Cisco Intersight Managed Mode SNMP Monitoring Guide

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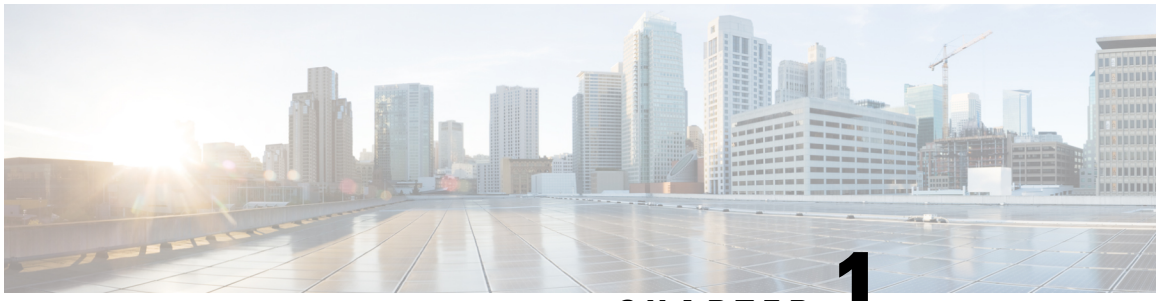


CHAPTER 1

SNMP Overview

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

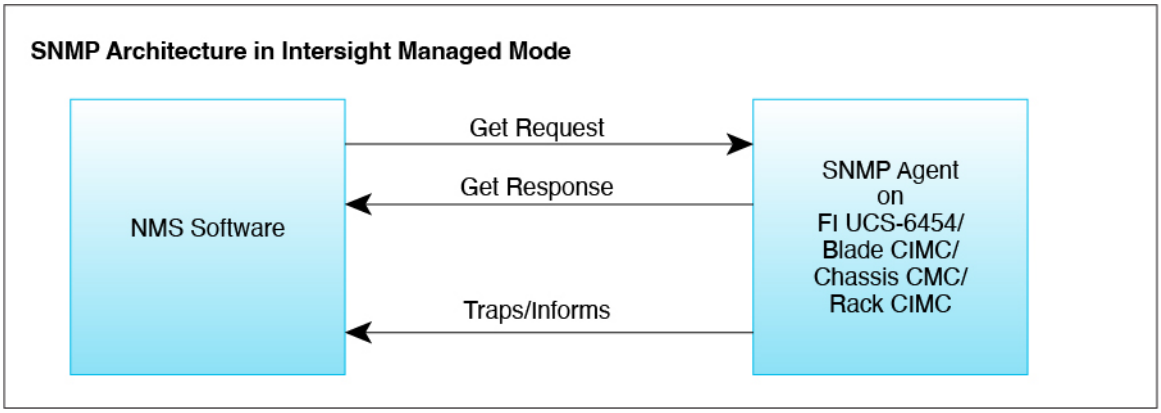
A key feature of SNMP is the ability to generate notifications from an SNMP agent. These notifications do not require requests to be sent from the SNMP manager. Notifications can indicate improper user authentication, restarts, the closing of a connection, loss of connection to a neighbour router, or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

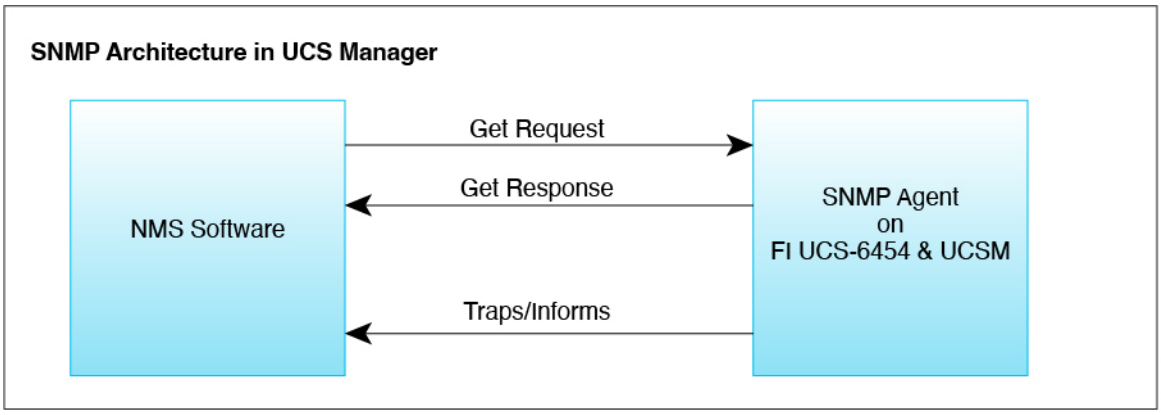
SNMP Architecture

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.

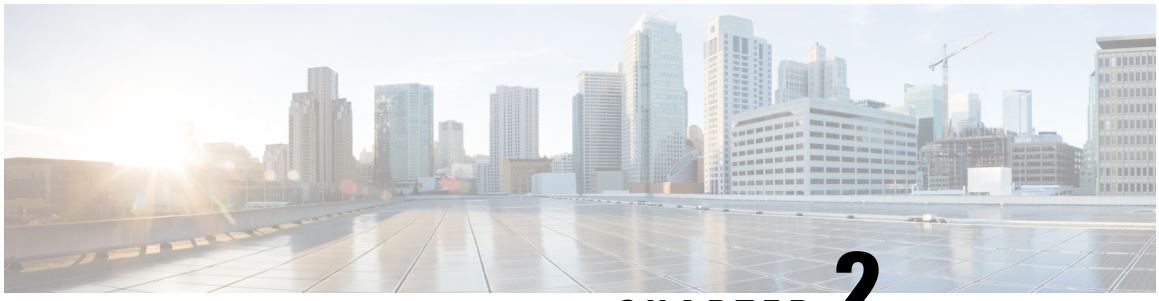


In IMM, NXOS on FI, CIMC on blade/rack server and CMC on chassis IOM/IFM run an SNMP daemon(agent) to respond to SNMP queries.



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

SNMP Overview



CHAPTER 2

SNMP Security Levels and Privileges

SNMP Security Levels and Privileges

SNMPv2c and SNMPv3 each represent a different security model. The security model combines with the selected security level to determine the security mechanism applied when the SNMP message is processed.

The security level determines the privileges required to view the message associated with an SNMP trap. The privilege level determines whether the message requires protection from disclosure or whether the message is authenticated. The supported security level depends on which security model is implemented. SNMP security levels support one or more of the following privileges:

- noAuthNoPriv—No authentication or encryption
- authNoPriv—Authentication but no encryption
- authPriv—Authentication and encryption

SNMPv3 provides for both security models and security levels. A security model is an authentication strategy that is set up for a user and the role in which the user resides. A security level is the permitted level of security within a security model. A combination of a security model and a security level determines which security mechanism is employed when handling an SNMP packet.

Supported Combinations of SNMP Security Models and Levels

The following table identifies the combinations of security models and levels.

Model	Level	Authentication	Encryption	What Happens
v2c	noAuthNoPriv	Community string	No	Uses a community string match for authentication.
v3	noAuthNoPriv	Username	No	Uses a username match for authentication.
v3	authNoPriv	HMAC-SHA	No	Provides authentication based on the Hash-Based Message Authentication Code (HMAC) Secure Hash Algorithm (SHA).

Model	Level	Authentication	Encryption	What Happens
v3	authPriv	HMAC-SHA	DES	Provides authentication based HMAC-SHA algorithms. Provides Data Encryption Standard (DES) 56-bit encryption in addition to authentication based on the Cipher Block Chaining (CBC) DES (DES-56) standard.

SNMPv3 Security Features

SNMPv3 provides secure access to devices through a combination of authenticating and encrypting frames over the network. SNMPv3 authorizes only configured users to perform management operations and encrypts SNMP messages. The SNMPv3 User-Based Security Model (USM) refers to SNMP message-level security and offers the following services:

- Message integrity—Ensures that messages are not altered or destroyed in an unauthorized manner, and that data sequences are not altered beyond what can occur non-maliciously.
- Message origin authentication—Ensures that the identity of a message originator is verifiable.
- Message confidentiality and encryption—Ensures that information is not made available or disclosed to unauthorized individuals, entities, or processes

Authentication Protocols for SNMPv3 Users

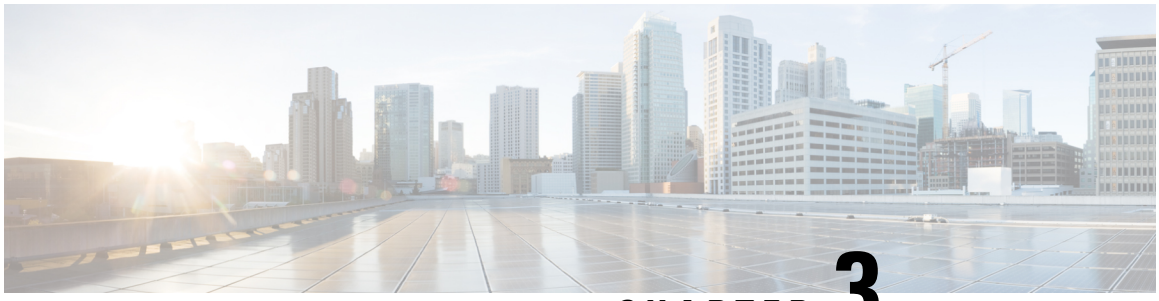
Cisco Intersight supports the following authentication protocols for SNMPv3 users:

- HMAC-SHA-96 (SHA)

AES Privacy Protocol for SNMPv3 Users

Cisco Intersight uses Advanced Encryption Standard (AES) as one of the privacy protocols for SNMPv3 message encryption and conforms with RFC 3826.

The privacy password, or priv option, offers a choice of DES or 128-bit AES encryption for SNMP security encryption. If you enable AES-128 configuration and include a privacy password for an SNMPv3 user, Cisco Intersight uses the privacy password to generate a 128-bit AES key. The AES privacy password can have a minimum of eight characters. If the passphrases are specified in clear text, you can specify a maximum of 64 characters. To deploy such a user, enable AES-128 encryption.



CHAPTER 3

Support for MIBs

Support for MIBs

Cisco UCS MIB files are a set of objects that are private extensions to the IETF standard MIB II. MIB II is documented in RFC 1213, *Management Information Base for Network Management of TCP/IP-based Internets: MIB-II*. Portions of MIB-II have been updated since RFC 1213. See the IETF website http://www.ietf.org for the latest updates to this MIB.

For more information, see Cisco UCS MIB Files.

Loading Cisco UCS MIBs Into a Network Management System

If you want to retrieve Cisco Intersight managed mode objects using read-only SNMP GET operations, you need to load all additional MIBs. The additional MIBs are generally used to retrieve inventory and configuration information using SNMP GET operations.

Before loading the IMM MIBs into Network Management System (NMS), you must first load the prerequisite MIBs into the NMS. This enables you to receive the required Fault Traps in the NMS.

Prerequisite MIBs

The MIBs in this section are required for all use cases and need to be loaded before other Cisco MIBs are loaded.

The following is a list of MIBs from which many other MIBs import definitions:

- SNMPv2-SMI.my
- SNMPv2-TC.my
- SNMP-FRAMEWORK-MIB.my
- RFC1213-MIB.my
- IF-MIB.my
- CISCO-SMI.my
- CISCO-ST-TC.my
- ENTITY-MIB.my

- INET-ADDRESS-MIB.my
- CISCO.TC.my
- IP-MIB.my

Supported Rack and Blade Servers CIMC MIBs

- Following are the MIB tables supported by CIMC on blade servers with server firmware version 4.2(1) and later.
  - cucsComputeBladeTable
  - cucsComputeBoardTable
  - cucsFaultTable
  - cucsEquipmentHealthLedTable
  - cucsStorageControllerTable
  - cucsStorageLocalDiskTable
  - cucsStorageLocalLunTable
  - cucsStorageRaidBatteryTable
- Following are the MIB tables supported by CIMC on blade servers with server firmware version 4.2(2) and later.
  - cucsProcessorEnvStatsTable
  - cucsProcessorUnitTable
- Following are the MIB tables supported by CIMC on blade servers with server firmware version 5.1(0) and later.
  - cucsAdaptorUnitTable
  - cucsComputeMbPowerStatsTable
  - cucsComputeMbTempStatsTable
  - cucsEquipmentGraphicsCardCapProviderTable
  - cucsMemoryUnitTable
  - cucsMemoryUnitEnvStatsTable
- The list of MIBs supported by CIMC on rack servers can be found here:

  https://github.com/cisco/cisco-mibs/tree/main/ucs-C-Series-mibs

Supported Chassis IOM/IFM MIBs

Following are the MIB tables supported by chassis IOM/IFM:

- cucsEquipmentIOCardTable

- cucsEquipmentHealthLedTable
- cucsFaultTable

Following are the MIB tables supported by chassis IOM/IFM with Infra firmware version 4.3(2.230117) and later:

- cucsEquipmentFanTable
- cucsEquipmentFanModuleTable
- cucsEquipmentPSUTable

Supported FI MIBs

The list of MIBs supported by FI in IMM can be found here:

https://github.com/cisco/cisco-mibs/tree/main/supportlists/nexus9000

The following link can be used to download the MIBs:

https://github.com/cisco/cisco-mibs

Downloading MIBs

You can use the following links to download the required MIB:

- https://github.com/cisco/cisco-mibs
- https://snmp.cloudapps.cisco.com/Support/SNMP/do/BrowseMIB.do?local=en&step=2

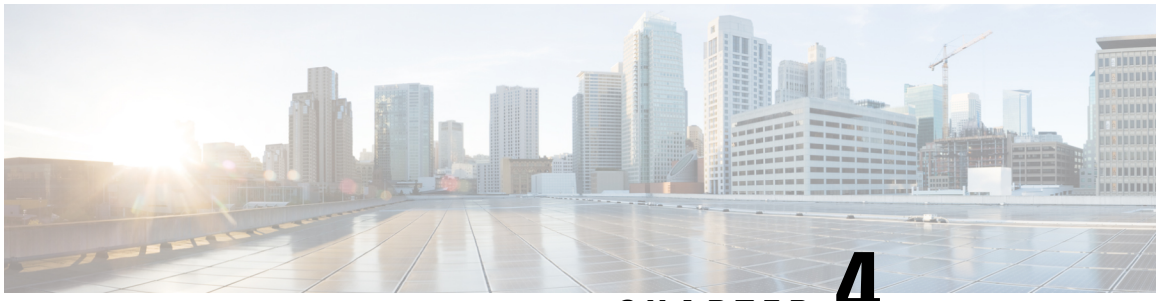
Before you download the MIBs from the FTP location, ensure the following:

1. You know the names of the MIB files that you want to download.
2. Passive FTP is enabled on your browser.

After logging into the FTP location, perform the following:

1. Enter cd/pub/mibs/ucs-mibs/ to change directories.
2. Use the **get** command to copy the required files to your local system.
3. Use the **quit** command to exit passive FTP.

Support for MIBs



CHAPTER 4

Enabling SNMP in IMM

Enabling SNMP in IMM

Enabling SNMP in a Server

Prerequisite: An IMC Access Policy should be created for the Simple Network Management Protocol (SNMP) to work in a server. For more details, see Creating an IMC Access Policy in the IMM Configuration Guide.

1. Create an SNMP policy for the server. For more details, see Creating an SNMP Policy.
2. Create a UCS Server Profile. For more details, see Creating a UCS Server Profile.
3. Associate the IMC Access policy and the SNMP policy to the UCS Server Profile.
4. Deploy the Server Profile to the server.

Enabling SNMP in a Chassis

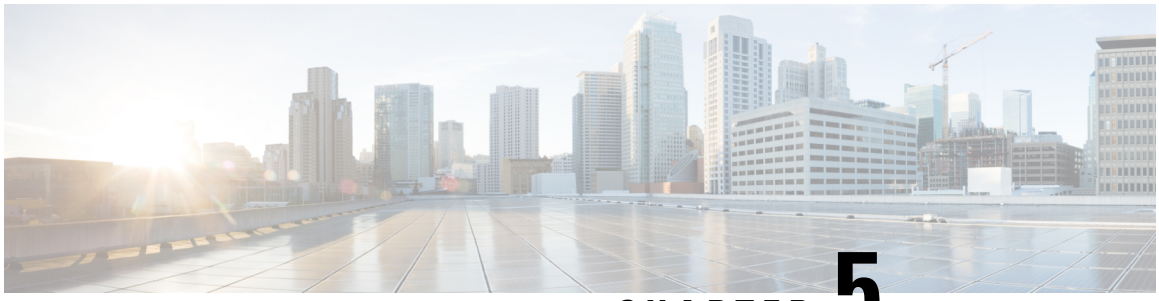
Prerequisite: An IMC Access Policy should be created for the SNMP to work in a chassis. For more details, see Creating an IMC Access Policy in the IMM Configuration Guide.

1. Create an SNMP policy for the chassis. For more details, see Creating an SNMP Policy.
2. Create a Chassis Profile. For more details, see Creating a Chassis Profile.
3. Associate the IMC Access policy and the SNMP policy to the Chassis Profile.
4. Deploy the Chassis Profile to the chassis.

Enabling SNMP in an FI

1. Create an SNMP policy for the FI. For more details, see Creating an SNMP Policy.
2. Create a UCS Domain Profile. For more details, see Creating a UCS Domain Profile.
3. Associate the SNMP policy to the UCS Domain Profile.
4. Deploy the Domain Profile to the FI.

Enabling SNMP in IMM



CHAPTER 5

Supported Faults and Traps

Supported Cisco IMC Faults on Server

Fault Code	Fault Name	Message	Severity	Cause
F0174	fltProcessorUnitInoperable	Processor [id] on server [chassisId]/[slotId] operability: [operability]	Major	Equipment Inoperable
F0176	fltProcessorUnitThermalThreshold Critical	Processor [id] on server [chassisId]/[slotId] temperature: [thermal]Processor [id] on server [id] temperature: [thermal]	Major	Thermal Problem
F0177	fltProcessorUnitThermalThreshold NonRecoverable	Processor [id] on server [chassisId]/[slotId] temperature: [thermal]Processor [id] on server [id] temperature: [thermal]	Critical	Thermal Problem

Fault Code	Fault Name	Message	Severity	Cause
F0185	fltMemoryUnitInoperable	DIMM [location] on server [chassisId]/[slotId] operability: [operability]DIMM [location] on server [id] operability: [operability]	Major	Equipment Inoperable
F0187	fltMemoryUnitThermalThreshold Critical	DIMM [location] on server [chassisId]/[slotId] temperature: [thermal]DIMM [location] on server [id] temperature: [thermal]	Major	Thermal Problem
F0188	fltMemoryUnitThermalThreshold NonRecoverable	DIMM [location] on server [chassisId]/[slotId] temperature: [thermal]DIMM [location] on server [id] temperature: [thermal]	Critical	Thermal Problem
F0203	fltAdaptorUnitMissing	Adapter [id] in server [id] presence: [presence]Adapter [id] in server [chassisId]/[slotId] presence: [presence]	Warning	Equipment Missing
F0310	fltComputeBoardPowerError	Motherboard of server [chassisId]/[slotId] (service profile: [assignedToDn]) power: [operPower]Motherboard of server [id] (service profile: [assignedToDn]) power: [operPower]	Major	Power Problem

Fault Code	Fault Name	Message	Severity	Cause
F0313	fltComputePhysicalBiosPostTimeout	Server [id] (service profile: [assignedToDn]) BIOS failed power-on self testServer [chassisId]/[slotId] (service profile: [assignedToDn]) BIOS failed power-on self test	Critical	Equipment Inoperable
F0409	fltEquipmentChassisThermalThreshold Critical	Thermal condition on chassis [id] cause: [thermalStateQualifier]	Major	Thermal Problem
F0411	fltEquipmentChassisThermalThreshold NonRecoverable	Thermal condition on chassis [id] cause:[thermalStateQualifier	Critical	Thermal Problem
F0842	fltProcessorUnitDisabled	Processor [id] on server [chassisId]/[slotId] operState: [operState]Processor [id] on server [id] operState: [operState]	Info	Equipment Disabled
F0844	fltMemoryUnitDisabled	DIMM [location] on server [chassisId]/[slotId] operState: [operState]DIMM [location] on server [id] operaState: [operState]	Major	Equipment Disabled
F0868	fltComputeBoardPowerFail	Motherboard of server [chassisId]/[slotId] (service profile: [assignedToDn]) power: [power]Motherboard of server [id] (service profile: [assignedToDn]) power: [power]	Critical	Power Problem

Fault Code	Fault Name	Message	Severity	Cause
F0869	fltComputeABoardThermalProblem	Motherboard of server [chassisId]/[slotId] (service profile: [assignedToDn]) thermal: [thermal]Motherboard of server [id] (service profile: [assignedToDn]) thermal: [thermal]	Minor	Thermal Problem
F0918	fltComputeABoardMotherBoardVoltage ThresholdUpperNonRecoverable	Motherboard input voltage in server [id] is [voltage]Motherboard [faultQualifier] input voltage in server [chassisId]/[slotId] is [voltage]Motherboard input voltage(12V/5V/3V) in server [chassisId]/ [slotId]/[serverInstanceId] is [voltage]	Major	Voltage Problem
F0920	fltComputeABoardMotherBoardVoltage UpperThresholdCritical	Motherboard input voltage in server [id] is [voltage]Motherboard [faultQualifier] input voltage in server [chassisId]/[slotId] is [voltage]Motherboard input voltage(12V/5V/3V) in server [chassisId]/ [slotId]/[serverInstanceId] is [voltage]	Minor	Voltage Problem

Fault Code	Fault Name	Message	Severity	Cause
F1257	fltStorageFlexFlashControllerInoperable	FlexFlash Controller [id] on server [chassisId]/[slotId] is inoperable. Reason: [operQualifierReason] Status: [controllerHealth]FlexFlash Controller [id] on server [id] is inoperable. Reason: [operQualifierReason] Status: [controllerHealth]	Major	Equipment Inoperable
F1258	fltStorageFlexFlashCardInoperable	FlexFlash Card [slotNumber] on server [chassisId]/[slotId] is inoperable. Reason: [operQualifierReason] FlexFlash Card [slotNumber] on server [id] is inoperable. Reason: [operQualifierReason]	Major	Equipment Inoperable
F1259	fltStorageFlexFlashCardMissing	FlexFlash Card [slotNumber] missing on server [chassisId]/[slotId]FlexFlash Card [slotNumber] missing on server [id]	Info	Equipment Missing
F1260	fltStorageFlexFlashVirtual DriveDegraded	FlexFlash Virtual Drive RAID degraded on server [chassisId]/[slotId]. Reason: [raidState]FlexFlash Virtual Drive RAID degraded on server [id]. Reason: [raidState]	Minor	Equipment Degraded

Fault Code	Fault Name	Message	Severity	Cause
F1261	fltStorageFlexFlashVirtualDrive Inoperable	FlexFlash Virtual Drive on server [chassisId]/[slotId] is inoperable. Reason: [raidState]FlexFlash Virtual Drive on server [id] is inoperable. Reason: [raidState]	Major	Equipment Inoperable
F1262	fltStorageFlexFlashControllerUnhealthy	FlexFlash Controller [id] on server [chassisId]/[slotId] is unhealthy. Reason: [operQualifierReason] Status: [controllerHealth]FlexFlash Controller [id] on server [id] is unhealthy. Reason: [operQualifierReason] Status: [controllerHealth]	Minor	Equipment Inoperable
F1004	fltStorageControllerInoperable	Storage Controller [id] on server [chassisId]/[slotId] is inoperable. Reason: [operQualifierReason] Status: [controllerHealth]	Major	Equipment Inoperable
F1003	fltStorageControllerPatrolReadFailed	Storage Controller [id] on server [chassisId]/[slotId] patrolReadFailed Reason: [operQualifierReason] Status: [controllerHealth]	Warning	Equipment Unhealthy

Fault Code	Fault Name	Message	Severity	Cause
F181	fltStorageLocalDiskInoperable	Storage LocalDisk on slotNumber] on server [chassisId]/[slotId] is inoperable. Reason: [operQualifierReason] StorageLocalDisk [slotNumber] on server [id] is inoperable.	Major	Equipment Inoperable
F996	fltStorageLocalDiskDegraded	StorageLocalDisk [slotNumber] Degraded on server [chassisId]/ [slotId]StorageController [slotNumber] Degraded on server [id]	Warning	Equipment Degraded
F1256	fltStorageLocalDiskMissing	StorageLocalDiskMissing on server [chassisId]/[slotId]. Reason: StorageLocalDisk missing	Warning	Equipment Missing
F1005	fltStorageLocalDiskRebuildFailed	StorageLocalDiskon server [chassisId]/[slotId] failed Rebuild. Reason: StorageLocalDisk on server [id] failed rebuild	Warning	Equipment Unhealthy
F1006	fltStorageLocalDiskCopybackFailed	StorageLocalDiskon server [chassisId]/[slotId] failed Rebuild. Reason: StorageLocalDisk on server [[id] failed copyback	Warning	Equipment Unhealthy

Fault Code	Fault Name	Message	Severity	Cause
F1007	fltStorageVirtulDriveInoperable	Storage VirtualDrive on slotNumber] on server [chassisId]/[slotId] is inoperable. Reason: [operQualifierReason] StorageLocalDisk [slotNumber] on server [id] is inoperable	Major	Equipment Inoperable
F1008	fltStorageVirtualDriveDegraded	Virtual drive [id] on Storage Controller [id] operability: [operability]	Warning	Equipment Degraded
F1010	fltStorageVirtualDriveConsistency CheckFailed	Virtual drive [id] on Storage Controller [id] operability: [operability]	Warning	Equipment Unhealthy
F997	fltStorageRaidBatteryDegraded	Storage Controller [id] on server [chassisId]/[slotId] RaidBattery is Degraded Reason: [operQualifierReason] Status: [controllerHealth]	Warning	Equipment Degraded
F999	fltStorageRaidBatteryRelearnFailed	Storage Controller [id] on server [chassisId]/[slotId] RaidBattery RelearnFailed Degraded Reason: [operQualifierReason] Status: [controllerHealth].	Warning	Equipment Unhealthy
F1783	fltEquipmentTpmTpmMismatch	Installed TPM is currently in-operable for server configuration	Warning	Equipment Inoperable

Fault Code	Fault Name	Message	Severity	Cause
F1934	fltComputeBoardFailedSecure FuseValidation	Intel PCH Secure Fuse Verification Failed. Please contact Cisco TAC	Critical	Equipment Unhealthy
F1935	fltBiosUnitFD0FailedSecurity Verification	BIOS FD0 Verification Failed. Please update and reactivate BIOS.	Critical	BIOS Image Corrupted
F0305	fltComputePhysicalInsufficiently Equipped	Server [id] (service profile: [assignedToDn]) has insufficient number of DIMMs, CPUs and/or adaptersServer [chassisId]/[slotId] (service profile: [assignedToDn]) has insufficient number of DIMMs, CPUs and/or adapters	Critical	Insufficiently Equipped
F0470	fltFirmwareUpdatableImageUnusable	backup image is unusable. reason: [operStateQual]	Major	Image Unusable
F0744	fltPowerBudgetPowerCapReached Commit	P-State lowered as consumption hit power cap for server [chassisId]/[slotId]P-State lowered as consumption hit power cap for server [id]	Info	Power Consumption Hit Limit
F1707	fltMgmtHealthStatusHealthCriticalIssue	Intel ME Node Manager is unhealthy or unresponsive.	Critical	Equipment Unhealthy
F531	fltStorageRaidBatteryInoperable	Storage Raid Battery %s is inoperable: Check Controller battery	Minor	Equipment Inoperable
F1003	fltStorageLocalDiskPatrolReadFailed	%s Local disk %s PatrolRead failed: Please check the storage drive %s	Warning	Equipment Inoperable

Fault Code	Fault Name	Message	Severity	Cause
F1009	fltStorageVirtualDriveReconstruction Failed	%s Virtual Drive %s reconstruction failed: Reconstruction failed due to configuration mismatch	Major	Equipment Degraded
F2012	fltStorageControllerPciEquipSlot Unsecure	Storage controller %s unable to secure critical: SPDM communication not secure	Major	Equipment Unsecure

Supported Chassis IOM/IFM Faults

Fault Code	Fault Name	Message	Severity	Cause
F0369	fltEquipmentPsuPowerSupplyProblem	Power supply [id] in chassis [id] power: [power]Power supply [id] in fabric interconnect [id] power: [power]Power supply [id] in fex [id] power: [power]Power supply [id] in server [id] power: [power]	Major	Power Problem

Fault Code	Fault Name	Message	Severity	Cause
F0378	fltEquipmentPsuMissing	Power supply [id] in chassis [id] presence: [presence]Power supply [id] in fabric interconnect [id] presence: [presence]Power supply [id] in fex [id] presence: [presence]Power supply [id] in server [id] presence: [presence]	Warning	Equipment Missing
F0380	fltEquipmentFanModuleThermal ThresholdNonCritica	Fan module [tray]-[id] in chassis [id] temperature: [thermal]Fan module [tray]-[id] in server [id] temperature: [thermal]Fan module [tray]-[id] in fabric interconnect [id] temperature: [thermal]	Minor	Thermal Problem
F0381	fltProcessorUnitThermalThreshold NonRecoverable	Processor [id] on server [chassisId]/[slotId] temperature: [thermal]Processor [id] on server [id] temperature: [thermal]	Minor	Thermal Problem

Fault Code	Fault Name	Message	Severity	Cause
F0382	fltEquipmentFanModuleThermal ThresholdCritical	Fan module [tray]-[id] in chassis [id] temperature: [thermal]Fan module [tray]-[id] in server [id] temperature: [thermal]Fan module [tray]-[id] in fabric interconnect [id] temperature: [thermal]	Major	Thermal Problem
F0383	fltEquipmentPsuThermalThreshold Critical	Power supply [id] in chassis [id] temperature: [thermal]Power supply [id] in fabric interconnect [id] temperature: [thermal]Power supply [id] in server [id] temperature: [thermal]	Major	Thermal Problem
F0384	fltEquipmentFanModuleThermalThreshold NonRecoverable	Fan module [tray]-[id] in chassis [id] temperature: [thermal]Fan module [tray]-[id] in server [id] temperature: [thermal]Fan module [tray]-[id] in fabric interconnect [id] temperature: [thermal]	Critical	Thermal Problem

Fault Code	Fault Name	Message	Severity	Cause
F0385	fltEquipmentPsuThermalThreshold NonRecoverable	Power supply [id] in chassis [id] temperature: [thermal]Power supply [id] in fabric interconnect [id] temperature: [thermal]Power supply [id] in server [id] temperature: [thermal]	Critical	Thermal Problem
F0387	fltEquipmentPsuVoltage ThresholdNonCritical	Power supply [id] in chassis [id] voltage: [voltage]Power supply [id] in fabric interconnect [id] voltage: [voltage]Power supply [id] in fex [id] voltage: [voltage]Power supply [id] in server [id] voltage: [voltage]	Minor	Voltage Problem
F0389	fltEquipmentPsuVoltageThreshold Critical	Power supply [id] in chassis [id] voltage: [voltage]Power supply [id] in fabric interconnect [id] voltage: [voltage]Power supply [id] in fex [id] voltage: [voltage]Power supply [id] in server [id] voltage: [voltage]	Major	Voltage Problem

Fault Code	Fault Name	Message	Severity	Cause
F0391	fltEquipmentPsuVoltageThreshold NonRecoverable	Power supply [id] in chassis [id] voltage: [voltage]Power supply [id] in fabric interconnect [id] voltage: [voltage]Power supply [id] in fex [id] voltage: [voltage]Power supply [id] in server [id] voltage: [voltage]	Critical	Voltage Problem
F0392	fltEquipmentPsuPerfThreshold NonCritical	Power supply [id] in chassis [id] output power: [perf]Power supply [id] in fabric interconnect [id] output power: [perf]Power supply [id] in server [id] output power: [perf]	Minor	Performance Problem
F0393	fltEquipmentPsuPerfThresholdCritical	Power supply [id] in chassis [id] output power: [perf]Power supply [id] in fabric interconnect [id] output power: [perf]Power supply [id] in server [id] output power: [perf]	Major	Performance Problem

Fault Code	Fault Name	Message	Severity	Cause
F0394	fltEquipmentPsuPerfThreshold NonRecoverable	Power supply [id] in chassis [id] output power: [perf]Power supply [id] in fabric interconnect [id] output power: [perf]Power supply [id] in server [id] output power: [perf]	Critical	Performance Problem
F0395	fltEquipmentFanPerfThreshold NonCritical	Fan [id] in Fan Module [tray]-[id] under chassis [id] speed: [perf]Fan [id] in fabric interconnect [id] speed: [perf]Fan [id] in Fan Module [tray]-[id] under server [id] speed: [perf]	Info	Performance Problem
F0396	fltEquipmentFanPerfThresholdCritica	Fan [id] in Fan Module [tray]-[id] under chassis [id] speed: [perf]Fan [id] in fabric interconnect [id] speed: [perf]Fan [id] in Fan Module [tray]-[id] under server [id] speed: [perf]	Info	Performance Problem

Fault Code	Fault Name	Message	Severity	Cause
F0397	fltEquipmentFanPerfThresholdNonRecoverable	Fan [id] in Fan Module [tray]-[id] under chassis [id] speed: [perf]Fan [id] in fabric interconnect [id] speed: [perf]Fan [id] in Fan Module [tray]-[id] under server [id] speed: [perf]	Major	Performance Problem
F0403	fltEquipmentIOCardPeer Disconnected	IOM [chassisId]/[id] ([switchId]) peer connectivity: [peerCommStatus]	Warning	Equipment Disconnected
F0409	fltEquipmentChassisThermalThreshold Critical	Thermal condition on chassis [id] cause: [thermalStateQualifier]	Major	Thermal Problem
F0410	fltEquipmentChassisThermalThreshold NonCritical	Thermal condition on chassis [id] cause: [thermalStateQualifier]	Minor	Thermal Problem
F0411	fltEquipmentChassisThermalThreshold NonRecoverable	Thermal condition on chassis [id] cause: [thermalStateQualifier]	Critical	Thermal Problem

Fault Code	Fault Name	Message	Severity	Cause
F0434	fltEquipmentFanMissing	Fan [id] in fabric interconnect [id] presence: [presence]Fan [id] in fex [id] presence: [presence]Fan [id] in Fan Module [tray]-[id] under server [id] presence: [presence]	Warning	Equipment Missing
F0480	fltEquipmentFanModuleDegraded	Fan module [tray]-[id] in chassis [id] operability: [operability]Fan module [tray]-[id] in server [id] operability: [operability]Fan module [tray]-[id] in fabric interconnect [id] operability: [operability]	Minor	Equipment Degraded
F0481	fltEquipmentIOCardPost-failure	[side] IOM [chassisId]/[id] ([switchId]) POST failure	Major	Equipment-IOcard
F0484	fltEquipmentFanPerfThresholdLower NonRecoverable	Fan [id] in Fan Module [tray]-[id] under chassis [id] speed: [perf]Fan [id] in fabric interconnect [id] speed: [perf]Fan [id] in Fan Module [tray]-[id] under server [id] speed: [perf]	Crtitical	Performance Problem

Fault Code	Fault Name	Message	Severity	Cause
F0279	fltEquipmentIOCardThermalThreshold NonCritical	[side] IOM [chassisId]/[id] ([switchId]) temperature: [thermal]	Minor	Thermal Problem
F0730	fltEquipmentIOCardThermalThreshold Critical	[side] IOM [chassisId]/[id] ([switchId]) temperature: [thermal]	Minor	Thermal Problem
F0731	fltEquipmentIOCardThermalThreshold NonRecoverable	[side] IOM [chassisId]/[id] ([switchId]) temperature: [thermal]	Minor	Thermal Problem
F0371	fltEquipmentFanDegraded	Fan [id] in Fan Module [tray]-[id] under chassis [id] operability: [operability]Fan [id] in fabric interconnect [id] operability: [operability]Fan [id] in fex [id] operability: [operability]Fan [id] in Fan Module [tray]-[id] under server [id] operability: [operability]	Minor	Equipment Degraded

Fault Code	Fault Name	Message	Severity	Cause
F0373	fltEquipmentFanInoperable	Fan [id] in Fan Module [tray]-[id] under chassis [id] operability: [operability]Fan [id] in fabric interconnect [id] operability: [operability]Fan [id] in fex [id] operability: [operability]Fan [id] in Fan Module [tray]-[id] under server [id] operability: [operability]	Major	Equipment Inoperable
F0374	fltEquipmentPsuInoperable	Power supply [id] in chassis [id] operability: [operability]Power supply [id] in fabric interconnect [id] operability: [operability]Power supply [id] in fex [id] operability: [operability]Power supply [id] in server [id] operability: [operability]	Major	Equipment Inoperable
F0379	fltEquipmentIOCardThermalProblem	[side] IOM [chassisId]/[id] ([switchId]) operState: [operState]	Major	Thermal Problem

Fault Code	Fault Name	Message	Severity	Cause
F0398	fltEquipmentIOCardFirmwareUpgrade	Chassis controller in IOM [chassisId]/[id] ([switchId]) firmware upgrade problem: [upgradeStatus]	Major	Firmware Upgrade Problem
F0405	fltEquipmentIOCardIdentity	[side] IOM [chassisId]/[id] ([switchId]) has a malformed FRU	Critical	Fru Problem
F0406	fltEquipmentFanModuleIdentity	Fan Module [tray]-[id] in chassis [id] has a malformed FRUFan Module [tray]-[id] in server [id] has a malformed FRUFan Module [tray]-[id] in fabric interconnect [id] has a malformed FRU	Critical	Fru Problem
F0407	fltEquipmentPsuIdentity	Power supply [id] on chassis [id] has a malformed FRUPower supply [id] on server [id] has a malformed FRU	Critical	Fru Problem

Supported FI Traps

Trap Type	Description
generic	:coldStart
entity	:entity_fan_status_change
entity	:entity_mib_change

Trap Type	Description
entity	:entity_module_status_change
entity	:entity_module_inserted
entity	:entity_module_removed
entity	:entity_power_out_change
entity	:entity_power_status_change
entity	:entity_unrecognised_module
entity	:entity_sensor
link	:cERRDisableInterfaceEventRev1
link	:cieLinkDown
link	:cieLinkUp
link	:cmn-mac-move-notification
link	:delayed-link-state-change
link	:extended-linkDown
link	:extended-linkUp
link	:linkDown
link	:linkUp
rf	:redundancy_framework
license	:notify-license-expiry
license	: notify-no-license-for-feature
license	: notify-licensefile-missing
license	:notify-license-expiry-warning
upgrade	:UpgradeOpNotifyOnCompletion
upgrade	:UpgradeJobStatusNotify
rmon	:fallingAlarm
rmon	:hcRisingAlarm
rmon	:hcFallingAlarm
rmon	:risingAlarm

Related Documentation

- IMM Configuration Guide
- Cisco SNMP Handbook

Related Documentation