CHAPTER 10

Support Information for Generic Devices

This chapter contains support information for Virtual Network Elements (VNEs) that manage Generic devices in Cisco Prime Network 3.9.

Note For more information about the technologies described in this chapter , see Part 2 Technology Support.

Understanding the Generic VNE

The generic VNE can be used to model any NE that is not currently supported by Cisco ANA. The generic VNE provides a basic level of network management that provides information such as the physical interfaces available on the device and their status, rudimentary logical modeling, and parsing of basic traps.

The generic VNE models NEs using SNMP MIB2, which is the most generic and widely used management interface. The generic VNE does not consider the device vendor, device type, or software version of the NE that it models.

This section contains the following topics:

Physical Inventory Model

The generic VNE uses a static model for the device chassis. The rest of the physical inventory is modeled using the ifTable. Since modules are not modeled, the generic VNE creates a single generic module on which all of the physical interfaces reside.

Table 10-1 on page 10-2 describes which MIB tables are used to model the physical inventory components that are supported by the generic VNE.

Table 10-1 MIBs Used for Physical Inventory Model of Generic VNE—Cisco ANA 3.7

Logical Component	MIB Table	Columns/Tables Used For Modeling
Interfaces	ifTable	• ifDescr • ifType • ifOperStatus
Ports Port status Port speed MAC address	 ifTable ifTable ifTable	• ifOperStatus and ifAdminStatus • ifSpeed • ifPhysAddress (Ethernet ports)

Note Certain general properties on the managed element, such as system description, are modeled using the system MIB.

Logical Inventory Model

Table 10-2 on page 10-2 describes which MIB tables are used to model the logical inventory components that are supported by the generic VNE.

Table 10-2 MIBs Used for Logical Inventory Model of Generic VNE—Cisco ANA 3.7

Logical Component	MIB Table	Columns/Tables Used For Modeling
IP Interfaces	ipAddrTable	• ipAdEntIfIndex • ipAdEntNetMask
ARP table	ipNetToMediaTable	• ipNetToMediaPhysAddress • ipNetToMediaType
Routing table	ipRouteTable	• ipRouteDest • ipRouteIfIndex • ipRouteNextHop • ipRouteType • ipRouteMask
Bridging table	dot1dTpFdbTable	—

Table 10-2 MIBs Used for Logical Inventory Model of Generic VNE—Cisco ANA 3.7 (continued)

Logical Component	MIB Table	Columns/Tables Used For Modeling
Default bridge	dot1dBridge	• dot1dBaseBridgeAddress • dot1dBaseType

Generic VNE—Supported Traps

The generic VNE can parse the standard MIB2 traps listed in Table 10-3 on page 10-3.

Table 10-3 Supported Traps for Generic VNE—Cisco ANA<nbsp/>3.7

authenticationFailure	mplsTunnelReoptimized
bgpBackwardTransition	mplsTunnelRerouted
bgpEstablished	mplsTunnelUp
coldStart	ospfIfAuthFailure
entConfigChange	ospfIfConfigError
linkDown	ospfIfRxBadPacket
linkUp	ospfIfStateChange (down)
mplsL3VpnVrfDown	ospfIfStateChange (up)
mplsL3VpnVrfNumVrfRouteMaxThreshExceeded	ospfMaxAgeLsa
mplsL3VpnVrfRouteMidThreshExceeded	ospfNbrStateChange (down)
mplsL3VpnVrfUp	ospfNbrStateChange (up)
mplsLdpInitSessionThresholdExceeded	ospf-if-packet-retransmit
mplsLdpSessionDown	ospfOriginateLsa
mplsLdpSessionUp	ospfTxRetransmit
mplsTunnelDown	warmStart

The generic VNE can identify traps, but it cannot correlate them. This is because the generic VNE does not include the model entities required by higher trap parsing levels.

For example, if Prime Network receives an mplsTunnelDown trap from a device modeled with the generic VNE, Prime Network can identify the Tunnel Down trap, but it cannot perform correlation on the trap. The reason is that the generic VNE does not investigate tunnels, which means that there is no Device Component in the model to which Prime Network can attach a correlation flow.

Generic VNE—Supported Events

The generic VNE supports the service events listed in Table 10-4 on page 10-4.

Table 10-4 Supported Service Events for Generic VNE—Cisco ANA 3.7.1

Event Name	ANA Version	Expedited
Device Unreachable	3.6.0	N
Discard Packets	3.6.0	N
Dropped Packets	3.6.0	N
Port Flapping	3.6.0	N
Port Down	3.6.0	N

Generic VNE Limitations

The generic VNE uses MIB2 to cover the widest possible range of NEs. Although MIB2 is a widely accepted industry standard, most network equipment vendors augment MIB2 with other Management Interfaces such as private MIBs, Telnet, XML, and so on. In addition, different vendors sometimes have different implementations of standard MIBs. As a result, even the limited model created by the generic VNE is dependent on the vendor's adherence to general network management standards.

Generic VNE—Supported Technologies

The following technologies are supported by the Generic VNE in Cisco Prime Network 3.9:

- IP, page 10-5
- Ethernet, page 10-8
- Hardware, page 10-13
- Serial, page 10-15

Generic VNE—Supported Service Events

Table 10-5 Supported Service Events for Generic VNE—Cisco Prime Network 3.9

Event Name	Product_Version	Expedited
Device Unreachable		N
Discarded packet rate exceeded upper threshold		N
Dropped packet rate exceeded upper threshold		N
Port Down		N

Supported Technologies on Generic Devices

The following sections list the objects and attributes that are supported on Generic devices in Cisco Prime Network 3.9 per technology:

IP

Table 10-6 IP Attribute Support on Generic Devices—Cisco Prime Network 3.9

Attribute	Generic
IMO Name—IIPInterface	
IP Address	Y
Subnetwork Mask	Y
IP Interface Addresses Array	
Interface Name	
Interface Description	Y
IP Interface State	Y
OSPF Interface Cost	
Broadcast Address	
MTU	
Lookup Method	
Address Resolution Type	
ARP Timeout	
Secured ARP	
ICMP Mask Reply	
IGMP Proxy	
HSRP Groups	
IP Multiplexing Table	
IANA Type	
Containing CTPs	
Contained CTPs	
IMO Name—IIPMuxEntry	
Termination Point	
Destination IP Subnet	

Table 10-6 IP Attribute Support on Generic Devices—Cisco Prime Network 3.9 (continued)

Attribute	Generic
IMO Name—IRoutingEntity	
Routing Table	Y
ARP Entity	Y
Routing Table Changes	
Name	Y
Logical Sons	Y
IMO Name—IRoutingEntry	
Destination IP Subnet	Y
Next Hop IP Address	Y
Type	Y
Routing Protocol Type	Y
Outgoing Interface Name	Y
IMO Name—IARPEntity	
ARP Table	Y
IMO Name—IARPEntry	
IP Address	Y
MAC Address	Y
Port	Y
Entry Type	Y
IMO Name—IIPPool	
IP Address Pool Entries	
Name	
Index	
IMO Name—IIPRangeBasedIPPoolEntry	
Start IP Address	
End IP Address	
Unused Addresses	
Used Addresses	
Reserved Addresses	
IMO Name—IIPSubnetBasedIPPoolEntry	
IP Subnet	
Unused Addresses	
Used Addresses	
Reserved Addresses	

Table 10-6 IP Attribute Support on Generic Devices—Cisco Prime Network 3.9 (continued)

Attribute	Generic
IMO Name—HSRPGroupEntry	
Group Number	
Port Description	
Priority	
Coupled Router	
State	
Tracking Interfaces	
Virtual IP Address	
Virtual MAC Address	
IMO Name—ITunnelGRE	
Name	
Tunnel Destination and Source	
IP Address	
IP Interface State	
IANA Type	
Containing CTPs	
Contained CTPs	
Keep Alive Time	
Keep Alive Retry	
IMO Name—IIPSLAResponderService	
responderStatus	
TWAMPResponderStatus	
tcpConnect	
udpEcho	
IMO Name—IIPAddressPortPair	
type	
ipAddress	
port	

Ethernet

Table 10-7 Ethernet Attribute Support on Generic Devices—Cisco Prime Network 3.9

Attribute	Generic
IMO Name—ILinkAggregationGroup802dot3ad	
dot3adAggMACAddress	
dot3adAggActorSystemPriority	
dot3adAggActorSystemID	
dot3adAggActorAdminKey	
dot3adAggActorOperKey	
dot3adAggPartnerSystemID	
dot3adAggPartnerSystemPriority	
dot3adAggPartnerOperKey	
dot3adAggCollectorMaxDelay	
GroupNumber	
AggregationProtocolType	
MacAddress	
ChannelAdminStatus	
ChannelOperStatus	
IMO Name—IEthernet	
MAC Address	Y
Duplex Mode	
Output Flow Control	
Input Flow Control	
IANA Type	
Containing CTPs	
Contained CTPs	
Port Type	
isElmiEnabled	
isLOAMEnabled	
IMO Name—IVlanInterface	
Mode	
Native VLAN Identification	
Virtual LAN Table	
IANA Type	

Table 10-7 Ethernet Attribute Support on Generic Devices—Cisco Prime Network 3.9

Attribute	Generic
Containing CTPs	
Contained CTPs	
vlanAdminType	
vlanencapType	
getAccess	
Allowed Vlans	
IMO Name—IVlanEncapMux	
IANA Type	
Containing CTPs	
Contained CTPs	
IMO Name—IVlanMapping	
direction	
vlanMatchCriteria	
vlanRewriteDefinition	
Drop	
Vlan	
innerVlan	
translatedVlan	
translatedInnerVlan	
IMO Name—IIEEE802	
VLAN Identification	
Binding Information	
Binding Status	
IANA Type	
Containing CTPs	
Contained CTPs	
IMO Name—IStpService	
StpProtocol	
StpMaxAge	
StpHelloTime	
StpBridgeForwardDelay	
StpInstanceInfoTable	
Same as ISystemService	
StpUplinkFastState	
StpBackboneFastState	

Table 10-7 Ethernet Attribute Support on Generic Devices—Cisco Prime Network 3.9

Attribute	Generic
StpForwardDelay	
StpBridgeMaxAge	
StpBridgeHelloTime	
IMO Name—IMstService	
MstProperties	
Same as IStpService	
IMO Name—IPvstpService	
UpLinkFast	
BackboneFast	
IMO Name—IMstProperties	
MstForceVersion	
MstCfgIdFmtSel	
MstExternalRootCost	
MstMaxInstances	
MstCfgIdName	
MstCfgIdRevLevel	
IMO Name—IStpInstanceInfo	
Object Identification	
StpBridgeId	
BridgePriority	
Designated Parent and Root Bridges	
StpRootCost	
IsRoot	
StpRootPort	
StpPortInfoTable	
STP Instance Id	
Vlan Id	
StpDesignatedBridge	
StpDesignatedRoot	
IMO Name—IMstInstanceInfo	
MstVlanIds	
Same as IStpInstanceInfo	
IMO Name—IPvstpInstanceInfo	
Protocol Type	

Table 10-7 Ethernet Attribute Support on Generic Devices—Cisco Prime Network 3.9

Attribute	Generic
StpBridgeMaxAge	
StpBridgeHelloTime	
StpBridgeForwardDelay	
StpProtocolSpecification	
StpVlanId	
StpForwardDelay	
StpMaxAge	
IMO Name—IRstpInstanceInfo	
StpForceVersion	
Same as IStpInstanceInfo	
IMO Name—IStpPortInfo	
StpPort	
StpPortPriority	
StpPortState	
StpPortPathCost	
StpPortEdgePort	
StpPortPointToPoint	
StpPortRole	
StpDesignatedPortIdentifier	
StpDesignatedBridge	
StpPortIdentifier	
StpPortBpduGuardState	
StpPortBpduFilterState	
IMO Name—IMstPortInfo	
MstPortHelloTime	
Same as IStpPortInfo	
IMO Name—IPvstpPortInfo	
PvstpPortFastState	
IMO Name—IEthernetChannel	
Group Number	
Bandwidth	
Aggregation Protocol	
IANA Type	
Containing CTPs	
Contained CTPs	

Table 10-7 Ethernet Attribute Support on Generic Devices—Cisco Prime Network 3.9

Attribute	Generic
Mac Address	
Admin Status	
Oper Status	
IMO Name—ITokenRingLayer2	
MAC Address	
IANA Type	
Containing CTPs	
Contained CTPs	
IMO Name—ITokenRingLayer1	
Same as IPhysicalLayer	
IMO Name—IVtpService	
Version	
OperatingMode	
DomainName	
ConfigurationRevision	
isPruningEnabled	
isAuthenticationEnabled	
IMO Name—IREPService	
version	
administrativeVlan	
notificationEnabled	
IMO Name—IREPSegmentInfo	
segmentId	
segmentComplete	
IMO Name—IREPPortInfo	
portName	
portKey	
segmentId	
portType	
portRole	
operStatus	
blockedVlans	
preemptTimer	
lslAgeoutTimer	
remoteDeviceName	

Table 10-7 Ethernet Attribute Support on Generic Devices—Cisco Prime Network 3.9

Attribute	Generic
remoteDeviceMac	
remotePortName	
IMO Name—IBridgeILan	
Id	
IMO Name—IIBBridgeEntry	
IS Id	
IBridge	
BBridge	

Hardware

Table 10-8 Hardware Attribute Support on Generic Devices—Cisco Prime Network 3.9

Attribute	Generic
IMO Name—IChassis	
Description	
Equipment Holder Type	
Contained Equipment Holders	
Contained Equipments	
Serial Number	
IMO Name—IShelf	
Description	
Status	
Equipment Holder Type	
Contained Equipment Holders	
Contained Equipments	
Serial Number	
IMO Name—IModule	
Module Name	
Module Description	
Software Version	
Operational Status	
Hardware Type + Version	
Managed IP Address	

Table 10-8 Hardware Attribute Support on Generic Devices—Cisco Prime Network 3.9

Attribute	Generic
Redundant Equipment	
Configured Redundancy	
Redundancy Status	
Operational Status Last Changed	
Supported Physical Termination Points	
Serial Number (soft property)	
Slots Number	
IMO Name—IManagedElement	
IP Address	Y
Communication State	Y
Investigation State	Y
Element Category	Y
Element Type and Key	Y
Device Name	Y
System Name	Y
System Description	Y
Up Time	Y
Software Version	Y
Vendor Identity	
Memory and CPU Usage	
DRAM Free	
DRAM Used	
Flash Device Size	
NVRAM Size	
Processor DRAM	
Sys Contact	
Sys Location	
Serial Number	
File Systems	
IMO Name—IContext	
Name	
Bounded Connections	
IP Address Pools	
Forwarding Components List	

Table 10-8 Hardware Attribute Support on Generic Devices—Cisco Prime Network 3.9

Attribute	Generic
Traffic Descriptors List	
Tunnel Containers List	
Data Link Aggregation Containers List	
IMO Name—ISystemService	
Type	
Status	
Up Time	
IMO Name—IBridge	
Bridge Table	
Type	
MAC Address	
IP Interface	
Name	
Logical Sons	
Vlan Type	
IMO Name—IBridgeEntry	
Destination MAC	Y
Outgoing Interface	Y

Serial

Table 10-9 Serial Attribute Support on Generic Devices—Cisco Prime Network 3.9

Attribute	Generic
IMO Name—IPhysicalLayer	
Media Type	
Clocking Source	
Maximum Speed	Y
Is Internal Port	
Discarded Bandwidth	
Dropped Bandwidth	
Input Bandwidth	
Output Bandwidth	

Table 10-9 Serial Attribute Support on Generic Devices—Cisco Prime Network 3.9 (continued)

Attribute	Generic
Discarded and Received Input Data Counters	Y
Dropped and Forward Output Data Counters	Y
Administrative Status	Y
Operational Status	Y
Last Changed	Y
IANA Type	
Containing CTPs	
Contained CTPs	
Port Alias	
Location	
Sending Alarms	
Connector Description	
Part ID	
Connector Serial Num	
Product	
Status	
Managed	