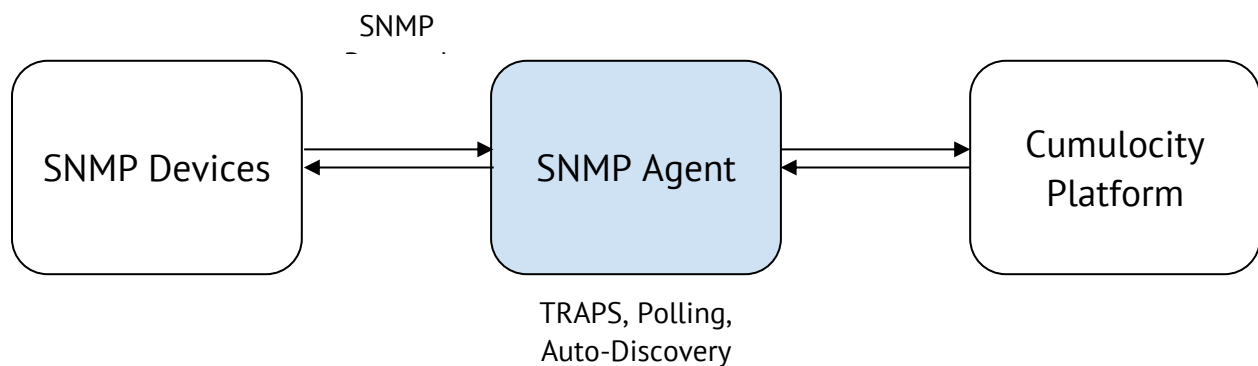# SNMP Agent Overview

The SNMP Agent is as device side Cumulocity agent which offers connectivity for devices which are based on the SNMP protocol (via TCP). This operation manual helps to deploy this agent locally solely for testing purpose.

Architecture

SNMP

```
┌─────────────────┐        ┌─────────────────┐        ┌─────────────────┐
│                 │ ────►  │                 │ ────►  │                 │
│  SNMP Devices   │        │   SNMP Agent    │        │   Cumulocity    │
│                 │ ◄────  │                 │ ◄────  │    Platform     │
│                 │        │                 │        │                 │
└─────────────────┘        └─────────────────┘        └─────────────────┘
```

TRAPS, Polling,
Auto-Discovery

Cumulocity provides the SNMP agent written in Java which integrates the Cloud Fieldbus model and the SNMP data model. The SNMP devices are connected to the SNMP agent. The SNMP agent finally communicates with Cumulocity using the REST API.

Prerequisites

The SNMP agent is written in Java and runs on an industrial PC and the basic required Java Runtime Environment 7 or newer.
   Note: The Java must be in your path variable

Installation and upgrade

Below are the steps to follow to setup SNMP Agent locally.

Note:
This will only exchange the JAR file. Configuration and version (as displayed in the installation) of

the agent stays the same (even if inside the JAR there was a version increase). You can back up the old JAR to quickly switch back if there was an issue.

a. Download the JAR from Jenkins
b. Create a folder ".**snmp**" in **${user.home}**.
c. Create a file "**snmp-agent-gateway.properties**" in ".**snmp**" folder.
d. Copy paste details from Agent Configuration section to the above-mentioned properties file.
e. Browse to the folder where snmp jar is downloaded.
f. Run this command "java -jar <jar_file>.jar"

Exposed Network Interfaces (Listening Ports)

The table below lists the default values for all inbound listening ports. All ports are configurable in the agent settings config file.

Default Port	Protocol	Remarks	Note
6670	HTTP	REST Interface of agent	
6671	TCP	SNMP TRAP listener port	
162	TCP	SNMP Polling port	

Used Services

The agent makes use of the C8Y CORE APIs (most notably Inventory, Identity, the Microservice and the Tenant API) of the platform.

Agent Configuration

The agent is configured using configuration files. The properties defined below needs to be updated according to the environment where deployment is going to happen.

Using the following properties, Agent would connect to the platform for devices search, creation and sending and receiving data using REST service.

For RPM Installation

Place **snmp-agent-gateway.properties** in either of the places give below

/etc/snmp/

Or

${user.home}/.snmp/

For Jar Installation

Place **snmp-agent-gateway.properties** in either of the places give below

1. For Windows

   ${user.home}/.snmp/

2. For Linux

   /etc/snmp/

   Or

   ${user.home}/.snmp/

Note: "**gateway.identifier**" must be unique for a given Cumulocity tenant.

Add below details into snmp-agent-gateway.properties
 # Spring boot application runs on this port server.port=6670 **# C8Y platform URL (Update this link to address where the platform is running)** C8Y.baseURL=http://localhost **#Service bootstrap tenant** C8Y.bootstrap.tenant=management   **#Service bootstrap user** C8Y.bootstrap.user=devicebootstrap   **# Service bootstrap user password** C8Y.bootstrap.password=Fhdt1bb1f

```
# 127.0.0.1 should be replaced with the IP address of the device where the agent is installed
and it has to be mentioned here whether it supports UDP or TCP.
snmp.trapListener.address=udp:127.0.0.1

# Default port 162 will be considered if no port provided
snmp.trapListener.port=6671

snmp.community.target=public

# Below port will be considered if the device port is not provided during device creation
snmp.polling.port=161

# Below SNMP version will be considered if the version is not provided during device creation
snmp.polling.version=0

# Name of the device should be as mentioned below during registration
gateway.identifier=snmp-agent

# Every below-given bootstrap delays, agent checks if the gateway is registered. The value is
in milli-seconds.
gateway.bootstrapFixedDelay=10000

# The duration below is the timeout period (in seconds) for pinging an IP Address during
auto-discovery.
snmp.autodiscovery.devicePingTimeoutPeriod=3
```

Troubleshooting

The location of the log file is located at

"/.snmp/log/"