



## SNMP Overview

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## SNMP Overview

The Simple Network Management Protocol (SNMP) is an application-layer protocol that provides a message format for communication between SNMP managers and agents. SNMP provides a standardized framework and a common language for monitoring and managing devices in a network.

The Cisco UCS products have SNMP support through UCS Manager (UCSM) and C-series BMC in standalone mode. In Intersight Managed Mode (IMM) UCS domains, the monitored end-points are Fabric Interconnect (FI), Chassis Management Controller (CMC) on Chassis IOM/IFM, and Cisco Integrated Management Controller (CIMC) on the compute node or server.

### SNMP Functional Overview

The SNMP framework consists of three parts:

- **An SNMP manager**—The system used to control and monitor the activities of network devices using SNMP.
- **An SNMP agent**—The software component within Cisco UCS, the managed device that maintains the data for Cisco UCS, and reports the data as needed to the SNMP manager. Cisco UCS includes the agent and a collection of MIBs.
- **A managed information base (MIB)**—The collection of managed objects on the SNMP agent.

Cisco servers in Intersight Managed Mode (IMM) support SNMPv2c and SNMPv3. SNMP is defined in the following:

- [RFC 3410](#)
- [RFC 3411](#)
- [RFC 3412](#)
- [RFC 3413](#)
- [RFC 3414](#)
- [RFC 3415](#)

- [RFC 3416](#)
- [RFC 3417](#)
- [RFC 3418](#)
- [RFC 3584](#)

### SNMP Notifications

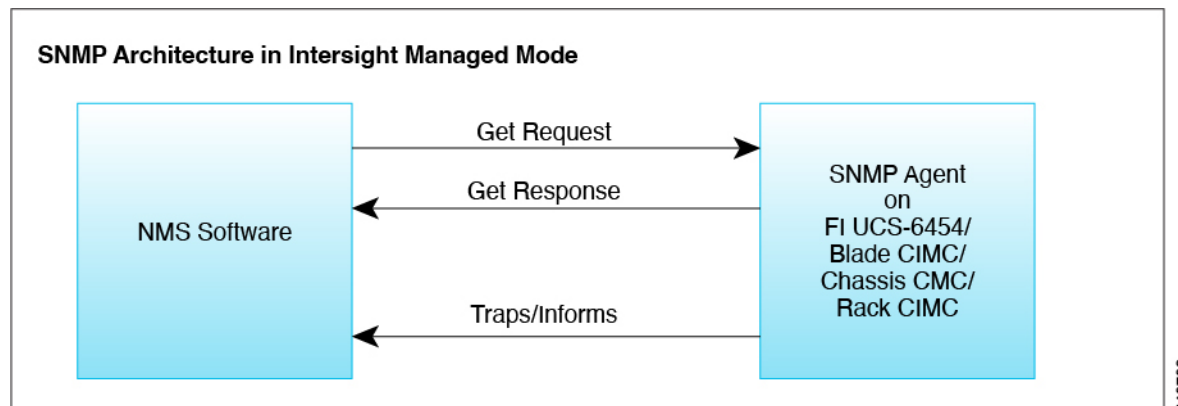
A key feature of SNMP is the ability to generate notifications from an SNMP agent. These notifications do not require requests to be sent from the SNMP manager. Notifications can indicate improper user authentication, restarts, the closing of a connection, loss of connection to a neighbour router, or other significant events.

SNMP notifications get generated as either traps or informs. Traps are less reliable than informs because the SNMP manager does not send any acknowledgment when it receives a trap, and Cisco Intersight cannot determine if the trap was received. An SNMP manager that receives an inform request acknowledges the message with an SNMP response Protocol Data Unit (PDU).

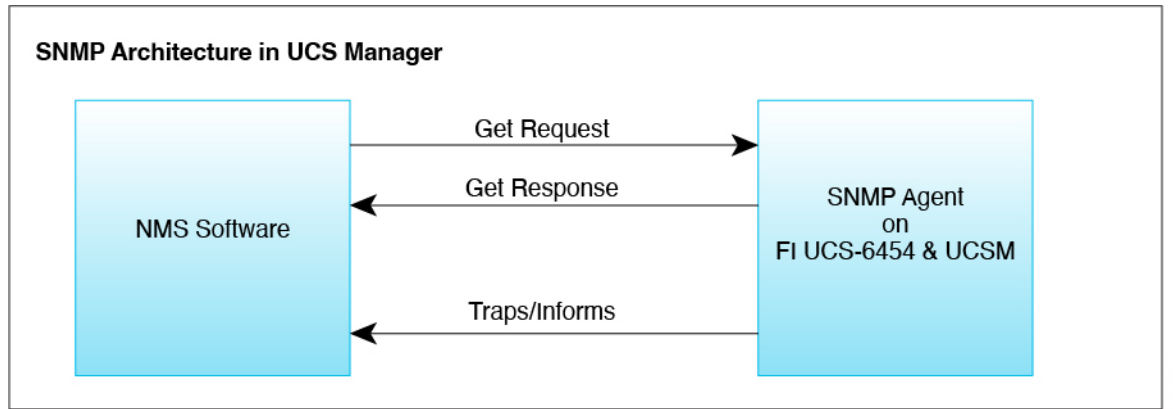
### SNMP Architecture

SNMP in IMM follows the standalone rack server model where each individual endpoint (server (rack/blade), chassis, and FI) must be polled for respective management information. Unlike UCSM, IMM does not provide a way to query management information of all endpoints from the domain of single entity, hence all the information cannot be fetched from one place.

For a Fabric Interconnect in IMM, you can use the FI's IP to fetch the SNMP information. For the servers in IMM, you can use the inband IP configured on CIMC to query information using SNMP.



In IMM, NXOS on FI, CIMC on blade/rack server and CMC on chassis IOM/IFM run an SNMP daemon(agent) to respond to SNMP queries.



In UCSM, only NXOS on FI runs an SNMP agent to respond to SNMP queries.

