



DCNM-SAN Event Management

DCNM Event Management tool (EMAN) offers event management capability directly in Cisco MDS, Nexus 7000 and 5000 series switches to monitor events and take informational or corrective action as events occur, or when a threshold is reached. EMAN captures the state of the switches during critical situations helping to take immediate recovery actions and gather information to perform root-cause analysis.

An event is generated when the object matches specified values or crosses specified thresholds. When it detects an event, EMAN will parse the event for the host name, severity and then determine the host-to-application dependency by comparing the event in the host table. EMAN monitors these events to detect the severity type such as warning, critical and emergency of the events. It will also list the impacted components such as a host, ISL or a storage port. Switch health and performance threshold are the two event types that the EMAN monitor.

This Appendix contains the following sections:

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- [DCNM-SAN Event Classification, page B-3](#)

Benefits of the Event Management Tool

EMAN tracks resource utilization and resource depletion by monitoring events in 45000 ports and 240 switches. It also provides a mechanism to send notifications whenever the specified threshold values are exceeded by any of the components. This notification helps network administrators diagnose resource utilization issues and prioritize resources making it more scalable.

EMAN helps in addressing component issues real time by performing the following functions:

- Monitoring resource usage.
- Using resource threshold pre-sets.
- Generating alerts when resource utilization reaches the specified level.
- Provides dependency path mapping.

DCNM-SAN Event Management

This section describes how DCNM handles asynchronous transfer events from the managed switches and contains the following topics:

Events

The following are the three primary methods by which DCNM detects events:

- **SNMP**—The Simple Network Management Protocol v1 (SNMPv1) event detector allows an event to be generated when the object matches specified values or crosses specified thresholds. The Cisco MDS 9000 switch can contain up to 10 trap destinations. The unmanaged fabrics or switches are removed from the list of traps destinations.
- **Syslog**—DCNM-SAN receives syslog messages and are logged in the events table in the database and archived on each switch.
- **Fabric Model**—DCNM-SAN can function even without receiving SNMP traps from the managed switches. DCNM-SAN polls for traps every 5 minutes and does a deeper discovery every 30 minutes by default.

Purpose

Asynchronous event handling serves the following purposes:

- **Model Update**—DCNM-SAN design the model of the physical and logical connectivity of each fabric. Asynchronous events enables real time synchronization with the fabric. In cases such as a linkdown, this model quickly updates the event without polling the fabric. However, for major changes such as an ISL link change, this model polls the fabric to synchronize.
- **Log**—All the events are logged into a database. The number of events that can be logged is set to 10,000 by default. You can view this log in the Cisco DCNM-SAN Client and in Cisco DCNM Web Client. The Cisco DCNM Web Client stores all events in the database unless you do not apply any filteres. The Cisco DCNM-SAN Client log is restricted to the fabric(s) that are opened in the client's interface. The Cisco DCNM-SAN Client automatically updates the table as new events appear.
- **Map**—The Cisco DCNM-SAN Client's updates the map automatically when topology changes.

Forwarding

Events are forwarded in three ways:

- **Cisco Call Home**—The Cisco MDS 9000 series switches generates an email at the event of a critical event such as a module down etc. You can customize this email to include additional information. You can use Cisco DCNM-SAN client to configure Cisco call home feature and it has no operational dependency on Cisco DCNM.
- **EMC Call Home**—If you enable this feature, the Cisco DCNM server generates an EMC call home email at the event of a critical event such as a linkDown event etc. This email is created in XML format.
- **Event Forwarding**—You can optionally choose to send an email or SNMP traps from Cisco DCNM for any or all events that are logged into the database.

DCNM-SAN Event Classification

Port Events

Port events provides real-time information about the operational status of the host ports, storage ports, ISLs, NPV etc in your network. At the event of a fault, the Cisco DCNM EMAN generates an event or events that are rolled up into an alert. The port events are broadly classified into two as follows:

- Service Impacting—Indicates the severity of the event that impacts the service. Examples are PMON, RMON and SFP events.
- Outage—Indicates the severity of the event that impacts the functioning of the device. Examples are link up/down and threshold events.

Event Log Format

Events log consists of parseable information that is available to higher level management applications in the following format:

```
<fabric>/<switch> <localTime> <severity> <type> <description>
```

- Fabric/Switch—The name of the fabric or the switch.
- LocalTime—The date and time of the event occurred. The time is in the following format: hh:mm:ss.ttt. The date is in the following format: MM/DD/YYYY.
- Severity—Event severity level, combination of single events, or a range of event severity levels. The severity contains one of the following.
 - Emergencies
 - Alert
 - Critical
 - Error
 - Warning
 - Notice
 - Informational
 - Debugging
- Type—Type of events.
 - Fabric
 - FICON
 - IVR
 - License
 - Other
 - Port Alarm
 - Port Up and Port Down
 - Security

- Switch Hardware
- Switch Manageability
- Threshold
- VSAN
- Zone
- Description—Description of the event in the following format:
`<portType>: <name>, Port: <interface>, VSAN: <vsanId(s)>, <condition>`

Event Types

IVR

Table B-1 **IVR Events**

Event Name	Description
civrDomainConflictNotify	
civrZoneActivationDoneNotify	
civrZoneCompactNotify	
civrZoneDeactivationDoneNotify	
civrDomainConflictNotify	
civrAfidConfigNotify	

License

Table B-2 **Licence Events**

Event Name	Description
clmLicenseExpiryNotify	
clmLicenseExpiryWarningNotify	
clmLicenseFileMissingNotify	
clmNoLicenseForFeatureNotify	

Port Alarm

Any RMON event that relates to an interface object.

Table B-3 Port Alarm Event

Event Name	Description
cIfXcvrMonStatusChangeNotif	

Port Up and Port Down

Model-generated events relating to Host, Storage, ISL, NP_Links

Table B-4 IVR Events

Event Name	Description
linkup	
linkDown	
cieLinkUp	
cieLinkDown	
connUnitPortStatusChange	
fcNameServerEntryAdd	
fcNameServerEntryDelete	
fcTrunkIfDownNotify	
fcTrunkIfUpNotify	
cieDelayedLinkUpDownNotif	



Note

Port Moved events will not be logged.

Security

Table B-5 Security Event Types

Event Name	Description
casServerStateChange	
cfespAuthFailTrap	
ciscoPsmFabricBindDenyNotifyNew	
ciscoEnhIpsecFlowBadSa	
ciscoEnhIpsecFlowSetupFail	
ciscoEnhIpsecFlowSysFailure	
ciscoEnhIpsecFlowTunnelStart	
ciscoEnhIpsecFlowTunnelStop	
ciscoIPsecProvCryptomapAdded	

Event Name	Description
ciscoIPsecProvCryptomapAttached	
ciscoIPsecProvCryptomapDeleted	
ciscoIPsecProvCryptomapDetached	
ciscoIkeConfigOperStateChanged	
ciscoIkeConfigPolicyAdded	
ciscoIkeConfigPolicyDeleted	
ciscoIkeConfigPskAdded	
ciscoIkeConfigPskDeleted	
ciscoIkeFlowInNewGrpRejected	
ciscoIkeFlowOutNewGrpRejected	
ciscoIpsSgCertCrlFailure	
ciscoIpsSgSysFailure	
ciscoIpsSgTunnelStart	
ciscoIpsSgTunnelStop	

Switch Hardware

Table B-6 Switch Hardware Events

Event Name	Description
cefcFRUInserted	
cefcFRURemoved	
cefcPowerStatusChange	
cefcPowerSupplyOutputChange	
cefcFanTrapStatusChange	
cefcUnrecognizedFRU	
cefcFRUInserted	
cefcFRURemoved	
cefcUnrecognizedFRU	
entPhysicalVendorType	
entPhysicalName	
entPhysicalModelName	
cefcPhysicalStatus	
cefcPowerStatusChange	
cefcFRUPowerOperStatus	
cefcFRUPowerAdminStatus	
cefcFanTrapStatusChange	

Switch Managability

Table B-7 **Switch Event Types**

Event Name	Description
Switch Discovered	
Switch Rebooted	
Switch Unreachable	
Switch Manageable	
Switch Unmanageable	
Switch IP Changed	
warmStart	
coldStart	
ciscoRFProgressionNotif	
ciscoRFSwactNotif	

Threshold

Table B-8 **Threshold Events**

Event Name	Description
cHcRisingAlarm	
cHcFallingAlarm	
hcRisingAlarm	
hcFallingAlarm	
risingAlarm	
FallingAlarm	

VSAN

Table B-9 **VSAN Events**

Event Name	Description
vsanPortMembershipChange	
vsanStatusChange	

Zone

Table B-10 **Zone Events**

Event Name	Description
zoneActivateNotify	
zoneCompactNotify	

Event Name	Description
zoneDefZoneBehaviourChngNotify	
zoneMergeFailureNotify	
zoneMergeSuccessNotify	
zoneServiceReqRejNotify	
zoneUnsuppMemInIntOpModeNotify	

Others

This table contains all other trap types such as ISCSI, VRRP, Cisco callhome, flex attach, FDMI, FICON, CFS, PMON config, SVC, SCSI, SNE, Core, Domain Manager, FCNS, FCOT, and UCS.

Table B-11 Other Events

Event Name	Description
cIsnsClientInitalRegistration	
cIsnsClientLostConnection	
cIsnsClientNoServerDiscovered	
cIsnsClientStart	
cIsnsServerShutdown	
cIsnsServerStart	
cVrrpNotificationNewMaster	
cVrrpNotificationProtoError	
casServerStateChange	
ccCopyCompletion	
ccmAlertGroupTypeAddedNotif	
ccmAlertGroupTypeDeletedNotif	
ccmCLIRunningConfigChanged	
ccmCTIDRolledOver	
ccmEventNotif	
ccmSmtplibMsgSendFailNotif	
ccmSmtplibServerFailNotif	
cfaIfVirtualWwnChangeNotify	
cfaVirtualWwnMapChangeNotify	
cfDMIRejectRegNotify	
cficonPortInfoChange	
ciscoCFSDiscoveryCompleteNotif	
ciscoCFSFeatureActionNotif	
ciscoCFSMergeFailNotif	

Event Name	Description
ciscoCFSSStatPeerStatusChngNotif	
ciscoConfigManEvent	
ciscoEnhIpsecFlowBadSa	
ciscoEnhIpsecFlowSetupFail	
ciscoEnhIpsecFlowSysFailure	
ciscoEnhIpsecFlowTunnelStart	
ciscoEnhIpsecFlowTunnelStop	
ciscoExtScsiLunDiscDoneNotify	
ciscoFCCCongestionRateLimitEnd	
ciscoFCCCongestionRateLimitStart	
ciscoFCCCongestionStateChange	
ciscoFeatOpStatusChange	
ciscoFeatureOpStatusChange	
ciscoFeatureSetOpStatusChange	
ciscoFlashCopyCompletionTrap	
ciscoFlashDeviceChangeTrap	
ciscoFlashDeviceInsertedNotif	
ciscoFlashDeviceInsertedNotifRev 1	
ciscoFlashDeviceRemovedNotif	
ciscoFlashDeviceRemovedNotifRev 1	
ciscoFlashMiscOpCompletionTrap	
ciscoFlashPartitioningCompletionTrap	
ciscoIPsecProvCryptomapAdded	
ciscoIPsecProvCryptomapAttached	
ciscoIPsecProvCryptomapDeleted	
ciscoIPsecProvCryptomapDetached	
ciscoIkeConfigOperStateChanged	
ciscoIkeConfigPolicyAdded	
ciscoIkeConfigPolicyDeleted	
ciscoIkeConfigPskAdded	
ciscoIkeConfigPskDeleted	
ciscoIkeFlowInNewGrpRejected	
ciscoIkeFlowOutNewGrpRejected	
ciscoIpsSgCertCrlFailure	
ciscoIpsSgSysFailure	
ciscoIpsSgTunnelStart	
ciscoIpsSgTunnelStop	

Event Name	Description
ciscoPmonPolicyChangeNotify	
ciscoPrefPathHWFailureNotify	
ciscoPsmFabricBindDenyNotify	
ciscoPsmFabricBindDenyNotifyNew	
ciscoPsmPortBindEPortDenyNotify	
ciscoPsmPortBindFPortDenyNotify	
ciscoSanBaseSvcClusterNewMaster	
ciscoSanBaseSvcInterfaceCreate	
ciscoSanBaseSvcInterfaceDelete	
ciscoScsiFlowStatsNotify	
ciscoScsiFlowVerifyNotify	
ciscoScsiFlowWrAccNotify	
ciscoSmeClusterNewMaster	
ciscoSmeInterfaceCreate	
ciscoSmeInterfaceDelete	
ciscoSystemClockChanged	
ciscoVshaStateChngNotify	
ciuUpgradeJobStatusNotify	
ciuUpgradeOpCompletionNotify	
cseFailSwCoreNotify	
cseFailSwCoreNotifyExtended	
cseHaRestartNotify	
cseShutDownNotify	
csiErrorTrap	
csiInformationTrap	
csiWarningTrap	
dmDomainIdNotAssignedNotify	
dmFabricChangeNotify	
dmNewPrincipalSwitchNotify	
fcNameServerDatabaseFull	
fcNameServerRejectRegNotify	
fcPingCompletionNotify	
fcTraceRouteCompletionNotify	
fcotInserted	
fcotRemoved	
fcsDiscoveryCompleteNotify	
fcsMgmtAddrChangeNotify	

Event Name	Description
fcsReqRejNotify	
fspfNbrStateChangeNotify	
ptopoConfigChange	
qlSB2PortLinkDown	
qlSB2PortLinkUp	
rscnElsRejectReqNotify	
rscnElsRxRejectReqNotify	
rscnIlsRejectReqNotify	
rscnIlsRxRejectReqNotify	
virtualNwIfCreateEntryNotify	
virtualNwIfDeleteEntryNotify	
vlanTrunkPortDynamicStatusChange	
vrrpTrapAuthFailure	
vrrpTrapNewMaster	
vtpConfigDigestError	
vtpConfigRevNumberError	
vtpLocalModeChanged	
vtpMtuTooBig	
vtpPruningStateOperChange	
vtpServerDisabled	
vtpVersionInUseChanged	
vtpVersionOneDeviceDetected	
vtpVlanCreated	
vtpVlanDeleted	
vtpVlanRingNumberConflict	
wwnmType1WwnAvailableNotify	
wwnmType1WwnShortageNotify	
wwnmTypeOtherWwnAvailableNotify	
wwnmTypeOtherWwnShortageNotify	

