CHAPTER 3

Cisco ASR 903 Series Router MIB Specifications

This chapter describes the Management Information Base (MIB) on the Cisco ASR 903 Series Aggregation Services Routers. It includes the following sections:

Cisco ASR 903 Series Router MIBs

Each MIB description lists relevant constraints about the implementation of the MIB on the Cisco ASR 903 Series Router platform. Any objects not listed in the table are implemented as defined in the MIB. For detailed MIB descriptions, see the standard MIB.

Note Not all the MIBs included in a Cisco IOS XE software release are fully supported by the Cisco ASR 903 Series Router. Some MIBs are not supported at all. Other MIBs might work, but they have not been tested on the router. In addition, some MIBs are deprecated, but cannot be removed from the software. When a MIB is included in the image, it does not necessarily mean that is supported by the Cisco ASR 903 Series Router platform.

Cisco ASR 903 Series Router MIB Categories

The subsequent tables list the following categories of MIBs in the Cisco ASR 903 Series Router Image on the Cisco ASR 903 Series Router:

- Supported and verified MIBs (tested for Cisco ASR 903 Series Router)—The MIBs exist in the image, the code is implemented, and Cisco has verified that all the supported objects work properly (Table 3-1).
- Supported and unverified MIBs (not tested for Cisco ASR 903 Series Router)—The MIBs exist in the image, the code is implemented, but Cisco has not verified if it is working properly (Table 3-2).
- Unsupported MIBs (no level of support or testing on the Cisco ASR 903 Series Router)—The MIBs may be posted on Cisco.com, but are not present in the image and cannot be queried (Table 3-3).

The MIB version string indicates the date and time that it was most recently modified. The format is YYMMDDHHMMZ or YYYYMMDDHHMMZ, where:

- YY is the last two digits of the year (only years between 1900 and1999).
- YYYY is all four digits of the year (any year).
- MM is the month (01 through 12).
- DD is the day of the month (01 through 31).
- HH is hours (00 through 23).
- MM is minutes (00 through 59).
- Z (the ASCII character Z), denotes Coordinated Universal Time (UTC, formerly Greenwich Mean Time [GMT]). This datatype stores the date and time fields YEAR, MONTH, DAY, HOUR, MINUTE, SECOND, TIMEZONE_HOUR, and TIMEZONE_MINUTE.

Note For example, 9502192015Z and 199502192015Z represent 8:15 GMT on 19 February 1995. Years after 1999 use the four-digit format. Years 1900-1999 may use the two-digit or four-digit format.

Note In the following tables you might see the term *Unknown*. This term refers to the MIB that does not have a recorded time stamp indicating the latest modification.

Supported and Verified MIBs

Table 3-1 lists the MIBs that are *supported* and *verified* on the Cisco ASR 903 Series Router in the following Cisco IOS XE software release. The table lists the MIBs, corresponding notification names, and applicable MIB versions.

Table 3-1 MIBs Supported and Verified on the Cisco ASR 903 Series Router

MIB	Notification Name	Revision ID
BGP4-MIB (RFC 1657)	bgpEstablished bgpBackwardTransition	9405050000Z
CISCO-BGP-POLICY-ACCOUNTING-MIB	—	200207260000Z
CISCO-BGP4-MIB	cbgpFsmStateChange cbgpBackwardTransition cbgpPrefixThresholdExceeded cbgpPrefixThresholdClear	201009300000Z
CISCO-BULK-FILE-MIB	cbfDefineFileCompletion	200108220000Z
CISCO-CBP-TARGET-MIB	—	200605240000Z
CISCO-CDP-MIB	—	200503210000Z

Table 3-1 MIBs Supported and Verified on the Cisco ASR 903 Series Router

MIB	Notification Name	Revision ID
CISCO-CEF-MIB	cefResourceFailure cefPeerStateChange cefPeerFIBStateChange cefInconsistencyDetection	200601300000Z
CISCO-CLASS-BASED-QOS-MIB	—	200904240000Z
CISCO-CONFIG-COPY-MIB	ccCopyCompletion	200403170000Z
CISCO-CONFIG-MAN-MIB	ciscoConfigManEvent ccmCLIRunningConfigChanged ccmCTIDRolledOver	200608220000Z
CISCO-DATA-COLLECTION-MIB	cdcVFileCollectionError cdcFileXferComplete	200210300530Z
CISCO-DOT3-OAM-MIB	cdot3OamThresholdEvent cdot3OamNonThresholdEvent	200605310000Z
CISCO-EMBEDDED-EVENT-MGR-MIB	cEventMgrServerEvent cEventMgrPolicyEvent	200611070000Z
CISCO-ENHANCED-MEMPOOL-MIB	cempMemBufferNotify	200812050000Z
CISCO-ENTITY-ALARM-MIB	ceAlarmAsserted ceAlarmCleared	199907062150Z
CISCO-ENTITY-EXT-MIB	—	200811240000Z
CISCO-ENTITY-FRU-CONTROL-MIB	cefcModuleStatusChange cefcPowerStatusChange cefcFRUInserted cefcFRURemoved cefcUnrecognizedFRU cefcFanTrayStatusChange	200810070000Z
CISCO-ENTITY-SENSOR-MIB	entSensorThresholdNotification	200601010000Z
CISCO-ENTITY-VENDORTYPE-OID-MIB	—	200505050930Z

Table 3-1 MIBs Supported and Verified on the Cisco ASR 903 Series Router

MIB	Notification Name	Revision ID
CISCO-FLASH-MIB	ciscoFlashCopyCompletionTrap ciscoFlashPartitioningCompletionTrap ciscoFlashMiscOpCompletionTrap ciscoFlashDeviceChangeTrap ciscoFlashDeviceInsertedNotif ciscoFlashDeviceRemovedNotif ciscoFlashDeviceInsertedNotifRev1 ciscoFlashDeviceRemovedNotifRev1	201103160000Z
CISCO-FTP-CLIENT-MIB	—	199710091700Z
CISCO-IETF-ISIS-MIB	ciiDatabaseOverload ciiManualAddressDrops ciiCorruptedLSPDetected ciiAttemptToExceedMaxSequence ciiIDLenMismatch ciiMaxAreaAddressesMismatch ciiOwnLSPPurge ciiSequenceNumberSkip ciiAuthenticationTypeFailure ciiAuthenticationFailure ciiVersionSkew ciiAreaM	200508161200Z
CISCO-IETF-MPLS-ID-STD-03-MIB	—	201204080000Z
CISCO-IETF-MPLS-TE-EXT-STD-03-MIB	—	201204080000Z
CISCO-IETF-PW-ATM-MIB	—	200504191200Z
CISCO-IETF-PW-ENET-MIB	—	200209221200Z
CISCO-IETF-PW-MIB	cpwVcDown cpwVcUp	200403171200Z
CISCO-IETF-PW-MPLS-MIB	—	200302261200Z
CISCO-IETF-PW-TDM-MIB	—	200607210000Z
CISCO-IF-EXTENSION-MIB	—	200311140000Z
CISCO-IGMP-FILTER-MIB	—	200111080000Z
CISCO-IMAGE-LICENSE-MGMT-MIB	—	200710160000Z

Table 3-1 MIBs Supported and Verified on the Cisco ASR 903 Series Router

MIB	Notification Name	Revision ID
CISCO-IMAGE-MIB	—	199508150000Z
CISCO-IPMROUTE-MIB	ciscoIpMRouteMissingHeartBeats	200804010000Z
CISCO-LICENSE-MGMT-MIB	—	200607040000Z
CISCO-MPLS-LSR-EXT-STD-MIB	—	201202220000Z
CISCO-MPLS-TC-EXT-STD-MIB	—	201106160000Z
CISCO-MVPN-MIB	ciscoMvpnMvrfChange	200402231200Z
CISCO-NETSYNC-MIB	—	201010150000Z
CISCO-OSPF-MIB	—	200307180000Z
CISCO-OSPF-TRAP-MIB (draft-ietf-ospf-mib-update-05)	cospfIfConfigError cospfVirtIfConfigError cospfTxRetransmit cospfVirtIfTxRetransmit cospfOriginateLsa cospfMaxAgeLsa cospfNssaTranslatorStatusChange cospfShamLinkStateChange cospfShamLinksStateChange cospfShamLinkNbrStateChange cospfShamLinkConfigError cospfShamLinkAuthFailure cospfShamLinkRxBadPacket cospfShamLinkTxRetransmit	200307180000Z
CISCO-PIM-MIB	ciscoPimInterfaceUp ciscoPimInterfaceDown ciscoPimRPMappingChange ciscoPimInvalidRegister ciscoPimInvalidJoinPrune	200011020000Z
CISCO-PROCESS-MIB	cpmCPURisingThreshold cpmCPUFallingThreshold	201005060000Z
CISCO-PRODUCTS-MIB	—	200505051930Z
CISCO-PTP-MIB	—	201101280000Z
CISCO-RF-MIB	ciscoRFSwactNotif ciscoRFProgressionNotif ciscoRFIssuStateNotifRev1	200803180000Z

Table 3-1 MIBs Supported and Verified on the Cisco ASR 903 Series Router

MIB	Notification Name	Revision ID
CISCO-RTTMON-MIB	rttMonConnectionChangeNotification rttMonTimeoutNotification rttMonThresholdNotification rttMonVerifyErrorNotification rttMonNotification rttMonLpdDiscoveryNotification rttMonLpdGrpStatusNotification	201102210000Z
CISCO-STP-EXTENSIONS-MIB	—	200503020000Z
CISCO-SONET-MIB	ciscoSonetSectionStatusChange ciscoSonetLineStatusChange ciscoSonetPathStatusChange	200205220000Z
CISCO-SYSLOG-MIB	clogMessageGenerated	199508070000Z
DS1-MIB (RFC 2495)	dsx1LineStatusChange	9808011830Z
ENTITY-MIB (RFC 4133)	entConfigChange	200508100000Z
ENTITY-SENSOR-MIB (RFC 3433)	—	200212160000Z
ENTITY-STATE-MIB	entStateOperEnabled entStateOperDisabled	200511220000Z
EVENT-MIB (RFC 2981)	—	200010160000Z
ETHERLIKE-MIB (RFC 3635)	—	200309190000Z
IEEE8021-CFM-MIB	dot1agCfmFaultAlarm	200810150000Z
IEEE8021-CFM-V2-MIB	—	200810150000Z
IF-MIB (RFC 2863)	linkDown linkUp	9611031355Z
IGMP-STD-MIB (RFC 2933)	—	200009280000Z
IP-FORWARD-MIB (RFC 4292)	—	200602010000Z
IP-MIB (RFC 4293)	—	200602020000Z
IPMROUTE-STD-MIB (RFC 2932)	—	200009220000Z
MPLS-LDP-GENERIC-STD-MIB (RFC 3815)	—	200406030000Z
MPLS-LDP-STD-MIB (RFC 3815)	mplsLdpInitSessionThresholdExceeded mplsLdpPathVectorLimitMismatch mplsLdpSessionUp mplsLdpSessionDown	200406030000Z

Table 3-1 MIBs Supported and Verified on the Cisco ASR 903 Series Router

MIB	Notification Name	Revision ID
MPLS-LSR-STD-MIB (RFC 3813)	mplsXCUp mplsXCDown	200406030000Z
MSDP-MIB	msdpEstablished msdpBackwardTransition	9912160000Z
NOTIFICATION-LOG-MIB (RFC 3014)	—	200011270000Z
OSPF-MIB (RFC 1850)	—	9501201225Z
OSPF-TRAP-MIB (RFC 1850)	ospfIfStateChange ospfVirtIfStateChange ospfNbrStateChange ospfVirtNbrStateChange ospfIfConfigError ospfVirtIfConfigError ospfIfAuthFailure ospfVirtIfAuthFailure ospfIfRxBadPacket ospfVirtIfRxBadPacket ospfTxRetransmit ospfVirtIfTxRetransmit ospfOriginate	9501201225Z
PIM-MIB (RFC 2934)	pimNeighborLoss	200009280000Z
RFC1213-MIB	—	UNKNOWN
RFC2982-MIB	—	200010160000Z
RMON-MIB (RFC 1757)	—	9606111939Z
RSVP-MIB	newFlow lostFlow	9808251820Z
SNMP-COMMUNITY-MIB (RFC 2576)	—	UNKNOWN
SNMP-FRAMEWORK-MIB (RFC 2571)	—	9901190000Z
SNMP-MPD-MIB (RFC 2572)	—	9905041636Z
SNMP-NOTIFICATION-MIB (RFC 2573)	—	9808040000Z
SNMP-PROXY-MIB (RFC 2573)	—	9808040000Z
SNMP-TARGET-MIB (RFC 2573)	—	9808040000Z
SNMP-USM-MIB (RFC 2574)	—	9901200000Z

Table 3-1 MIBs Supported and Verified on the Cisco ASR 903 Series Router

MIB	Notification Name	Revision ID
SNMPv2-MIB (RFC 1907)	coldStart warmStart linkDown linkUp authenticationFailure egpNeighborLoss	9511090000Z
SNMPv2-SMI	—	UNKNOWN
SNMP-VIEW-BASED-ACM-MIB (RFC 2575)	—	9901200000Z
SONET-MIB (RFC 2558)	—	9810190000Z
TCP-MIB (RFC 4022)	—	200502180000Z
TUNNEL-MIB (RFC 4087)	—	200505160000Z
UDP-MIB (RFC 4113)	—	200505200000Z

Supported and Unverified MIBs

Table 3-2 lists the MIBs that are *supported* and *unverified* on the Cisco ASR 903 Series Router in the following Cisco IOS XE software release. The table lists the MIBs, corresponding notification names, and applicable MIB versions.

Table 3-2 MIBs Supported and UnVerified on the Cisco ASR 903 Series Router

MIB	Notification Name	Revision ID
ATM-MIB	—	9406072245Z
CISCO-ATM-EXT-MIB	—	200301060000Z
CISCO-ATM-IF-MIB	—	200202130000Z
CISCO-ATM-PVC-MIB	—	9711180000Z

Table 3-2 MIBs Supported and UnVerified on the Cisco ASR 903 Series Router

MIB	Notification Name	Revision ID
CISCO-ATM-PVCTRAP-EXTN-MIB	catmIntfPvcUpTrap catmIntfPvcOAMFailureTrap catmIntfPvcSegCCOAMFailureTrap catmIntfPvcEndCCOAMFailureTrap catmIntfPvcAISRDIOAMFailureTrap catmIntfPvcAnyOAMFailureTrap catmIntfPvcOAMRecoverTrap catmIntfPvcSegCCOAMRecoverTrap catmIntfPvcEndCCOAMRecoverTrap catmIntfPvcAISRDIOAMRecoverTrap catmIntfPvcAnyOAMRecoverTrap catmIntfPvcUp2Trap catmIntfPvcDownTrap catmIntfPvcSegAISRDIFailureTrap catmIntfPvcEndAISRDIFailureTrap catmIntfPvcSegAISRDIRecoverTrap catmIntfPvcEndAISRDIRecoverTrap	200303240000Z
CISCO-BCP-MIB	—	200408310000Z
CISCO-CALLHOME-MIB	—	200907140000Z
CISCO-CIRCUIT-INTERFACE-MIB	—	200005090000Z
CISCO-CONTEXT-MAPPING-MIB	—	200503170000Z
CISCO-EIGRP-MIB	—	201004250000Z
CISCO-ERM-MIB	—	200602110000Z
CISCO-ETHERLIKE-EXT-MIB	—	201006040000Z
CISCO-EVC-MIB	cevcEvcCreationNotification cevcEvcDeletionNotification cevcEvcStatusChangedNotification	200805010000Z
CISCO-HSRP-EXT-MIB	—	9808030000Z
CISCO-HSRP-MIB	cHsrpStateChange	9808030000Z
CISCO-IETF-ATM2-PVCTRAP-MIB	atmIntfPvcFailuresTrap	9802030000Z
CISCO-IETF-BFD-MIB	—	200706040000Z
CISCO-IETF-DHCP-SERVER-MIB	—	200703270000Z
CISCO-IETF-DHCP-SERVER-EXT-MIB	—	200703151200Z

Table 3-2 MIBs Supported and UnVerified on the Cisco ASR 903 Series Router

MIB	Notification Name	Revision ID
CISCO-IETF-MPLS-TE-P2MP-STD-MIB	—	200909300000Z
CISCO-IETF-PPVPN-MPLS-VPN-MIB	cMplsNumVrfRouteMaxThreshCleared	200304171200Z
CISCO-IP-STAT-MIB	—	200112202300Z
CISCO-IPSLA-ETHERNET-MIB	—	200801020000Z
CISCO-L2-CONTROL-MIB	—	200306011700Z
CISCO-LAG-MIB	—	200212130000Z
CISCO-MAC-NOTIFICATION-MIB	—	200706110000Z
CISCO-MEMORY-POOL-MIB	—	9602120000Z
CISCO-NHRP-EXT-MIB	—	200811210000Z
CISCO-NTP-MIB	—	200307070000Z
CISCO-PING-MIB	ciscoPingCompletion	200108280000Z
CISCO-RESILIENT-ETHERNET-PROTOCOL-MIB	—	200705220000Z
CISCO-RTTMON-ICMP-MIB	—	200508090000Z
CISCO-RTTMON-IP-EXT-MIB	—	200608020000Z
CISCO-RTTMON-RTP-MIB	—	200508090000Z
CISCO-SNMP-TARGET-EXT-MIB	—	200404010000Z
CISCO-TCP-MIB	—	200111120000Z
CISCO-VRF-MIB	—	200912100000Z
ETHER-WIS (RFC 3637)	—	200309190000Z
EXPRESSION-MIB	—	9802251700Z
HC-ALARM-MIB	—	200212160000Z
HC-RMON-MIB	—	9702120000Z
IEEE8021-CFM-V2-MIB	—	200810150000Z
IEEE8023-LAG-MIB	—	200006270000Z
INT-SERV-GUARANTEED-MIB	—	9511030500Z
INTEGRATED-SERVICES-MIB	—	9511030500Z

Table 3-2 MIBs Supported and UnVerified on the Cisco ASR 903 Series Router

MIB	Notification Name	Revision ID
MPLS-L3VPN-STD-MIB (RFC 4382)	mplsL3VpnVrfUp mplsL3VpnVrfDown mplsL3VpnVrfRouteMidThreshExceeded mplsL3VpnVrfNumVrfRouteMaxThreshExceeded mplsL3VpnNumVrfSecIllglLblThrshExcd mplsL3VpnNumVrfRouteMaxThreshCleared	200601230000Z
MPLS-TE-STD-MIB	—	200406030000Z
MPLS-VPN-MIB	mplsVrfIfUp mplsVrfIfDown mplsNumVrfRouteMidThreshExceeded mplsNumVrfRouteMaxThreshExceeded mplsNumVrfSecIllegalLabelThreshExceeded	200110151200Z
NHRP-MIB	—	9908260000Z
RFC2006-MIB (MIP)	—	9606040000Z
RMON2-MIB (RFC 2021)	—	9605270000Z
SMON-MIB	—	9812160000Z
VRRP-MIB	—	200003030000Z

Unsupported MIBs

Table 3-3 lists the MIBs that are *unsupported* and *unverified* on the Cisco ASR 903 Series Router in the following Cisco IOS XE software release.

Table 3-3 MIBs Unsupported on the Cisco ASR 903 Series Router

MIB	Notification Name	Revision ID
ATM2-MIB	—	UNKNOWN
CALISTA-DPA-MIB	—	UNKNOWN
CISCO-AAA-SERVER-MIB	—	UNKNOWN
CISCO-AAA-SESSION-MIB	—	UNKNOWN
CISCO-AAL5-EXT-MIB	—	UNKNOWN
CISCO-ATM-QOS-MIB	—	UNKNOWN

Table 3-3 MIBs Unsupported on the Cisco ASR 903 Series Router

MIB	Notification Name	Revision ID
CISCO-CAR-MIB	—	UNKNOWN
CISCO-ETHER-CFM-MIB	—	UNKNOWN
CISCO-FRAME-RELAY-MIB	—	UNKNOWN
CISCO-IETF-FRR-MIB	—	UNKNOWN
CISCO-IETF-PW-ATM-MIB	—	UNKNOWN
CISCO-IETF-PW-FR-MIB	—	UNKNOWN
CISCO-IGMP-FILTER-MIB	—	UNKNOWN
CISCO-NBAR-PROTOCOL-DISCOVERY-MIB	—	UNKNOWN
CISCO-NDE-MIB	—	UNKNOWN
CISCO-NETFLOW-MIB	—	UNKNOWN
CISCO-OTN-IF-MIB	—	UNKNOWN
CISCO-PPPOE-MIB	—	UNKNOWN
CISCO-QINQ-VLAN-MIB	—	UNKNOWN
CISCO-RADIUS-EXT-MIB	—	UNKNOWN
CISCO-SRP-MIB	—	UNKNOWN
CISCO-STACK-MIB	—	UNKNOWN
CISCO-STACKMAKER-MIB	—	UNKNOWN
CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB	—	UNKNOWN
CISCO-VPDN-MGMT-EXT-MIB	—	UNKNOWN
CISCO-VPDN-MGMT-MIB	—	UNKNOWN
DLSW-MIB	—	UNKNOWN
ETHER-CFM-MIB	—	UNKNOWN
DS3-MIB	—	UNKNOWN
FR-MFR-MIB	—	UNKNOWN
FRAME-RELAY-DTE-MIB	—	UNKNOWN
IMA-MIB	—	UNKNOWN
LLDP-MIB	—	UNKNOWN
NETRANGER	—	UNKNOWN
OLD-CISCO-CHASSIS-MIB	—	UNKNOWN
OLD-CISCO-IP-MIB	—	UNKNOWN
OLD-MPLS-LDP-MIB	—	UNKNOWN
OLD-MPLS-LSR-MIB	—	UNKNOWN
OLD-MPLS-TE-MIB	—	UNKNOWN
RFC1406-MIB	—	UNKNOWN
RFC1407-MIB	—	UNKNOWN

ATM-MIB

The ATM-MIB (RFC 1695) contains the ATM and ATM adaptation layer 5 (AAL5) objects to manage logical and physical entities. It also provides the functionality to manage the relationship between logical and physical entities, such as ATM interfaces, virtual links, cross connects, and AAL5 entities and connections.

BGP4-MIB (RFC 1657)

The BGP4-MIB (RFC 1657) provides access to the implementation information for the Border Gateway Protocol (BGP). The MIB provides:

- Information about the BGP configuration
- Information about BGP peers and messages exchanged within
- Information about the advertised networks

CISCO-AAL5-MIB

The CISCO-AAL5-MIB contains objects to manage performance statistics for ATM adaptation layer 5 (AAL5) virtual channel connections (VCCs). This MIB also contains information such as packets and octets that are received and transmitted on the VCC, which is missing in cAal5VccTable in RFC 1695.

CISCO-ATM-EXT-MIB

The CISCO-ATM-EXT-MIB contains extensions to the Cisco ATM that are used to manage ATM entities. This MIB provides additional AAL5 performance statistics for a virtual channel connection (VCC) on an ATM interface.

MIB Constraints

Table 3-4 lists the constraint that the Cisco ASR 903 Series Router places on the objects in the CISCO-ATM-EXT-MIB.

Table 3-4 CISCO-ATM-EXT-MIB Constraint

MIB Object	Notes
catmxVclOamTable	Not supported.

Note The CISCO-ATM-EXT-MIB has only one table, cAal5VccExtTable. This table augments the aal5VccTable of the CISCO-AAL5-MIB. The cAal5VccExtTable contains additional AAL5 performance parameters.

CISCO-ATM-IF-MIB

The CISCO-ATM-IF-MIB provides the functionality required for an ATM interface configuration.

CISCO-ATM-PVC-MIB

The CISCO-ATM-PVC-MIB provides the functionality to configure a permanent virtual channel (PVC) on an ATM uplink card of a Catalyst 5000 device, and to bind that PVC to a virtual LAN (VLAN).

CISCO-ATM-PVCTRAP-EXTN-MIB

The CISCO-ATM-PVCTRAP-EXTN-MIB contains objects to extend the functionality of the ATM-MIB. This MIB provides additional notifications and traps for permanent virtual circuits (PVCs) on the Cisco ASR 903 Series Router. The CISCO-ATM-PVCTRAP-EXTN-MIB is supplemented by the CISCO-IETF-ATM2-PVCTRAP-MIB.

CISCO-BCP-MIB

The CISCO-BCP-MIB contains objects to manage the Bridge Control Protocol (RFC2878). This MIB is influenced by RFC1474.

CISCO-BGP4-MIB

The CISCO-BGP4-MIB provides access to information related to the implementation of the Border Gateway Protocol (BGP). The MIB provides:

- Information about the BGP configuration
- Information about BGP peers and messages exchanged with them
- Information about advertised networks

CISCO-BGP-POLICY-ACCOUNTING-MIB

The CISCO-BGP-POLICY-ACCOUNTING-MIB contains BGP policy-based accounting information (such as ingress traffic on an interface), which can be used for billing purposes. The MIB provides support for BGP Policy Accounting, which enables you to classify IP traffic into different classes and to maintain statistics for each traffic class.

The MIB contains counts of the number of bytes and packets of each traffic type on each input interface. This information can be used to charge customers according to the route that their traffic travels.

CISCO-BULK-FILE-MIB

The CISCO-BULK-FILE-MIB contains objects to create and delete files of SNMP data for bulk-file transfer.

MIB Constraints

Table 3-5 lists the constraints that the router places on the objects in the CISCO-BULK-FILE-MIB.

Table 3-5 CISCO-BULK-FILE-MIB Constraints

MIB Object	Notes
cbfDefineFileTable	
• cbfDefinedFileStorage	Only *ephemeral* type of file storage is supported. **Note** The ephemeral bulk file created can be moved to a remote FTP server using CISCO-FTP-CLIENT-MIB.
• cbfDefinedFileFormat	Only *bulkBinary* and *bulkASCII* file formats are supported.

Notes: The cbfDefineFileTable has objects that are required for defining a bulk file and for controlling its creation. The cbfDefineObjectTable has information regarding the contents (SNMP data) that go into the bulk file.

When an entry in the cbfDefineFileTable and its corresponding entries in the cbfDefineObjectTable are active, then cbfDefineFileNow can then be set to create. This causes a bulkFile to be created as defined in cbfDefineFileTable and it will also create an entry in the cbfStatusFileTable.

CISCO-CALLHOME-MIB

The CISCO-CALLHOME-MIB contains objects to manage the Call Home feature within the Cisco Call Home architecture framework.

CISCO-CBP-TARGET-MIB

The CISCO-CBP-TARGET-MIB (common class-based policy) contains objects that provide a mapping of targets to which class-based features, such as QoS are applied. A target is a logical interface with which a class-based policy is associated.

MIB Constraints

The configuration objects in the CISCO-CBP-TARGET-MIB are read-only.

Table 3-6 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-CBP-TARGET-MIB.

Table 3-6 CISCO-CBP-TARGET-MIB Constraints

MIB Object	Notes
CbpTargetTable	
• ccbptTargetType	Values are: • genIf(1) • atmPvc(2) • frDlci(3) • controlPlane(4)
• ccbptTargetDir	Values are: • input(2) • output(3)
• ccbptPolicyType	Value is always ciscoCbQos(1) to indicate mapping to CLASS-BASED-QOS-MIB.
• ccbptPolicyId	Contains the cbQosPolicyIndex value for this service-policy.
• ccbptTargetStorageType	Value is always volatile(2).
• ccbptTargetStatus	Value is always volatile(1).
• ccbptPolicyMap	Contains the OID for a cbQosPolicyMapName instance.
• ccbptPolicyInstance	Contains the OID for a cbQosIfType instance.

CISCO-CDP-MIB

The CISCO-CDP-MIB contains objects to manage the Cisco Discovery Protocol (CDP) on the router.

MIB Constraints

Table 3-7 lists the constraints that the router places on the objects in the CISCO-CDP-MIB.

Table 3-7 CISCO-CDP-MIB Constraints

MIB Object	Notes
cdpCtAddressTable	Not supported.
cdpGlobalLastChange	Not supported.
cdpGlobalDeviceIdFormatCpb	Not supported.
cdpGlobalDeviceIdFormat	Not supported.
cdpInterfaceExtTable	Not implemented.

CISCO-CEF-MIB

The CISCO-CEF-MIB contains objects that manage Cisco Express Forwarding (CEF) technology. CEF is the key data plane forwarding path for Layer 3 IP switching technology. The CISCO-CEF-MIB monitors CEF operational data and provides notification when encountering errors in CEF, through SNMP.

MIB Constraints

Table 3-8 lists the constraints that the router places on the objects in the CISCO-CEF-MIB.

Table 3-8 CISCO-CEF-MIB Constraints

MIB Object	Notes
cefCfgAdminState	Read-only. This object is enabled by default.
cefCCCount	Read-only.
cefCCPeriod	Read-only.
cefCCEnabled	Read-only.

Note Cisco Express Forwarding is a high-speed switching mechanism that a router uses to forward packets from the inbound to the outbound interface.

CISCO-CIRCUIT-INTERFACE-MIB

The CISCO-CIRCUIT-INTERFACE-MIB contains objects to configure the circuit description for an interface. The circuit description identifies circuits on interfaces, such as ATM and Frame Relay, and might be used, for example, to correlate performance statistics on the corresponding interfaces.

CISCO-CLASS-BASED-QOS-MIB

The CISCO-CLASS-BASED-QOS-MIB provides read access to quality of service (QoS) configuration information and statistics for Cisco platforms that support the modular QoS CLI.

To understand how to navigate the CISCO-CLASS-BASED-QOS-MIB tables, it is important to understand the relationship between the different QoS objects listed here:

- Match Statement—Indicates the specific match criteria that identifies packets for classification purposes.
- Class Map—Indicates a user-defined traffic class that contains one or more match statements which is used to classify packets into different categories.
- Feature Action—Indicates a QoS feature. Features include policing, traffic shaping, queuing, random detecting, and packet marking. After the traffic is classified, actions are applied to each traffic class.
- Policy Map—Indicates a user-defined policy that associates a QoS feature action to the user-defined class map.
- Service Policy—Indicates a policy map that is attached to an interface.

The MIB uses the following indexes to identify QoS features and distinguish among instances of those features:

- cbQosObjectsIndex—Identifies each QoS feature on the router.
- cbQoSConfigIndex—Identifies a type of QoS configuration. This index is shared by QoS objects that have identical configuration.
- cbQosPolicyIndex—Uniquely identifies a service policy.

QoS MIB information is stored in:

- Configuration instances—This includes all class maps, policy maps, match statements, and feature action configuration parameters. These configuration instances may have multiple identical instances. Multiple instances of the same QoS feature that share a single configuration object is identified by the cbQosConfigIndex.
- Runtime Statistics instances—This includes summary counts and rates sorted by traffic class before and after any configured QoS policies are enforced. In addition, detailed feature-specific statistics are available for select policy map features. Each has a unique run-time instance. Multiple instances of a QoS feature have a separate statistics object. Run-time instances of QoS objects are each assigned a unique identifier (cbQosObjectsIndex) to distinguish among multiple objects with matching configuration.

Note If a class is defined without any action and is mapped to a policy-map, this class and class-default may return incorrect values for the post policy and drop counters represented in the cbQosCMStatsTable.

MIB Constraints

Table 3-9 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-CLASS-BASED-QOS-MIB.

Table 3-9 CISCO-CLASS-BASED-QOS-MIB Constraints

MIB Object	Notes
cbQosATMPVCPolicyTable	Not implemented.
cbQosFrameRelayPolicyTable	Not implemented.
cbQosInterfacePolicyTable	Not implemented.
cbQosIPHCCfgTable	Not implemented.
cbQosPoliceColorStatsTable	Not implemented.
cbQosPoliceCfgConformColor	Not implemented.
cbQosPoliceCfgExceedColor	Not implemented.
cbQosQueueingCfgTable • cbQosQueueingCfgDynamicQNumber	Not implemented.
cbQosREDCfgTable • cbQosREDCfgECNEnabled	Not implemented.
cbQosTableMapCfgTable	Not implemented.
cbQosTableMapSetCfgTable	Not implemented.
cbQosQueueingClassCfgTable	Not implemented.
cbQosMeasureIPSLACfgTable	Not implemented.
cbQosQueueingCfgPriorityLevel	Not implemented.
cbQosREDClassCfgMaxThresholdUnit	Not implemented.
cbQosREDClassCfgMinThresholdUnit	Not implemented.
cbQosTSCfgRate64	Not implemented.
cbQosREDECNMarkPktOverflow	Not implemented.
cbQosREDECNMarkPkt	Not implemented.
cbQosREDECNMarkPkt64	Not implemented.
cbQosREDECNMarkByteOverflow	Not implemented.
cbQosREDECNMarkByte	Not implemented.
cbQosREDECNMarkByte64	Not implemented.
cbQosREDMeanQSizeUnits	Not implemented.
cbQosREDMeanQSize	Not implemented.
cbQosQueueingCfgPrioBurstSize	Not supported.
cbQosQueueingCfgIndividualQSize	Not supported.
cbQosQueueingCfgDynamicQNumber	Not supported.
cbQosREDECNMarkPktOverflow	Not supported.
cbQosREDECNMarkPkt	Not supported.

Table 3-9 CISCO-CLASS-BASED-QOS-MIB Constraints

MIB Object	Notes
cbQosREDECNMarkPkt64	Not supported.
cbQosREDECNMarkByteOverflow	Not supported.
cbQosREDECNMarkByte	Not supported.
cbQosREDECNMarkByte64	Not supported.
cbQosSetCfgL2CosInnerValue	Not supported.
cbQosSetDscpTunnelPkt64	Not supported.
cbQosSetPrecedenceTunnelPkt64	Not supported.
cbQosPoliceCfgConformAction	This object is deprecated. Refer to equivalent object in cbQosPoliceActionCfgTable.
cbQosPoliceCfgConformSetValue	This object is deprecated. Refer to equivalent object in cbQosPoliceActionCfgTable.
cbQosPoliceCfgExceedAction	This object is deprecated. Refer to equivalent object in cbQosPoliceActionCfgTable.
cbQosPoliceCfgExceedSetValue	This object is deprecated. Refer to equivalent object in cbQosPoliceActionCfgTable.
cbQosPoliceCfgViolateAction	This object is deprecated. Refer to equivalent object in cbQosPoliceActionCfgTable.
cbQosPoliceCfgViolateSetValue	This object is deprecated. Refer to equivalent object in cbQosPoliceActionCfgTable.
cbQosPoliceCfgRate **cbQosPoliceCfgBurstSize** **cbQosPoliceCfgExtBurstSize**	These objects will have zero value when cir (committed information rate) is configured as percent for policing configuration.
cbQosC3plAccountCfgTable	Not implemented.
cbQosC3plAccountStatsTable	Not implemented.

CISCO-CONFIG-COPY-MIB

The CISCO-CONFIG-COPY-MIB contains objects to copy configuration files on the router. For example, the MIB enables the SNMP agent to copy:

- Configuration files to and from the network
- Startup configuration to running configuration and running configuration to startup.
- Startup or running configuration files to and from a local Cisco IOS XE file system.

CISCO-CONFIG-MAN-MIB

The CISCO-CONFIG-MAN-MIB contains objects to track and save changes to the router configuration. The MIB represents a model of the configuration data that exists elsewhere in the router and in peripheral devices. Its main purpose is to report changes to the running configuration through the SNMP notification ciscoConfigManEvent.

CISCO-CONTEXT-MAPPING-MIB

The CISCO-CONTEXT-MAPPING-MIB provides mapping tables that contain the information that a single SNMP agent sometimes needs to support multiple instances of the same MIB. In such cases, network management applications need to know the specific data/identifier values in each context. This is accomplished through the use of multiple SNMP contexts.

CISCO-DATA-COLLECTION-MIB

The CISCO-DATA-COLLECTION-MIB retrieves data periodically when the data displays as a set of discontinuous rows spread across multiple tables. This MIB facilitates data retrieval of tabular objects. This MIB can be used for performance and accounting purposes, where several row instances of a set of objects are polled over a period of time.

The MIB provides the user a way to specify which objects and which instances are required. In addition the MIB provides two ways in which this data can be retrieved.

MIB Constraints

Table 3-10 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-DATA-COLLECTION-MIB. Any MIB object not listed in this table is implemented as defined in the MIB.

Table 3-10 CISCO-DATA-COLLECTION-MIB Constraints

MIB Object	Notes
cdcVFileMgmtTable	Not implemented.
cdcDGTable	Not implemented.
cdcDGBaseObjectTable	Not implemented.
cdcDGInstanceTable	Not implemented.

CISCO-DOT3-OAM-MIB

The CISCO-DOT3-OAM-MIB contains objects that manage the new Ethernet Operations, Administration, and Maintenance (OAM) features introduced by the Ethernet in the first mile task force (IEEE 802.3ah).

MIB Constraints

Table 3-11 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-DOT3-OAM-MIB.

Table 3-11 CISCO-DOT3-OAM-MIB Constraints

MIB Object	Notes
cdot3OamUniqueEventNotificationTx	Read-only.
cdot3OamUniqueEventNotificationRx	Read-only.
cdot3OamDuplicateEventNotificationTx	Read-only.
cdot3OamDuplicateEventNotificationRx	Read-only.
cdot3OamLoopbackControlTx	Read-only.
cdot3OamLoopbackControlRx	Read-only.
cdot3OamVariableRequestTx	Read-only.
cdot3OamVariableRequestRx	Read-only.
cdot3OamVariableResponseTx	Read-only.
cdot3OamVariableResponseRx	Read-only.
cdot3OamOrgSpecificTx	Read-only.
cdot3OamOrgSpecificRx	Read-only.
cdot3OamUnsupportedCodesTx	Read-only.
cdot3OamUnsupportedCodesRx	Read-only.
cdot3OamFramesLostDueToOam	Read-only.
cdot3OamEventLogTimestamp	Read-only.
cdot3OamEventLogOui	Read-only.
cdot3OamEventLogType	Read-only.
cdot3OamEventLogLocation	Read-only.
cdot3OamEventLogWindowHi	Read-only.
cdot3OamEventLogWindowLo	Read-only.
cdot3OamEventLogThresholdHi	Read-only.
cdot3OamEventLogThresholdLo	Read-only.
cdot3OamEventLogValue	Read-only.
cdot3OamEventLogRunningTotal	Read-only.
cdot3OamEventLogEventTotal	Read-only.

CISCO-EIGRP-MIB

The CISCO-EIGRP-MIB defines the tables that are closely aligned with how the router CLI for Enhanced Interior Gateway Protocol (EIGRP) displays information on EIGRP configurations.

CISCO-EMBEDDED-EVENT-MGR-MIB

The CISCO-EMBEDDED-EVENT-MGR-MIB provides descriptions and stores events generated by the Cisco Embedded Event Manager. The Cisco Embedded Event Manager detects hardware and software faults and other events such as OIR for the system.

CISCO-ENHANCED-MEMPOOL-MIB

The CISCO-ENHANCED-MEMPOOL-MIB contains objects to monitor memory pools on all of the physical entities on a managed system. It represents the different types of memory pools that may be present in a managed device. Memory use information is provided to users at three different intervals of time: 1 minute, 5 minutes, and 10 minutes. Memory pools can be categorized into two groups, predefined pools and dynamic pools. The following pool types are currently predefined:

- 1:Processor memory
- 2:I/O memory
- 3:PCI memory
- 4:Fast memory
- 5:Multibus memory
- Other memory

Dynamic pools have a pool type value greater than any of the predefined types listed above. Only the processor pool is required to be supported by all devices. Support for other pool types is dependent on the device being managed.

MIB Constraints

The CISCO-ENHANCED-MEMPOOL-MIB is supported only in the Active RSP module. Table 3-12 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-ENHANCED-MEMPOOL-MIB.

Table 3-12 CISCO-ENHANCED-MEMPOOL-MIB Constraints

MIB Object	Notes
cempMemBufferPoolTable	
• cempMemBufferSize	Read-only.
• cempMemBufferMin	Read-only.
• cempMemBufferMax	Read-only.
• cempMemBufferPermanent	Read-only.
• cempMemBufferTransient	Read-only.
cempMemPoolTable	
• cempMemPoolUsedLowWaterMark	Not implemented.
• cempMemPoolAllocHit	Not implemented.
• cempMemPoolAllocMiss	Not implemented.

Table 3-12 CISCO-ENHANCED-MEMPOOL-MIB Constraints (continued)

MIB Object	Notes
• cempMemPoolFreeHit	Not implemented.
• cempMemPoolFreeMiss	Not implemented.
• cempMemPoolHCShared	Not implemented.
• cempMemPoolHCUsedLowWaterMark	Not implemented.
• cempMemPoolShared	Not implemented.
• cempMemPoolSharedOvrflw	Not implemented.
• cempMemPoolUsedLowWaterMarkOvrflw	Not implemented.
cempMemBufferPoolTable	
• cempMemBufferFreeHit	Not implemented.
• cempMemBufferFreeMiss	Not implemented.

CISCO-ENTITY-ALARM-MIB

The CISCO-ENTITY-ALARM-MIB enables the Cisco ASR 903 Series Router to monitor the alarms generated by system components, such as chassis, slots, modules, power supplies, fans, and ports.

CISCO-ENTITY-ALARM-MIB supports these modules:

- A900-IMA8T ASR 900: 8 port 10/100/1000 Ethernet Interface Module
- A900-IMA8S ASR 900: 8 port SFP Gigabit Ethernet Interface Module
- A900-IMA1X ASR 900: 1 port 10GE XFP Interface Module
- A900-IMA16D ASR 900: 16 port T1/E1 Interface Module

All the other interface types are not supported for this release.

For more information on this MIB, see Appendix A, "CISCO-ENTITY-ALARM-MIB."

MIB Constraints

Table 3-13 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-ENTITY-ALARM-MIB.

Table 3-13 CISCO-ENTITY-ALARM-MIB Constraints

MIB Object	Notes
ceAlarmTable	
• ceAlarmFilterProfile	Not implemented.
• ceAlarmFilterProfileIndexNext	Not implemented.
ceAlarmFilterProfileTable	Not implemented.
ceAlarmDescrTable	
• ceAlarmDescrSeverity	Read-only.

The ENTITY-MIB table, entPhysicalTable, identifies the physical system components in the router. The following list describes the table objects that describe the alarms for the CISCO-ENTITY-ALARM-MIB:

- Physical entity—The component in the Cisco ASR 903 Series Router that generates the alarm.
- ceAlarmDescrVendorType—The object specifies an identifier (typically an enterprise-specific OID) that uniquely identifies the vendor type of those physical entities to which this alarm description applies.
- Alarm severity—Each alarm type defined by a vendor type and employed by the system is assigned an associated severity:
  - Critical—Indicates a severe, service-affecting condition has occurred and that immediate corrective action is imperative, regardless of the time of day or day of the week. For example, online insertion and removal or loss of signal failure when a physical port link is down.
  - Major—Used for hardware or software conditions. Indicates a serious disruption of service or the malfunctioning or failure of important hardware. Requires immediate attention and response of a technician to restore or maintain system stability. The urgency is less than in critical situations because of a lesser effect on service or system performance.
  - Minor—Used for troubles that do not have a serious effect on service to customers or for alarms in hardware that are not essential to the operation of the system.
  - Info—Notification about a condition that could lead to an impending problem or notification of an event that improves operation.

  The syntax values are critical(1), major(2), minor(3), and info(4).
- Alarm description text—Specifies a readable message describing the alarm.
- Alarm type—Identifies the type of alarm that is generated. An arbitrary integer value (0 through 255) uniquely identifies an event relative to a physical entity in the Cisco ASR 903 Series Router.

Table 3-14 lists the alarm descriptions and severity levels for the T1/E1 ports of the Cisco ASR 903 Series Router. The entries for T1/E1 ports mentioned in this table are always populated for ceAlarmDescrTable and ceAlarmDescrVendorType, irrespective of the presence or absence of ports.

Table 3-14 Alarms Supported for T1/E1 ports of the Cisco ASR 903 Series Router

Physical Entity	ceAlarmDescrVendorType	ceAlarmDescr Severity	ceAlarmDescrText
T1/E1 port	cevPortT1E1	minor	Transmitter is sending remote alarm
	cevPortT1E1	minor	Transmitter is sending AIS
	cevPortT1E1	minor	Transmitter is sending TS16 LOMF alarm
	cevPortT1E1	minor	Receiver has loss of multi-frame in TS16
	cevPortT1E1	minor	Receiver has loss of signal
	cevPortT1E1	minor	Receiver is getting AIS
	cevPortT1E1	minor	Receiver has loss of frame
	cevPortT1E1	minor	Receiver has remote alarm
	cevPortT1E1	minor	Receiver is getting AIS in TS16
	cevPortT1E1	minor	Receiver has remote TS16 LOMF alarm
	cevPortT1E1	minor	Other failure
	cevPortT1E1	minor	Ds1 Physical Port Link Down
	cevPortT1E1	info	Ds1 Physical Port Administrative State Down

Table 3-15 lists the alarm descriptions and severity levels for the Gigabit Ethernet (GE) ports of the Cisco ASR 903 Series Router.

Table 3-15 Alarms Supported for the GE Ports of the Cisco ASR 903 Series Router

Physical Entity	ceAlarmDescrVendorType	ceAlarmDescr Severity	ceAlarmDescrText
GE port	cevPortGE	critical	Physical port link down.
		info	Physical port administrative state down.
10GE port	cevPort10GigEthPhy	critical	Physical port link down.
		info	Physical port administrative state down.

Note The 10GE Interface Module (IM) card supports only LAN mode.

Table 3-16 lists the alarm descriptions and severity levels for the SFP Container of the Cisco ASR 903 Series Router.

Table 3-16 Alarms Supported for the SFP Container of the Cisco ASR 903 Series Router

Physical Entity	ceAlarmDescrVendorType	ceAlarmDescrText
SFP container	cevContainerSFP	Transceiver missing.

Table 3-17 lists the alarm descriptions and severity levels for the IMs of the Cisco ASR 903 Series Router.

Table 3-17 Alarms Supported for the IMs of the Cisco ASR 903 Series Router

Physical Entity	ceAlarmDescrVendorType	ceAlarmDescr Severity	ceAlarmDescrText
A900-IMA8T	cevIM8pGeCu	major	Unknown state.
A900-IMA8S	cevIM8pGeSFP	major	Boot state.
A900-IMA1X	cevIM1p10GeXfp	major	Disabled.
A900-IMA16D	cevIM16pT1E1	critical	Failed.
		major	Stopped.

Table 3-18 lists the alarm descriptions and severity levels for the Cisco ASR 903 Series Router sensors.

Table 3-18 Alarms Supported for Cisco ASR 903 Series Router Sensors

Physical Entity	ceAlarmDescrVendorType	ceAlarmDescr Severity	ceAlarmDescrText
Sensor	cevSensor	critical	Faulty Sensor.
		critical	Reading Above Normal (Shutdown).
		critical	Reading Above Normal.
		major	Reading Above Normal.
		minor	Reading Above Normal.
		critical	Reading Below Normal (Shutdown).
		critical	Reading Below Normal.
		major	Reading Below Normal.
		minor	Reading Below Normal.

Note These alarms are not supported for XCVR sensors. The CISCO-ENTITY-SENSOR-MIB can be used to monitor the alarms listed in Table 3-18.

Table 3-19 lists the alarm descriptions and severity levels for the IM containers of the Cisco ASR 903 Series Router.

Table 3-19 Alarms Supported for the IM Container of the Cisco ASR 903 Series Router

Physical Entity	ceAlarmDescrVendorType	ceAlarmDescr Severity	ceAlarmDescrText
IM bay	cevContainerIMBay	critical	Active card removed OIR alarm.
		critical	Card stopped responding.

Table 3-20 lists the alarm descriptions and severity levels for the Cisco ASR 903 Series Router USB ports.

Table 3-20 Alarms Supported for Cisco ASR 903 Series Router USB Ports

Physical Entity	ceAlarmDescrVendorType	ceAlarmDescr Severity	ceAlarmDescrText
USB port	cevPortUSB	critical	Active card removed OIR alarm.
		critical	Card stopped responding.

Table 3-21 lists the alarm descriptions and severity levels for the RSP containers of the Cisco ASR 903 Series Router.

Table 3-21 Alarms Supported for the RSP Container of the Cisco ASR 903 Series Router

Physical Entity	ceAlarmDescrVendorType	ceAlarmDescr Severity	ceAlarmDescrText
RSP container	cevContainerASR900RSP Slot	critical	RSP removed OIR alarm.
		critical	RSP stopped responding.

Table 3-22 lists the alarm descriptions and severity levels for the power supply bay of the Cisco ASR 903 Series Router.

Table 3-22 Alarms Supported for the Power Supply Bay of the Cisco ASR 903 Series Router

Physical Entity	ceAlarmDescrVendorType	ceAlarmDescr Severity	ceAlarmDescrText
Power Supply Bay	cevContainerASR900 PowerSupplyBay	critical	Power supply/Fan module missing.

Table 3-23 lists the alarm descriptions and severity levels for the RSPs of the Cisco ASR 903 Series Router.

Table 3-23 Alarms Supported for the RSP Module of the Cisco ASR 903 Series Router

Physical Entity	ceAlarmDescrVendorType	ceAlarmDescr Severity	ceAlarmDescrText
RSP Module	cevModuleASR903RSP1A	major	Unknown state.
	cevModuleASR903RSP1B	major	Boot state.
		major	Disabled.
		critical	Incompatible
		critical	CPLD incompatible.
		critical	Active RSP CPLD incompatible.
		critical	Failed.
		critical	Cutover.
		major	Secondary failure.
		major	Secondary removed.
		major	Secondary not synchronized.
		critical	No working ESP.
		major	Harddisk Missing.

Note 'Harddisk Missing' and 'No working ESP' alarms are not supported in Cisco ASR 903 Series Router.

The vendor OID for the RSP Module is set to cevModuleUnknownCard for the following conditions:

- Secondary RSP is loaded with the valid image and the RSP module is not operational.
- Software does not understand the hardware subtype of the secondary RSP module.
- Secondary RSP is loaded with an invalid image.

Table 3-24 lists the alarm descriptions and severity levels for the unknown RSP modules of the Cisco ASR 903 Series Router.

Table 3-24 Alarms Supported for the unknown RSP modules of the Cisco ASR 903 Series Router

Physical Entity	ceAlarmDescrVendorType	ceAlarmDescr Severity	ceAlarmDescrText
RSP Module	cevModuleUnknownCard	major	Unknown state.
		major	Boot state.
		major	Disabled.
		critical	Failed.
		critical	Stopped.

Table 3-25 lists the alarm descriptions and severity levels for the power supply module of the Cisco ASR 903 Series Router.

Table 3-25 Alarms Supported for the Power Supply Module of the Cisco ASR 903 Series Router

Physical Entity	ceAlarmDescrVendorType	ceAlarmDescr Severity	ceAlarmDescrText
Power Supply Modules	cevPowerSupplyASR900 DC500W	critical	Power Supply Failure.

Table 3-26 lists the alarms that the FanTray module of the Cisco ASR 903 Series Router supports.

Table 3-26 Alarms Supported for the Cisco ASR 903 Series Router FanTray Module

Physical Entity	ceAlarmDescrVendorType	ceAlarmDescr Severity	ceAlarmDescrText
FanTray Modules	cevFanASR903FanTray	critical	FanTray/Module Failure.
		critical	All Fans Failed.
		critical	Multiple Fan Failures.
		major	Fan 0 to Fan 11 failure.

Note The ceAlarmHistTable contains alarm data asserted or cleared (or both) in the current active RSP. It does not retain the alarms asserted or cleared (or both) in the previous active RSP. The data contained in ceAlarmHistTable is refreshed after a switchover.

CISCO-ENTITY-EXT-MIB

The CISCO-ENTITY-EXT-MIB contains extensions for the processor modules listed in the ENTITY-MIB entPhysicalTable. A processor module is any physical entity that has a CPU, RAM, and NVRAM, and can load a boot image and save a configuration. The extensions in this MIB provide information, such as RAM and NVRAM sizes, configuration register settings, and bootload image name for each processor module.

MIB Constraints

Only the active RP processor is supported in Cisco ASR 903 Series Router. The standby RSP is not managed in this MIB.

Table 3-27 lists the constraints that the router places on the objects in the CISCO-ENTITY-EXT-MIB.

Table 3-27 CISCO-ENTITY-EXT-MIB Constraints

MIB Object	Notes
ceExtConfigRegNext	Read-only.
ceExtSysBootImageList	Read-only.

CISCO-ENTITY-FRU-CONTROL-MIB

The CISCO-ENTITY-FRU-CONTROL-MIB contains objects to configure and monitor the status of the field replaceable units (FRUs) on the Cisco ASR 903 Series Router listed in the ENTITY-MIB entPhysicalTable. A FRU is a hardware component (such as, a line card and module, fan, or power supply) that can be replaced on site.

MIB Constraints

Table 3-28 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-ENTITY-FRU-CONTROL-MIB.

Table 3-28 CISCO-ENTITY-FRU-CONTROL-MIB Constraints

MIB Object	Notes
cefcModuleTable	
• cefcModuleAdminStatus	Read-only. Always enabled(1) for USB.
• cefcModuleOperStatus	The following values are supported: • unknown(1) • ok(2) • boot(5) • failed(7) • dormant(12) • outOfServiceAdmin(13) Always on(2) for USB.
• cefcModuleResetReason	Implemented for IM Modules only.
• cefcModuleLastClearConfigTime	Not implemented.
• cefcModuleResetReasonDescription	Not implemented.
• cefcModuleStateChangeReasonDescr	Not implemented.
cefcFRUPowerSupplyGroupTable	Not implemented.

Table 3-28 CISCO-ENTITY-FRU-CONTROL-MIB Constraints (continued)

MIB Object	Notes
cefcFRUPowerSupplyValueTable	Not implemented.
cefcFRUPowerStatusTable	
• cefcFRUPowerAdminStatus	always on(1)
• cefcFRUPowerOperStatus	The following values are supported: • always on(2) • failed(8) • onButFanFail(9)
cefcFanTrayStatusTable	
• cefFanTrayOperStatus	always up(2)
cefcIntelliModuleTable	Not implemented.
cefcPhysicalTable	Not implemented.
cefcModuleUpTime	Always zero for USB.

CISCO-ENTITY-SENSOR-MIB

The CISCO-ENTITY-SENSOR-MIB contains objects that support the monitoring of sensors. The MIB is applicable to sensors present in various transceiver modules. This MIB allows to monitor sensor values and thresholds on sensors that are discovered by the ENTITY-MIB.

MIB Constraints

Table 3-29 lists the constraints that the Cisco ASR 903 Series Router places on the CISCO-ENTITY-SENSOR-MIB.

Table 3-29 CISCO-ENTITY-SENSOR-MIB Constraints

MIB Object	Notes
entSensorValueTable	
• entSensorMeasuredEntity	Implemented for all sensors except for transceiver sensors.
entSensorThresholdTable	
• entSensorThresholdRelation	Read-only.
• entSensorThresholdSeverity	Read-only.
• entSensorThresholdValue	Read-only.

Note The MIB object entSensorThresholdEvaluation for shared port adapter (SPA) module is not supported as the SPA sensor is not monitored and the sensor value is updated only on demand. To obtain the entSensorThresholdEvaluation for SPA sensors, compare the entSensorValue retrieved from the agent with thresholds.

MIB Usage Values for Cisco Transceivers

Table 3-30 lists CISCO-ENTITY-SENSOR-MIB sensor objects and their usage values for Cisco ASR 903 Series Router transceivers in the entSensorValueTable and entSensorThresholdTable.

Table 3-30 CISCO-ENTITY-SENSOR-MIB Usage Values in the entSensorValueTable for Cisco ASR 903 Series Router Transceivers

MIB Sensor Object	Notes
Module Temperature Sensor	
• entSensorType	celsius(8)
• entSensorScale	units(9)
• entSensorPrecision	3
• entSensorStatus	ok(1)
• entSensorValue	Reports most recent measurement seen by the sensor.
• entSensorValueTimeStamp	Value indicates the age of the value reported by entSensorValue object.
• entSensorValueUpdateRate	Value indicates the rate that the agent updates entSensorValue in seconds (for example, 60 seconds).
• entSensorMeasuredEntity	0
Tx Supply Voltage Sensor	
• entSensorType	voltsDC(4)
• entSensorScale	milli(8)
• entSensorPrecision	1
• entSensorStatus	ok(1)
• entSensorValue	Reports most recent measurement seen by the sensor.
• entSensorValueTimeStamp	Value indicates the age of the value reported by entSensorValue object.
• entSensorValueUpdateRate	Value indicates the rate that the agent updates entSensorValue in seconds (for example, 60 seconds).
• entSensorMeasuredEntity	0
Tx Laser Current Sensor	
• entSensorType	amperes(5)
• entSensorScale	milli(8)
• entSensorPrecision	0
• entSensorStatus	ok(1)
• entSensorValue	Reports most recent measurement seen by the sensor.
• entSensorValueTimeStamp	Value indicates the age of the value reported by entSensorValue object.
• entSensorValueUpdateRate	Value indicates the rate that the agent updates entSensorValue in seconds (for example, 60 seconds).
• entSensorMeasuredEntity	0

Table 3-30 CISCO-ENTITY-SENSOR-MIB Usage Values in the entSensorValueTable for Cisco ASR 903 Series Router Transceivers (continued)

MIB Sensor Object	Notes
Transmit Power Sensor (Optical Tx)	
Receive Power Sensor (Optical Rx)	
• entSensorType	dBm(14)
• entSensorScale	units(9)
• entSensorPrecision	0
• entSensorStatus	ok(1)
• entSensorValue	Reports most recent measurement seen by the sensor.
• entSensorValueTimeStamp	Value indicates the age of the value reported by entSensorValue object.
• entSensorValueUpdateRate	Value indicates the rate that the agent updates entSensorValue in seconds (for example, 60 seconds).
• entSensorMeasuredEntity	0

Note The RSPs and power supplies support various sensors. These sensors are supported in the CISCO-ENTITY-SENSOR-MIB.

CISCO-ENTITY-VENDORTYPE-OID-MIB

The CISCO-ENTITY-VENDORTYPE-OID-MIB defines the object identifiers (OIDs) assigned to various Cisco ASR 903 Series Router components. The OIDs in this MIB are used as values for the entPhysicalVendorType field in the entPhysicalTable of the ENTITY MIB. Each OID uniquely identifies a type of physical entity:

- Chassis
- RSP module
- IM Module
- Power Supply Module
- Fan Tray

CISCO-ERM-MIB

The CISCO-ERM-MIB contains objects to manage resources, such as CPU, memory, buffers and so on. The two important scenarios where the Embedded Resource Manager (ERM) framework is used are:

- Resource Depletion—Handles a situation where the system runs out of a finite resource.
- Resource Separation—Shares resources fairly between different entities in the system such that the activity of one entity does not adversely affect others.

CISCO-ETHER-CFM-MIB

The CISCO-ETHER-CFM-MIB defines the managed objects and notifications for Ethernet Connectivity Fault Management (CFM) operation. CFM is an end-to-end per service instance for the Ethernet layer Operations, Administration and Management (OAM) protocol.

CISCO-ETHERLIKE-EXT-MIB

The CISCO-ETHERLIKE-EXT-MIB defines generic objects for the Ethernet-like network interfaces.

MIB Constraints

Table 3-31 lists the constraint that the Cisco ASR 903 Series Router places on the objects in the CISCO-ETHERLIKE-EXT-MIB.

Table 3-31 CISCO-ETHERLIKE-EXT-MIB Constraint

MIB Object	Notes
ceeDot3PauseExtTable	Not Supported.

CISCO-EVC-MIB

The CISCO-EVC-MIB defines the managed objects and notifications describing Ethernet Virtual Connections (EVCs).

MIB Constraints

Table 3-32 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-EVC-MIB.

Table 3-32 CISCO-EVC-MIB Constraint

MIB Object	Notes
cevcEvcUniTable	Not supported.
cevcEvcActiveUnis	Not supported.
ciscoEvcStatusChangedNotification	Not supported.
• cevcEvcOperStatus	Returns unknown as value.

CISCO-FLASH-MIB

The CISCO-FLASH-MIB contains objects to manage flash cards and flash-card operations.

MIB Constraints

Table 3-33 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-FLASH-MIB.

Table 3-33 CISCO-FLASH-MIB Constraints

MIB Object	Notes
ciscoFlashDeviceTable	
• ciscoFlashDeviceInitTime	Not implemented.
• ciscoFlashPhyEntIndex	Not implemented.
ciscoFlashPartitionTable	
• ciscoFlashPartitionFileCount	Not implemented.
• ciscoFlashPartitionChecksumAlgorithm	Not implemented.
• ciscoFlashPartitionUpgradeMethod	Not implemented.
• ciscoFlashPartitionNeedErasure	Not implemented.
• ciscoFlashPartitionFileNameLength	Not implemented.
ciscoFlashFileTable	
• ciscoFlashFileChecksum	Not implemented.
• ciscoFlashFileType	Values not supported: config(2) image(3) crashinfo(5)

Note The index of files stored in USB changes frequently since the files are mounted and unmounted after regular intervals.

Note When both primary and secondary RSPs are up and running, entities for the standby USB flash and Flash disk are not populated for CISCO-FLASH-MIB. Compact Flash is not supported in Cisco ASR 903 Series Router. Therefore, it is not modelled in the CISCO-FLASH-MIB.

Note After the file is copied successfully via TFTP, it takes atleast 50 seconds to reflect the correct file size in the ciscoFlashFileSize object.

CISCO-FTP-CLIENT-MIB

The CISCO-FTP-CLIENT-MIB contains objects to invoke File Transfer Protocol (FTP) operations for network management. This MIB has no known constraints and all objects are implemented as defined in the MIB.

CISCO-HSRP-EXT-MIB

The CISCO-HSRP-EXT-MIB provides an extension to the CISCO-HSRP-MIB which defines the Cisco Hot Standby Router Protocol (HSRP), which is defined in RFC 2281. The extensions cover assigning of secondary IP addresses and modifying an HSRP group's priority.

CISCO-HSRP-MIB

The CISCO-HSRP-MIB contains objects to configure and manage the Cisco Hot Standby Router Protocol (HSRP), which is defined in RFC 2281.

CISCO-IETF-ATM2-PVCTRAP-MIB

The CISCO-IETF-ATM2-PVCTRAP-MIB contains objects that supplement the ATM-MIB. This MIB implements the Virtual Channel Link (VCL) section of the IETF document "draft-ietf-atommib-atm2-11.txt," Section 9 ATM Related Trap Support.

CISCO-IETF-BFD-MIB

The CISCO-IETF-BFD-MIB contains objects to manage the Bidirectional Forwarding Detection (BFD) protocol. BFD detects faults in the bidirectional path between two forwarding engines, including interfaces, data links, and the forwarding engines themselves with potentially very low latency. It operates independently of media, data protocols, and routing protocols.

CISCO-IETF-DHCP-SERVER-MIB

The CISCO-IETF-DHCP-SERVER-MIB contains objects for the entities implementing the server side of the Bootstrap Protocol (BOOTP) and the DHCP for IP version 4 (IPv4). This MIB does not include support for updating Dynamic Domain Name System (DDNS) and DHCP failover protocol.

CISCO-IETF-DHCP-SERVER-EXT-MIB

The CISCO-IETF-DHCP-SERVER-EXT-MIB is an extension of the CISCO-IETF-DHCP-SERVER-MIB.

CISCO-IETF-ISIS-MIB

The CISCO-IETF-ISIS-MIB introduces network management support for the IS-IS routing protocol through the use of IS-IS MIB table entries, MIB objects, and MIB trap notification objects. A new CLI is added to enable SNMP notifications for the objects. Notifications are provided for errors and other significant event information for the IS-IS network.

CISCO-IETF-MPLS-ID-STD-03-MIB

The CISCO-IETF-MPLS-ID-STD-03-MIB contains object definitions for Multiprotocol Label Switching (MPLS) Traffic Engineering in transport networks.

MIB Constraints

Table 3-34 lists the constraints that the router places on the objects in the CISCO-IETF-MPLS-ID-STD-03-MIB.

Table 3-34 CISCO-IETF-MPLS-ID-STD-03-MIB Constraints

MIB Object	Notes
cmplsIdObjects	Read-only.

CISCO-IETF-MPLS-TE-EXT-STD-03-MIB

The CISCO-IETF-MPLS-TE-EXT-STD-03-MIB contains generic object definitions for MPLS Traffic Engineering in transport networks.

MIB Constraints

Table 3-34 lists the constraints that the router places on the objects in the CISCO-IETF-MPLS-TE-EXT-STD-03-MIB.

Table 3-35 CISCO-IETF-MPLS-TE-EXT-STD-03-MIB Constraints

MIB Object	Notes
cmplsTeExtObjects	Read-only.
cmplsTunnelReversePerfBytes	Not implemented.
cmplsTunnelReversePerfPackets	Not implemented.
cmplsTunnelReversePerfErrors	Not implemented.
cmplsTunnelReversePerfHCBytes	Not implemented.
cmplsTunnelReversePerfHCPackets	Not implemented.

CISCO-IETF-MPLS-TE-P2MP-STD-MIB

The CISCO-IETF-MPLS-TE-P2MP-STD-MIB contains objects to manage the point-to-multipoint Multiprotocol Label Switching Traffic Engineering (MPLS-TE) definitions.

CISCO-IETF-PPVPN-MPLS-VPN-MIB

The CISCO-IETF-PPVPN-MPLS-VPN-MIB is an extension of the MPLS-VPN-MIB. It contains a new notification, mplsNumVrfRouteMaxThreshCleared, which was added with MPLS-VPN-MIB-DRAFT-05.

CISCO-IETF-PW-ATM-MIB

The CISCO-IETF-PW-ATM-MIB contains managed object definitions for pseudowire (PW) emulation of ATM over packet-switched networks (PSNs).

MIB Constraints

Table 3-36 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-IETF-PW-ATM-MIB.

Table 3-36 CISCO-IETF-PW-ATM-MIB Constraints

MIB Object	Notes
CpwVcAtmPerfEntry	
• cpwAtmCellsReceived	Not supported, returns zero.
• cpwAtmCellsSent	Not supported, returns zero.
• cpwAtmCellsRejected	Not supported, returns zero.
• cpwAtmCellsTagged	Not supported, returns zero.
• cpwAtmHCCellsReceived	Not supported, returns zero.
• cpwAtmHCCellsRejected	Not supported, returns zero.
• cpwAtmHCCellsTagged	Not supported, returns zero.
• cpwAtmAvgCellsPacked	Not supported, returns zero.

CISCO-IETF-PW-ENET-MIB

The CISCO-IETF-PW-ENET-MIB contains objects that describe the model for managing Ethernet point-to-point pseudowire services over a packet-switched network (PSN).

MIB Constraints

Table 3-37 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-IETF-PW-ENET-MIB.

Table 3-37 CISCO-IETF-PW-ENET-MIB Constraints

MIB Object	Notes
cpwVcEnetMplsPriMappingTable	Not supported.
cpwVcEnetStatsTable	Not supported.

CISCO-IETF-PW-MIB

The CISCO-IETF-PW-MIB contains managed object definitions for pseudowire (PW) operations.

MIB Constraints

Table 3-38 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-IETF-PW-MIB.

Table 3-38 CISCO-IETF-PW-MIB Constraints

MIB Object	Notes
cpwVcTable	
• CpwVcEntry	Not-accessible.
• cpwVcIndex	Not-accessible.
• cpwVcType	Read-only.
• cpwVcOwner	Read-only.
• cpwVcPsnType	Read-only.
• cpwVcSetUpPriority	Not implemented.
• cpwVcHoldingPriority	Not implemented.
• cpwVcInboundMode	Read-only.
• cpwVcPeerAddrType	Read-only.
• cpwVcPeerAddr	Read-only.
• cpwVcID	Read-only.
• cpwVcLocalGroupID	Read-only.
• cpwVcControlWord	Read-only.
• cpwVcLocalIfMtu	Read-only.
• cpwVcLocalIfString	Read-only.
• cpwVcRemoteControlWord	Read-only.
• cpwVcOutboundVcLabel	Read-only.
• cpwVcInboundVcLabel	Read-only.
• cpwVcName	Read-only.
• cpwVcDescr	Read-only.
• cpwVcAdminStatus	Read-only.

Table 3-38 CISCO-IETF-PW-MIB Constraints

MIB Object	Notes
• cpwVcTimeElapsed	Not implemented.
• cpwVcRowStatus	Read-only.
• cpwVcStorageType	Read-only.
cpwVcPerfCurrentTable	
• cpwVcPerfCurrentEntry	Not implemented.
• cpwVcPerfCurrentInHCPackets	Not implemented.
• cpwVcPerfCurrentInHCBytes	Not implemented.
• cpwVcPerfCurrentOutHCBytes	Not implemented.
• cpwVcPerfCurrentOutHCPackets	Not implemented.
cpwVcPerfIntervalTable	
• cpwVcPerfIntervalEntry	Not implemented.
• cpwVcPerfIntervalNumber	Not implemented.
• cpwVcPerfIntervalValidData	Not implemented.
• cpwVcPerfIntervalInHCPackets	Not implemented.
• cpwVcPerfIntervalInHCBytes	Not implemented.
• cpwVcPerfIntervalOutHCPackets	Not implemented.
• cpwVcPerfIntervalOutHCBytes	Not implemented.
cpwVcNotifRate	Not implemented.

CISCO-IETF-PW-MPLS-MIB

The CISCO-IETF-PW-MPLS-MIB contains objects that complement the CISCO-IETF-PW-MIB for PW operation over MPLS.

MIB Constraints

Table 3-39 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-IETF-PW-MPLS-MIB.

Table 3-39 CISCO-IETF-PW-MPLS-MIB Constraints

MIB Object	Notes
cpwVcMplsOutboundIndexNext	Not supported.
cpwVcMplsInboundIndexNext	Not supported.

CISCO-IETF-PW-TDM-MIB

The CISCO-IETF-PW-TDM-MIB contains managed object definitions for encapsulating TDM (T1,E1, T3, E3, NxDS0) as pseudowires over packet-switching networks (PSNs).

CISCO-IF-EXTENSION-MIB

The CISCO-IF-EXTENSION-MIB contains objects that provide additional interface-related information that is not available in the IF-MIB (RFC 2863).

MIB Constraints

Table 3-40 lists constraints that the Cisco ASR 903 Series Router places on the object in the CISCO-IF-EXTENSION-MIB

Table 3-40 CISCO-IF-EXTENSION-MIB Constraints

MIB Object	Notes
cieIfInterfaceTable	
• cieIfDhcpMode	Not implemented.
• cieIfMtu	Not implemented.
• cieIfContextName	Not implemented.
• cieIfKeepAliveEnabled	Not supported for ATM interfaces.
cieSystemMtu	Not implemented.
cieIfUtilTable	Not supported for GE interfaces.
cieIfDot1dBaseMappingTable	Not implemented.
cieIfDot1qCustomEtherTypeTable	Not implemented.
cieIfNameMappingTable	Not implemented.

Notes

Some objects defined in cieIfPacketStatsTable and cieIfInterfaceTable are applicable only to physical interfaces. As a result, this table may be sparse for non-physical interfaces.

ATM interfaces do not support the cieIfKeepAliveEnabled object.

CISCO-IGMP-FILTER-MIB

The CISCO_IGMP-FILTER-MIB provides a mechanism for users to configure the system to intercept Internet Group Management Protocol (IGMP) joins for IP Multicast groups identified in this MIB and only allow certain ports to join certain multicast groups.

CISCO-IMAGE-MIB

The CISCO-IMAGE-MIB contains objects that identify the capabilities and characteristics of the Cisco IOS XE image.

CISCO-IMAGE-LICENSE-MGMT-MIB

The CISCO-IMAGE-LICENSE-MGMT-MIB contains objects to manage the running image level of a Cisco device. The licensing mechanism provides flexibility to run a device on a chosen image level. This mechanism is referred to as image level licensing. Image level licensing leverages the universal image-based licensing solution.

CISCO-IP-STAT-MIB

The CISCO-IP-STAT-MIB contains objects to manage the collection and display of IP statistics, categorized by IP precedence and the MAC address associated with IP packets. To use the MIB to access additional IP statistics, the **ip accounting mac-address** and **ip accounting precedence** commands must be issued at the CLI.

CISCO-IPMROUTE-MIB

The CISCO-IPMROUTE-MIB contains objects to manage IP multicast routing on the router.

CISCO-IPSLA-ETHERNET-MIB

The CISCO-IPSLA-ETHERNET-MIB contains objects to manage IP SLA Auto-Ethernet-CFM operations and Ethernet Jitter statistics. IP SLA is a capability that utilizes active monitoring for network performance. It can be used for network troubleshooting, network assessment, and health monitoring. Ethernet Jitter is used to measure metrics, such as round-trip time (RTT), Jitter, frame loss, and one-way latency by sending multiple enhanced CFM frames at specified interval to a particular Maintenance End Point (MEP).

CISCO-LAG-MIB

The CISCO-LAG-MIB contains objects to manage link aggregation (LAG) on the router, as defined by IEEE Standard 802.3ad. The MIB contains link aggregation information that supplements to IEEE8023-LAG-MIB or is specific to Cisco products.

CISCO-L2-CONTROL-MIB

The CISCO-L2-CONTROL-MIB contains objects that provide a control feature for devices with Layer 2 functions, such as the VLAN MAC limit control.

CISCO-LICENSE-MGMT-MIB

The CISCO-LICENSE-MGMT-MIB contains objects to manage the licenses on the system. The licensing mechanism provides flexibility to enforce licensing for various features in the system.

CISCO-MAC-NOTIFICATION-MIB

The CISCO-MAC-NOTIFICATION-MIB is for configuration of the MAC notification feature. MAC notification is a mechanism to inform monitoring devices when there are MAC addresses learned or removed from the forwarding database of the monitored devices.

CISCO-MEMORY-POOL-MIB

The CISCO-MEMORY-POOL-MIB contains objects that represents the different types of memory pools that are present in a managed device. Memory pools are categorized into two groups:

- Predefined pools
- Dynamic pools

CISCO-MPLS-LSR-EXT-STD-MIB

The CISCO-MPLS-LSR-EXT-STD-MIB contains generic object definitions for MPLS Label Switching Router (LSR) in transport networks.

MIB Constraints

Table 3-41 lists the constraints that the router places on the objects in the CISCO-MPLS-LSR-EXT-STD-MIB.

Table 3-41 CISCO-MPLS-LSR-EXT-STD-MIB Constraints

MIB Object	Notes
cmplsLsrExtObjects	Read-only.
cmplsTunnelOppositeDirPtr	Not implemented.

CISCO-MPLS-TC-EXT-STD-MIB

The CISCO-MPLS-TC-EXT-STD-MIB contains textual conventions for MPLS based transport networks.

MIB Constraints

Table 3-41 lists the constraints that the router places on the objects in the CISCO-MPLS-TC-EXT-STD-MIB.

Table 3-42 CISCO-MPLS-TC-EXT-STD-MIB Constraints

MIB Object	Notes
cmplsTeExtObjects	Read-only.

CISCO-MVPN-MIB

The CISCO-MVPN-MIB contains managed object definitions for the Cisco implementation of multicast in VPNs defined by the Internet draft, draft-rosen-vpn-mcast-05.txt.

The Multicast VPN MIB feature introduces the capability for Simple Network Management Protocol (SNMP) monitoring of a Multicast VPN (MVPN). Using the MVPN MIB, network administrators can access MVRF information from PE routers. This information can be accessed for VPN traffic across multiple CE sites in real time. SNMP operations can be performed to monitor the MVRFs on the PE routers, using the get and set commands. These commands are entered on the Network management system (NMS) workstation for which the SNMP has been implemented. The NMS workstations is also known as the SNMP manager.

Note Currently only IPv4 is supported.

Note For all MIB objects with "read-create" access privileges, currently only "read-only" access is supported.

For more information on this MIB, please access the following link:
https://www.cisco.com/en/US/docs/ios/12_0s/feature/guide/mcvpnmib.html

CISCO-NETSYNC-MIB

The CISCO-NETSYNC-MIB contains objects to monitor network synchronization based on ITU-T G.781 clock selection.

CISCO-NHRP-EXT-MIB

The CISCO-NHRP-EXT-MIB module is an extension of the NHRP MIB. It defines notifications associated with critical events in the Next Hop Resolution Protocol (NHRP) as defined in RFC 2332.

CISCO-NTP-MIB

The CISCO-NTP-MIB contains objects to monitor a Network Time Protocol (NTP) server. NTP is used to synchronize timekeeping among a set of distributed time servers and clients. Primary time servers, which are synchronized to national time standards, are connected to widely accessible resources such as backbone gateways. These primary servers send timekeeping information to other time servers, and perform clock checking to eliminate timekeeping errors due to equipment or propagation failures.

CISCO-OSPF-MIB

The CISCO-OSPF-MIB contains objects for managing OSPF implementation. Most of the MIB definitions are based on the IETF draft draft-ietf-ospf-mib-update-05.txt and include support for OSPF sham link. The CISCO-OSPF-MIB is an extension to the OSPF-MIB defined in RFC 1850.

CISCO-OSPF-TRAP-MIB

The CISCO-OSPF-TRAP-MIB contains new and modified notification objects and events, which are defined in the latest version of the OSPF-MIB IETF (draft draftietf-ospf-mib-update-05.txt) in addition to support for the OSPF sham link.

CISCO-PIM-MIB

The CISCO-PIM-MIB defines Cisco-specific objects and variables for managing Protocol Independent Multicasts (PIMs) on the router. These MIB definitions are an extension of those in RFC 2934, which is the IETF PIM MIB.

CISCO-PING-MIB

The CISCO-PING-MIB contains objects to manage ping requests on the router.

CISCO-PROCESS-MIB

The CISCO-PROCESS-MIB displays memory and CPU usage on the router and describes active system processes. CPU utilization presents a status of how busy the system is. The numbers are a ratio of the current idle time over the longest idle time. (This information should be used only as an estimate.)

MIB Constraints

Table 3-43 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-PROCESS-MIB.

Table 3-43 CISCO-PROCESS-MIB Constraints

MIB Object	Notes
cpmProcessTable	
• cpmProcExtPriority	Read-only.
cpmCPURisingThreshold	Not supported.
cpmCPUFallingThreshold	Not supported.

Note The cpmCPUTotalTable object contains only one entry for RSP CPUs.

CISCO-PROCESS-MIB Usage

The cpmCPUTotal5sec, cpmCPUTotal1min, and cpmCPUTotal5min objects have been deprecated and replaced by cpmCPUTotal5secRev, cpmCPUTotal1minRev, and cpmCPUTotal5minRev, respectively.

Note When an object is deprecated, it does not mean that an object instance may not be returned. For these deprecated objects, object instances are returned. However, their returned values must be ignored. The values returned by the new objects must be used.

Note The CPU utilization objects, such as cpmCPUTotal5sec, cpmCPUTotal1min, and cpmCPUTotal5min are calculated for all the processes used by the CPU except under idle condition.

Note For the Cisco ASR 903 Series Router, there are no separate FPs.

Table 3-44 lists the support matrix for the CISCO-PROCESS-MIB cpmCPUTotalTable object.

Table 3-44 Support-Matrix for cpmCPUTotalTable

cpmCPUTotalTable Objects	RSP CPU	Stdby RSP CPU
cpmCPULoadAvg1min	Yes	No
cpmCPULoadAvg5min	Yes	No
cpmCPULoadAvg15min	Yes	No
cpmCPUMemoryCommitted	Yes	No
cpmCPUTotalPhysicalIndex	Yes	No
cpmCPUTotal5sec	Yes	No
cpmCPUTotal1min	Yes	No
cpmCPUTotal5min	Yes	No
cpmCPUTotal5secRev	Yes	No
cpmCPUTotal1minRev	Yes	No
cpmCPUTotal5minRev	Yes	No
cpmCPUMonInterval	No	No
cpmCPUTotalMonIntervalValue	No	No
cpmCPUInterruptMonIntervalValue	No	No
cpmCPUMemoryUsed	Yes	No
cpmCPUMemoryFree	Yes	No
cpmCPUMemoryKernelReserved	No	No
cpmCPUMemoryLowest	Yes	No

Table 3-45 lists the support matrix for the CISCO-PROCESS-MIB cpmProcessTable and cpmProcessExtRevTable objects for RSP CPU.

Table 3-45 Support-Matrix for cpmProcessTable and cpmProcessExtRevTable for RSP CPU

cpmProcessTable and cpmProcessRevExtTable Objects	IOSD Process [Process Name: ppc_linux_iosd-]	Other Process [Process Name: Cmand, hman, iomd]
cpmProcessName	Yes	Yes
cpmProcessuSecs	No	No
cpmProcessTimeCreated	Yes	Yes
cpmProcessAverageUSecs	Yes	Yes
cpmProcExtMemAllocatedRev	Yes	Yes
cpmProcExtMemFreedRev	No	No
cpmProcExtInvokedRev	No	No
cpmProcExtRuntimeRev	No	No
cpmProcExtUtil5SecRev	No	No
cpmProcExtUtil1MinRev	No	No
cpmProcExtUtil5MinRev	No	No
cpmProcExtPriorityRev	Yes	Yes
cpmProcessType	No	No
cpmProcessRespawn	No	No
cpmProcessRespawnCount	No	No
cpmProcessRespawnAfterLastPatch	No	No
cpmProcessMemoryCore	No	No
cpmProcessLastRestartUser	No	No
cpmProcessTextSegmentSize	No	No
cpmProcessDataSegmentSize	No	No
cpmProcessStackSize	No	No
cpmProcessDynamicMemorySize	No	No

Table 3-46 lists the support matrix for the CISCO-PROCESS-MIB cpmVirtualProcessTable object.

Table 3-46 Support-matrix for cpmVirtualProcessTable

cpmVirtualProcessTable Objects	Process running under Active RSP IOSD Process
cpmVirtualProcessName	Yes
cpmVirtualProcessUtil5Sec	Yes
cpmVirtualProcessUtil1Min	Yes
cpmVirtualProcessUtil5Min	Yes
cpmVirtualProcessMemAllocated	Yes
cpmVirtualProcessMemFreed	Yes

Table 3-46 Support-matrix for cpmVirtualProcessTable (continued)

cpmVirtualProcessTable Objects	Process running under Active RSP IOSD Process
cpmVirtualProcessInvokeCount	Yes
cpmVirtualProcessRuntime	Yes

CISCO-PRODUCTS-MIB

The CISCO-PRODUCTS-MIB lists the object identifiers (OIDs) assigned to the Cisco hardware platforms.

CISCO-PTP-MIB

The CISCO-PTP-MIB supports the Precision Timing Protocol (PTP) feature on Cisco devices. The protocol enables heterogeneous systems that include clocks of various inherent precision, resolution, and stability to synchronize to a grandmaster clock.

CISCO-RF-MIB

The CISCO-RF-MIB provides configuration control and status information for the redundancy framework subsystem. The redundancy framework subsystem provides a mechanism for logical redundancy of the software functionality and is designed to support 1:1 redundancy for the processor cards.

CISCO-RESILIENT-ETHERNET-PROTOCOL-MIB

The CISCO-RESILIENT-ETHERNET-PROTOCOL-MIB defines objects required for managing Resilient Ethernet Protocol (REP). REP is a Cisco proprietary protocol that provides an alternative to Spanning Tree Protocol (STP). REP provides the functionality to control network loops, handle link failures, and improve convergence time.

CISCO-RTTMON-ICMP-MIB

The CISCO-RTTMON-ICMP-MIB is an extension to the CISCO-RTTMON-MIB for ICMP operations. The ICMP Jitter operation provides capability to measure metrics, such as RTT, Jitter, packet loss, and one-way latency by sending ICMP timestamp streams to destination devices.

CISCO-RTTMON-IP-EXT-MIB

The CISCO-RTTMON-IP-EXT-MIB provides extensions for the tables in CISCO-RTTMON-MIB to support IP layer extensions, specifically IPv6 addresses and other information related to IPv6 standards.

CISCO-RTTMON-MIB

The CISCO-RTTMON-MIB contains objects to monitor network performance. The MIB provides information about the response times of network resources and applications. Each conceptual round-trip time (RTT) control row in the MIB represents a single probe, which is used to determine an entity's response time. The probe defines an RTT operation to perform (for example, an FTP or HTTP get request), and the results indicate whether the operation succeeded or failed, and how long it took to complete.

If you plan to schedule an RTT operation, see Table 3-47 for information about rttMonScheduleAdminRttStartTime in the rttMonScheduleAdminTable.

Note An rttMonCtrlOperConnectionLostOccurred trap is generated when an RTT connection cannot be established to the destination router because the router responder application is not running. However, the trap is not generated if the physical connection to the router is lost.

MIB Constraints

Table 3-47 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-RTTMON-MIB.

Table 3-47 CISCO-RTTMON-MIB Constraints

MIB Object	Notes
RttMonProtocol	The following values are not supported: • snaRUEcho • snaLU0EchoAppl
rttMonApplAuthTable	Not supported.
rttMonCtrlAdminTable • rttMonCtrlAdminRttType	Supported values are: • echo(1) • pathEcho(2) • udpEcho(5) • tcpConnect(6) • http(7) • dns(8) • jitter(9) • ftp(12) All other values not supported.
rttMonEchoAdminTable • rttMonEchoAdminProtocol	Supported values: • ipIcmpEcho(2) • ipUdpEchoAppl(3) • ipTcpConn(24) • httpAppl(25) • dnsAppl(26) • jitterAppl(27) • ftpAppl(30) All other values not supported.
rttMonScheduleAdminTable • rttMonScheduleAdminRttStartTime	Before setting this object to a date/time value, make sure the ESR clock was set through the CLI **clock set** command. Otherwise, the scheduled RTT operation does not run.
rttMonHistoryCollectionTable	HTTP and Jitter types are not supported.

CISCO-RTTMON-RTP-MIB

The CISCO-RTTMON-RTP-MIB is an extension to the CISCO-RTTMON-MIB for Cisco IP SLA Real-Time Transport Protocol (RTP) operation. This operation provides the capability to measure voice quality metrics, such as RTT, Jitter, and Mean Opinion Score (MOS) by setting up RTP stream between two routers. In voice communications, particularly Internet telephony, MOS provides a numerical measure of the quality of human speech at the destination end of the circuit.

CISCO-SNMP-TARGET-EXT-MIB

The CISCO-SNMP-TARGET-EXT-MIB is an extension of the SNMP-TARGET-MIB specified in RFC2273.

CISCO-STP-EXTENSIONS-MIB

The CISCO-STP-EXTENSIONS-MIB contains objects to manage the Cisco extensions to the IEEE 802.1D Spanning Tree Protocol (STP).

Note For the CISCO-STP-EXTENSIONS-MIB, only the traps and notification for the stpxRootInconsistency object have been verified.

CISCO-SONET-MIB

The CISCO-SONET-MIB contains objects to describe SONET/SDH interfaces on the router. This MIB is an extension of the standard SONET-MIB (RFC 2558). The CISCO-SONET-MIB has objects that provide additional SONET-related information, which is not found in the SONET-MIB.

Note CISCO-SONET-MIB supports SONET traps that are seen when the line, section, path status changes, and notifications are enabled.

MIB Constraints

Table 3-48 describes the constraints that the Cisco ASR 903 Series Router places on the objects in the CISCO-SONET-MIB.

Table 3-48 CISCO-SONET-MIB Constraints

MIB Object	Notes
csConfigTable	Not implemented.
csVTConfigTable	Not implemented.
csAPSConfigTable	Not implemented.
cssTraceTable	Not implemented.

Table 3-48 CISCO-SONET-MIB Constraints (continued)

MIB Object	Notes
cspTraceTable	Not implemented.
csStatsTable	Not implemented.
cspConfigTable	Not implemented.

Note Only the section, line, and path totals objects from the ciscoSonetStatsMIBGroup and the complete ciscoSonetEnableGroup is supported. All network elements containing one or more SONET interfaces should implement this MIB.

CISCO-SYSLOG-MIB

The CISCO-SYSLOG-MIB contains all system log messages generated by the Cisco IOS XE software. The MIB provides a way to access these system log messages through the SNMP. All Cisco IOS XE system log messages contain the message name and its severity, message text, the name of the entity generating the message, and an optional time stamp. The MIB also contains a history of system log messages and counts related to system log messages.

Note The Cisco ASR 903 Series Router can be configured to send system log messages to a system log server.

Note The MIB does not keep track of messages generated from debug commands entered through the CLI.

CISCO-TCP-MIB

The CISCO-TCP-MIB contains objects to manage the TCP on the router. This MIB is an extension to the IETF TCP MIB.

CISCO-VRF-MIB

The CISCO-VRF-MIB contains objects to manage and provision the network virtualization features. Virtual Routing and Forwarding (VRF) is an extension of IP routing that provides multiple routing instances.

DS1-MIB (RFC 2495)

The DS1-MIB(RFC-2495) contains a description of the DS1, E1, DS2, and E2 interface objects.

MIB Constraints

Table 3-49 describes the constraints that the Cisco ASR 903 Series Router places on the objects in the DS1-MIB. For detailed definitions of the MIB objects, see the corresponding MIB.

Table 3-49 DS1-MIB Constraints

MIB Object	Notes
dsx1ConfigTable	
• dsx1LineStatusChangeTrapEnable	Read-only. This MIB object cannot be set through SNMP. The **snmp-server enable traps ds1** command can be used to enable status change traps.
• dsx1Channelization	Read-only.
• dsx1LineLength	Read-only.
• dsx1LineType	Read-only.
• dsx1LineCoding	Read-only.
• dsx1SendCode	Read-only.
• dsx1CircuitIdentifier	Read-only.
• dsx1LoopbackConfig	Read-only.
• dsx1SignalMode	Read-only.
• dsx1TransmitClockSource	Read-only.
• dsx1Fdl	Read-only.
• dsx1LoopbackStatus	Payload loopbacks are not supported (dsx1NearEndPayloadLoopback, dsx1FarEndPayloadLoopback).
dsx1FracTable	Not implemented.
dsx1FarEndIntervalTable	Not implemented.

ENTITY-MIB (RFC 4133)

The ENTITY-MIB (RFC 4133) allows functional component discovery. It is used to represent physical and logical entities (components) in the router and manages those entities. The current software release supports the RFC 4133 version of this MIB.

The following are the conformance groups contained in the ENTITY-MIB:

- entityPhysical group—Describes the physical entities managed by a single agent.
- entityLogical group—Describes the logical entities managed by a single agent.
- entityMapping group—Describes the associations between the physical entities, logical entities, interfaces, and non-interface ports managed by a single agent.
- entityGeneral group—Describes general system attributes shared by potentially all types of entities managed by a single agent.
- entityNotifications group—Contains status indication notifications.

The following groups are added from RFC 4133:

- entityPhysical2 group—This group augments the entityPhysical group.
- entityLogical2 group—Describes the logical entities managed by a single agent, and replaces entityLogical group.

The MIB table entPhysicalTable identifies the physical entities in the router. The entPhysicalTable contains a single row for the Cisco ASR 903 Series Router chassis and a row for each entity in the chassis. A physical entity may contain other entities. For example, an IM in IM Bay 0 with one A900-IMA8T-CU-IM in subslot 0/1 supports the following entities in this SNMP. Output for IMs, sensors on the subslot, and IM ports:

```
entPhysicalDescr.550 = 8-port Gigabit Ethernet Interface Module
entPhysicalContainedIn.550 = 5
entPhysicalDescr.551 = A900-IM8T
entPhysicalContainedIn.551 = 550
entPhysicalDescr.552 = A900-IM8T
entPhysicalContainedIn.552 = 550
entPhysicalDescr.553 = A900-IM8T
entPhysicalContainedIn.553 = 550
entPhysicalDescr.554 = A900-IM8T
entPhysicalContainedIn.554 = 550
entPhysicalDescr.555 = A900-IM8T
entPhysicalContainedIn.555 = 550
entPhysicalDescr.556 = A900-IM8T
entPhysicalContainedIn.556 = 550
entPhysicalDescr.557 = A900-IM8T
entPhysicalContainedIn.557 = 550
entPhysicalDescr.558 = A900-IM8T
entPhysicalContainedIn.558 = 550
entPhysicalDescr.567 = subslot 0/1 temperature Sensor 0
entPhysicalContainedIn.567 = 550
entPhysicalDescr.568 = subslot 0/1 temperature Sensor 1
entPhysicalContainedIn.568 = 550
entPhysicalDescr.569 = subslot 0/1 temperature Sensor 2
entPhysicalContainedIn.569 = 550
entPhysicalDescr.570 = subslot 0/1 temperature Sensor 3
entPhysicalContainedIn.570 = 550
entPhysicalDescr.571 = subslot 0/1 temperature Sensor 4
entPhysicalContainedIn.571 = 550
entPhysicalDescr.579 = subslot 0/1 voltage Sensor 0
entPhysicalContainedIn.579 = 550
entPhysicalDescr.580 = subslot 0/1 voltage Sensor 1
entPhysicalContainedIn.580 = 550
entPhysicalDescr.581 = subslot 0/1 voltage Sensor 2
entPhysicalContainedIn.581 = 550
entPhysicalDescr.582 = subslot 0/1 voltage Sensor 3
entPhysicalContainedIn.582 = 550
entPhysicalDescr.583 = subslot 0/1 voltage Sensor 4
entPhysicalContainedIn.583 = 550
entPhysicalDescr.584 = subslot 0/1 voltage Sensor 5
entPhysicalContainedIn.584 = 550
entPhysicalDescr.800 = 16 port T1/E1 IM
```

Note The IM A900-IMA4OS has only four ports modelled.

For more information on the ENTITY-MIB, refer Appendix A, “CISCO-ENTITY-ALARM-MIB.”

For the Cisco ASR 903 Series Router platform, the entPhysicalParentRelPos values are populated with the slot numbers (except for the RP, and PEM slot numbers) provided in the external label.

Table 3-50 lists the mapping between external labels and entPhysicalParentRelPos values.

Table 3-50 Mapping the External Labels to the entPhysicalParentRelPos Values

Type	External Label	Value
IM Bay	0 to 5	0 to 5 match the external label.
RSP Container	R0 and R1	6 for R0, and 7 for R1.
Power Supply Bay	0 and 1	11 for PEM 0 and 12 for PEM 1.
FanTray Bay	__	13

Table 3-51 lists the values of the affected MIB table objects in the Cisco ASR 903 Series Router:

Table 3-51 Affected MIB Objects in a Cisco ASR 903 Series Router

Type	External Label	Value
entPhysicalContainedIn	RSP Slot	entPhysicalIndex of Chassis.
	RSP Module	entPhysicalIndex of RSP Slot.
	IM Bay	entPhysicalIndex of Chassis.
	IM	entPhysicalIndex of IM Bay.
	Power Supply Bay	entPhysicalIndex of Chassis.
	FanTray Bay	entPhysicalIndex of Chassis.

Table 3-52 lists the fans supported on a Cisco ASR 903 Series Router.

Table 3-52 Fans Supported on a Cisco ASR 903 Series Router

Module	Number of Fans
ASR 903 FAN Tray	12

MIB Constraints

Table 3-53 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the ENTITY-MIB.

Table 3-53 ENTITY-MIB Constraints

MIB Object	Notes
entPhysicalSoftwareRev	Supported for RSP module.
entPhysicalAssetAlias	Not supported.
entPhysicalAssetId	Not supported for transceiver modules and USBs. Implemented only as read-write for the following entPhysicalClass entities: • Chassis • Powersupply • Module
entPhysicalHardwareRev	Not implemented for USB.
entPhysicalSerialNum	Implemented as read-only. Not implemented for USB.
entPhysicalModelName	Not implemented for USB.
entPhysicalMfgName	Not implemented for USB.
entPhysicalUris	Not implemented for USB. Implemented as read-only.
entPhysicalAlias	Not supported for transceiver modules and USB . Implemented only as read-write for the following entPhysicalClass entities: • Chassis • Powersupply • Module
entPhysicalMfgDate	Not implemented.

Note When both primary and secondary RSPs are up and running, entities for standby USB flash and boot flash are not populated for the ENTITY-MIB.

Note For cevModuleASR903UnknownRSP object, only the RSP module entry is populated without any child entities.

ENTITY-SENSOR-MIB (RFC 3433)

The ENTITY-SENSOR-MIB (RFC 3433) contains objects that manage physical sensors, which are represented in the Entity-MIB with entPhysicalEntry and an entPhysicalClass value of sensor(8). The ENTITY-SENSOR-MIB contains a single table called the entPhySensorTable.

Note These sensors are supported on the CISCO-ENTITY-SENSOR-MIB. Unit tests can be performed to ensure that all the sensors are modelled in the MIB.

ENTITY-STATE-MIB

The ENTITY-STATE-MIB defines objects to extend the functionality provided by the ENTITY-MIB. This MIB supports the entities having these entPhysicalClass values:

- Chassis
- Container (RSP slot, IM bay, PS bay and Fan-tray bay)
- Module (RSP, IM, and transceiver)
- PowerSupply
- Fan

MIB Constraints

Table 3-54 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the ENTITY-STATE-MIB.

Table 3-54 ENTITY-STATE-MIB Constraints

MIB Object	Notes
entStateAlarm	Valid values are: • critical • major • minor • warning These values indicate the CISCO-ENTITY-ALARM-MIB alarm types.
entStateAdmin	Read-only.

Note Power supply and fan alarms are generated on either the Power Entry Module or FanTray module. Therefore, no alarm is generated on the entStateAlarm object associated with either the power supply or the fan.

ETHER-WIS (RFC 3637)

The ETHER-WIS (RFC 3637) MIB contains objects to manage application details for the Ethernet WAN Interface Sublayer (WIS).

MIB Constraints

Table 3-55 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the ETHER-WIS (RFC 3637) MIB.

Table 3-55 ETHER-WIS (RFC 3637) MIB Constraints

MIB Object	Note
etherWisDeviceTable	Not supported.
etherWisSectionCurrentTable	Not supported.
etherWisFarEndPathCurrentTable	Not supported.

Note WAN-PHY is not fully compliant with the SONET/SDH optical and electrical specifications.

Note SONET layer is not modelled for the Ethernet WIS port.

ETHERLIKE-MIB (RFC 3635)

The ETHERLIKE-MIB contains objects to manage Ethernet-like interfaces.

MIB Constraints

Table 3-56 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the ETHERLIKE-MIB. Any objects not listed in a table are implemented as defined in the MIB.

Table 3-56 ETHERLIKE-MIB Constraints

MIB Object	Notes
dot3CollTable	Not implemented.
dot3ControlTable	Not implemented.
dot3Control	Not implemented.
dot3PauseAdminMode	Read-only.

EVENT-MIB (RFC 2981)

The EVENT-MIB (RFC 2981) contains objects to define event triggers and actions for network management purposes.

EXPRESSION-MIB

The EXPRESSION-MIB (RFC 2982) contains objects to define the expressions of MIB objects for network management purposes.

HC-ALARM-MIB

The HC-ALARM-MIB defines Remote Monitoring MIB extensions for High Capacity Alarms.

MIB Tables

Table 3-57 lists the tables in HC-ALARM-MIB.

Table 3-57 HC-ALARM-MIBTables

MIB Table	Description
hcAlarmTable	A list of entries for the configuration of high capacity alarms.

HC-RMON-MIB

The HC-RMON- MIB augments the original RMON MIB as specified in RFC 1757 and RFC 1513, and RMON2 MIB as specified in RFC 2021. It manages the remote monitoring device implementations.

IEEE8021-CFM-MIB

The IEEE8021-CFM-MIB is a Connectivity Fault Management (CFM) module for managing IEEE 802.1ag.

MIB Constraints

Table 3-56 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the IEEE8021-CFM-MIB.

Table 3-58 IEEE8021-CFM-MIB Constraints

MIB Object	Notes
dot1agCfmMepTransmitLbmStatus	Not supported.
dot1agCfmMepTransmitLbmDestMacAddress	Not supported.
dot1agCfmMepTransmitLbmDestMepId	Not supported.
dot1agCfmMepTransmitLbmDestIsMepId	Not supported.
dot1agCfmMepTransmitLbmMessages	Not supported.
dot1agCfmMepTransmitLbmDataTlv	Not supported.

Table 3-58 IEEE8021-CFM-MIB Constraints (continued)

MIB Object	Notes
dot1agCfmMepTransmitLbmVlanPriority	Not supported.
dot1agCfmMepTransmitLbmVlanDropEnable	Not supported.
dot1agCfmMepTransmitLbmResultOK	Not supported.
dot1agCfmMepTransmitLbmSeqNumber	Not supported.
dot1agCfmMepTransmitLtmStatus	Not supported.
dot1agCfmMepTransmitLtmFlags	Not supported.
dot1agCfmMepTransmitLtmTargetMacAddress	Not supported.
dot1agCfmMepTransmitLtmTargetMepId	Not supported.
dot1agCfmMepTransmitLtmTargetIsMepId	Not supported.
dot1agCfmMepTransmitLtmTtl	Not supported.
dot1agCfmMepTransmitLtmResult	Not supported.
dot1agCfmMepTransmitLtmSeqNumber	Not supported.
dot1agCfmMepTransmitLtmEgressIdentifier	Not supported.

Note The IEEE8021-CFM-MIB does not support SET operation.

IEEE8021-CFM-V2-MIB

The IEEE8021-CFM-V2-MIB is a Connectivity Fault Management (CFM) version 2 module for managing IEEE 802.1ag.

Note The IEEE8021-CFM-V2-MIB does not support SET operation.

IEEE8023-LAG-MIB

The IEEE 8023-LAG-MIB is the Link Aggregation module for managing IEEE Std 802.3ad.

IF-MIB (RFC 2863)

The IF-MIB (RFC 2863) describes the attributes of physical and logical interfaces (network interface sublayers). The router supports the ifGeneralGroup of MIB objects for all layers (ifIndex, ifDescr, ifType, ifSpeed, ifPhysAddress, ifAdminStatus, ifOperStatus, ifLastChange, ifName, ifLinkUpDownTrapEnable, ifHighSpeed, and ifConnectorPresent).

One of the most commonly used identifiers in SNMP-based network management applications is the Interface Index (ifIndex) value. IfIndex is a unique identifying number associated with a physical or logical interface.

Note The ifInDiscards, ifInErrors, ifInUnknownProtos, ifOutDiscards, and ifOutErrors IF-MIB objects are not supported for Gigabit subinterfaces.

Note The IF-MIB supports these modes for A900-IMA4OS:
- Channel-group under c-11 mode in au-3
- Channel-group under c-12 mode in au-4
- CEM under c-12 mode in au-4
- CEM under c-11 mode in au-3

Note BDI interfaces are not supported for IF-MIB as the counter values are not updated for this MIB.

Layering for A900-IMA4OS

On querying the ifStackStatus object, the CEM interface and the Channel group show the layers as illustrated in Figure 3-1 and Figure 3-2.

Figure 3-1 Layering Shown by the CEM Interface

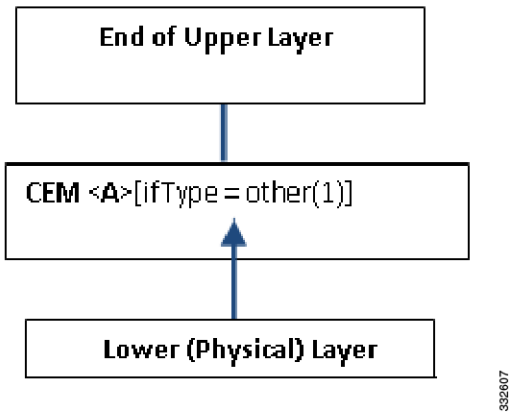
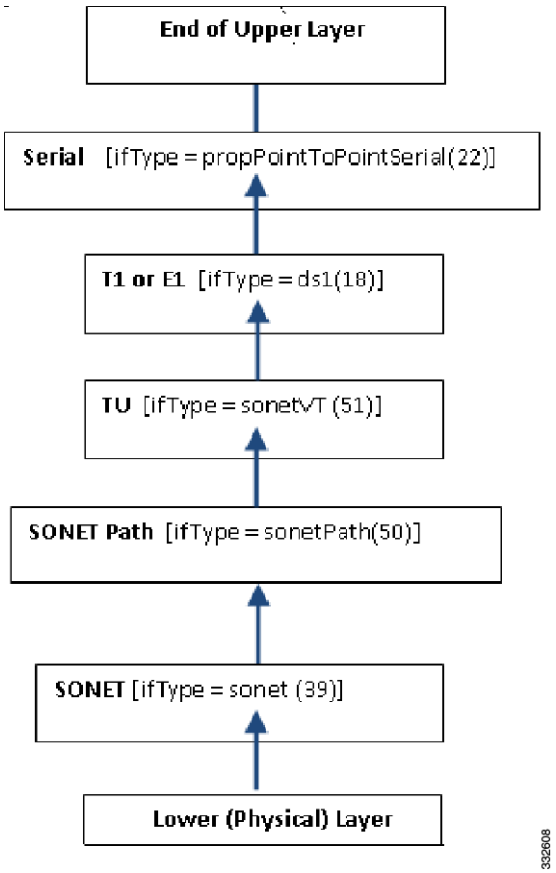


Figure 3-2 Layering Shown by the Channel Group



MIB Constraints

Table 3-59 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the IF-MIB.

Table 3-59 IF-MIB Constraints

MIB Object	Notes
ifOutErrors	Not supported for ATM subinterfaces.
ifPromiscuousMode	Read-only.
ifStackStatus	Read-only.

IGMP-STD-MIB (RFC 2933)

The IGMP-STD-MIB(RFC 2933) manages Internet Group Management Protocol (IGMP).

INT-SERV-GUARANTEED-MIB

The INT-SERV-GUARANTEED-MIB describes the guaranteed service of the Integrated Services Protocol.

INTEGRATED-SERVICES-MIB

The INTEGRATED-SERVICES-MIB contains objects to manage the Integrated Services Protocol.

IP-FORWARD-MIB (RFC 4292)

The IP-FORWARD-MIB (RFC 4292) contains objects to control the display of classless interdomain routing (CIDR) multipath IP Routes.

IP-MIB (RFC 4293)

The IP-MIB (RFC 4293) module contains objects for managing IP and Internet Control Message Protocol (ICMP) implementations, but not their management of IP routes.

MIB Constraints

Table 3-60 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the IP-MIB.

Table 3-60 IP-MIB Constraints

MIB Object	Notes
ipv4InterfaceTableLastChange	Not implemented.
ipv4InterfaceTable	Not implemented.

IPMROUTE-STD-MIB (RFC 2932)

The IPMROUTE-STD-MIB (RFC 2932) contains objects to manage IP multicast routing, but independent of the specific multicast routing protocol in use.

MIB Constraints

Table 3-61 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the IPMROUTE-STD-MIB.

Table 3-61 IPMROUTE-STD-MIB Constraints

MIB Object	Notes
ipMRouteScopeNameTable	Not implemented.

MPLS-L3VPN-STD-MIB (RFC 4382)

The MPLS-L3VPN-STD-MIB contains managed object definitions for the Layer-3 Multiprotocol Label Switching Virtual Private Networks. This MIB is based on RFC 4382 specification.

MPLS-LDP-GENERIC-STD-MIB (RFC 3815)

The MPLS-LDP-GENERIC-STD-MIB (RFC 3815) contains managed object definitions for configuring and monitoring the Multiprotocol Label Switching Label Distribution Protocol (MPLS-LDP) and utilizing ethernet as the Layer 2 media.

MPLS-LDP-STD-MIB (RFC 3815)

The MPLS-LDP-STD-MIB (RFC 3815) contains managed object definitions for the Multiprotocol Label Switching (MPLS) and Label Distribution Protocol (LDP) document.

MPLS-LSR-STD-MIB (RFC 3813)

The MPLS-LSR-STD-MIB (RFC 3031) contains managed object definitions for the Multiprotocol Label Switching (MPLS) router.

MPLS-TE-STD-MIB

The MPLS-TE-STD-MIB contains managed object definitions for Multiprotocol Label Switching Traffic Engineering (MPLS-TE).

MPLS-VPN-MIB

The MPLS-VPN-MIB:

- Describes managed objects for modeling a Multiprotocol Label Switching/Border Gateway Protocol virtual private network
- Configures and monitors routes and route targets for each VRF instance on a router
- Facilitates provisioning VPN Routing and Forwarding (VRF) instances on MPLS interfaces
- Measures the performance of MPLS/BGP VPNs

The MIB is based on Revision 05 of the IETF MPLS-VPN-MIB.

MIB Constraints

Table 3-62 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the MPLS-VPN-MIB.

Table 3-62 MPLS-VPN-MIB Constraints

MIB Object	Notes
mplsNumVrfSecViolationThreshExceeded	Not implemented.
mplsVpnVrfSecTable	
• mplsVpnVrfSecIllegalLabelViolations	Read-only. Always 0.
• mplsVpnVrfSecIllegalLabelRcvThresh	Read-only. Always 0.
mplsVpnVrfTable	
• mplsVpnVrfConfRowStatus	Read-only.
• mplsVpnVrfConfStorageType	Read-only. Volatile(2).
• mplsVpnVrfConfMidRouteThreshold	Read-only.
• mplsVpnVrfConfHighRouteThreshold	Read-only
• mplsVpnVrfConfMaxRoutes	Read-only
• mplsVpnVrfConfMaxPossibleRoutes	Read-only. Always 0.
• mplsVpnVrfDescription	Read-only
• mplsVpnInterfaceVpnClassification	Read-only
mplsVpnInterfaceConfTable	
• mplsVpnInterfaceConfStorageType	Read-only. Volatile(2).
• mplsVpnInterfaceConfRowStatus	Read-only. Values: active(1), notInService(2).
• mplsVpnInterfaceLabelEdgeType	Read-only. providerEdge(1).
mplsVpnVrfRouteTargetTable	
• mplsVpnVrfRouteTargetRowStatus	Read-only. Values: active(1), notInService(2).
mplsVpnVrfBgpNbrAddrTable	
• mplsVpnVrfBgpNbrRowStatus	Read-only. Values: active(1), notInService(2).
• mplsVpnVrfBgpNbrRole	Read-only. providerEdge(1).
• mplsVpnVrfBgpNbrType	Read-only.
• mplsVpnVrfBgpNbrAddr	Read-only.

Table 3-62 MPLS-VPN-MIB Constraints (continued)

MIB Object	Notes
• mplsVpnVrfBgpNbrStorageType	Read-only. Volatile(2).
mplsVpnVrfRouteTable	
• mplsVpnVrfRouteInfo	Read-only. Value nullOID.
• mplsVpnVrfRouteTarget	Read-only. Determines the route distinguisher for this target.
• mplsVpnVrfRouteTargetDescr	Description of the route target. Currently this object is not supported in this Cisco IOS XE release. Therefore, the object is the same as mplsVpnVrfRouteTarget.
• mplsVpnVrfRouteDistinguisher	Read-only.
• mplsVpnVrfRouteNextHopAS	Read-only. Always 0.
• mplsVpnVrfRouteRowStatus	Read-only. This object normally reads active(1), but may read notInService(2), if a VRF was recently deleted.
• mplsVpnVrfRouteStorageType	Read-only. Volatile(2).
• mplsVpnVrfRouteDestAddrType	Read-only.
• mplsVpnVrfRouteMaskAddrType	Read-only.
• mplsVpnVrfRouteTos	Read-only. Always 0.
• mplsVpnVrfRouteNextHop	Read-only.
• mplsVpnVrfRouteNextHopAddrType	Read-only.
• mplsVpnVrfRouteifIndex	Read-only.
• mplsVpnVrfRouteType	Read-only.
• mplsVpnVrfRouteProto	Read-only.
mplsVpnVrfBgpNbrPrefixTable	Not implemented.

Notes:

The mplsVpnVrfConfTable represents all the MPLS/BGP VPNs configured. The NMS configures an entry in this table for each MPLS/BGP VPN configured to run in this MPLS domain. The mplsVPNInterfaceConfTable extends the interface MIB to provide specific MPLS/BGP VPN information on MPLS/BGP VPN-enabled interfaces. The mplsVPNPerfTable enhances the mplsVpnVrfConfTable to provide performance information.

The mplsVpnVrfRouteTable and the mplsVpnRouteTargetTable facilitate the configuration and monitoring of routes and route targets, respectively, for each VRF instance.

MSDP-MIB

The MSDP-MIB contains objects to monitor the Multicast Source Discovery Protocol (MSDP). The MIB can be used with SNMPv3 to remotely monitor MSDP speakers.

For more information about this MIB, see its feature module description at the following URL:

http://www.cisco.com/en/US/docs/ios/12_1t/12_1t5/feature/guide/dt5msdp.html

NHRP-MIB

The Cisco NHRP MIB feature introduces support for the NHRP MIB, which helps to manage and monitor the Next Hop Resolution Protocol (NHRP) through the Simple Network Management Protocol (SNMP). Statistics can be collected and monitored through standards-based SNMP techniques (get operations) to query objects defined in the NHRP MIB. The NHRP MIB is VRF-aware and supports VRF-aware queries.

For more information about this MIB, refer:

http://www.cisco.com/en/US/docs/ios/sec_secure_connectivity/configuration/guide/sec_dmvpn_nhrp_mib.html

MIB Constraints

Table 3-63 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the NHRP-MIB.

Table 3-63 NHRP-MIB Constraints

MIB Object	Notes
nhrpClientNbmaSubaddr	Not implemented.
nhrpClientNhsNbmaSubaddr	Not implemented.
nhrpServerNbmaSubaddr	Not implemented.
nhrpServerNhcNbmaSubaddr	Not implemented.
nhrpCachePreference	Not implemented.
nhrpClientDefaultMtu	Not implemented.
nhrpCacheNegotiatedMtu	Not implemented.
nhrpPurgePrefixLength	Not implemented.
nhrpCacheNbmaSubaddr	Not supported.
nhrpCacheType	
• atmarp(7)	Not supported.
• scsp(8)	Not supported.

NOTIFICATION-LOG-MIB (RFC 3014)

The NOTIFICATION-LOG-MIB contains objects for logging SNMP notifications; that is, traps and informs types of notifications.

OSPF-MIB (RFC 1850)

The OSPF-MIB (RFC 1850) contains objects that describe the OSPF Version 2 Protocol. The RFC1253-MIB corresponds to the OSPF-MIB (Open Shortest Path First [OSPF] protocol).

OSPF-TRAP-MIB (RFC 1850)

The OSPF-TRAP-MIB (RFC 1850) contains objects that describe traps for the OSPF Version 2 Protocol.

PIM-MIB (RFC 2934)

The PIM-MIB (RFC 2934) contains objects to configure and manage Protocol Independent Multicast (PIM) on the router. The MIB is extracted from RFC 2934.

MIB Constraints

Table 3-64 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the PIM-MIB.

Table 3-64 PIM-MIB Constraints

MIB Object	Notes
pimIpMRouteTable	Not implemented.
pimIpMRouteNextHopTable	Not implemented.
pimInterfaceTable	
• pimInterfaceMode	Read-only.
• pimInterfaceHelloInterval	Read-only.
• pimInterfaceStatus	Read-only.
• pimInterfaceJoinPruneInterval	Read-only.
• pimInterfaceCBSRPreference	Read-only.
pimJoinPruneInterval	Read-only.
pimCandidateRPTable	
• pimCandidateRPAdressd	Read-only.
• pimCandidateRPRowStatus	Read-only.
pimComponentTable	
• pimComponentCRPHoldTime	Read-only.
• pimComponentStatus	Read-only.

RFC1213-MIB

The RFC1213-MIB defines the second version of the Management Information Base (MIB-II) for use with network-management protocols in TCP-based internets. This RFC1213-MIB includes the following groups :

- system
- interfaces

- at
- ip
- icmp
- tcp
- udp
- igmp
- transmission
- snmp

Note For more information, refer to the latest RFCs specified in the RFC-1213-MIB.

RFC2982-MIB

The RFC2982-MIB defines expressions of MIB objects for management purposes.

RFC2006-MIB (MIP)

The RFC2006-MIB is the MIB module for the Mobile IP standard.

RMON-MIB (RFC 1757)

The RMON-MIB (RFC 1757) contains objects to remotely monitor devices in the network.

MIB Constraints

Only alarm and event groups are supported in Cisco ASR 903 Series Router.

RMON2-MIB (RFC 2021)

The RMON2-MIB contains objects to manage remote monitoring device implementations. This MIB module enhances the original RMON MIB as specified in RFC 2021.

RSVP-MIB

The RSVP-MIB contains objects to manage the Resource Reservation Protocol (RSVP).

SMON-MIB

The SMON-MIB contains objects to manage remote monitoring device implementations for switched networks. It identifies the source of the data that the associated function is configured to analyze. The textual convention extends the data source textual convention defined by RMON 2 to the following data source types:

- ifIndex
- smonVlanDataSource
- entPhysicalEntry

SNMP-COMMUNITY-MIB (RFC 2576)

The SNMP-COMMUNITY-MIB (RFC 2576) contains objects that help support coexistence among SNMPv1, SNMPv2c, and SNMPv3.

SNMP-FRAMEWORK-MIB (RFC 2571)

The SNMP-FRAMEWORK-MIB (RFC 2571) contains objects that describe the SNMP management architecture. There are no constraints on this MIB.

SNMP-MPD-MIB (RFC 2572)

The SNMP-MPD-MIB (RFC 2572) contains objects for Message Processing and Dispatching (MPD).

SNMP-NOTIFICATION-MIB (RFC 2573)

The SNMP-NOTIFICATION-MIB (RFC 2573) contains managed objects for SNMPv3 notifications. The MIB also defines a set of filters that limit the number of notifications generated by a particular entity (snmpNotifyFilterProfileTable and snmpNotifyFilterTable).

Objects in the snmpNotifyTable are used to select entities in the SNMP-TARGET-MIB snmpTargetAddrTable and specify the types of SNMP notifications those entities are to receive.

SNMP-PROXY-MIB (RFC 2573)

The SNMP-PROXY-MIB (RFC 2573) contains managed objects to remotely configure the parameters used by an SNMP entity for proxy forwarding operations. The MIB contains a single table, snmpProxyTable, which defines the translations to use to forward messages between management targets.

SNMP-TARGET-MIB (RFC 2573)

The SNMP-TARGET-MIB (RFC 2573) contains objects to remotely configure the parameters used by an entity to generate SNMP notifications. The MIB defines the addresses of entities to send SNMP notifications to, and contains a list of tag values that are used to filter the notifications sent to these entities (see the SNMP-NOTIFICATION-MIB).

SNMP-USM-MIB (RFC 2574)

The SNMP-USM-MIB (RFC 2574) contains objects that describe the SNMP user-based security model.

SNMPv2-MIB (RFC 1907)

The SNMPv2-MIB (RFC 1907) contains objects to manage SNMPv2 entities. The SNMPv2-MIB contains the following mandatory object groups:

- SNMP group—Collection of objects providing basic instrumentation and control of an SNMP entity.
- System group—Collection of objects common to all managed systems.
- snmpSetGroup—Collection of objects that allow several cooperating SNMPv2 entities, all acting in a manager role, to coordinate their use of the SNMPv2 set operation.
- snmpBasicNotificationsGroup—The two notifications are coldStart and authenticationFailure, which an SNMPv2 entity is required to implement.

SNMPv2-SMI

The SNMPv2-SMI is based on RFC1902 and describes the management information structure for Simple Network Management Protocol version 2 (SNMPv2).

SNMP-VIEW-BASED-ACM-MIB (RFC 2575)

The SNMP-VIEW-BASED-ACM-MIB (RFC 2575) contains objects that describe the view-based access control model for SNMP.

To access the SNMP-VIEW-BASED-ACM-MIB, you must create an SNMPv3 user with access to a view that includes all of the information from the Internet subtree. For example:

Router(config)# **snmp-server view abcview internet included**
Router(config)# **snmp-server group abcgroup v3 noauth read abcview write abcview notify** *abcview*
Router(config)# **snmp-server user abcuser abcgroup** *v3*

Note *Router(config)#* **snmp-server user abcuser abcgroup** *v3*

SONET-MIB (RFC 2558)

The SONET-MIB (RFC 2558) provides both the configuration and performance monitoring objects for the SONET interfaces.

MIB Constraints

Table 3-65 lists the constraints that the Cisco ASR 903 Series Router places on the objects in the SONET-MIB.

Table 3-65 SONET-MIB Constraints

MIB Object	Notes
sonetPathCurrentTable	
• sonetPathCurrentWidth	Read only.
sonetVTCurrentTable	Not implemented.
sonetVTIntervalTable	Not implemented.
sonetFarEndVTCurrentTable	Not implemented.
sonetFarEndVTIntervalTable	Not implemented.
SonetMediumTable	
• sonetMediumLineCoding	Read-Only
• sonetMediumLineType	Read-Only
• sonetMediumCircuitIdentifier	Read-Only
• sonetMediumLoopbackConfig	Read-Only
sonetSESthresholdSet	Read-Only

Note When the SONET path is initialized and no active alarms exist, the value of the sonetPathCurrentStatus object is 0. If an alarm is triggered and cleared, the value of the sonetPathNoDefect object is 1.

TCP-MIB (RFC 4022)

The TCP-MIB (RFC 4022) contains objects to manage the Transmission Control Protocol (TCP) implementations on the router.

TUNNEL-MIB (RFC 4087)

The TUNNEL-MIB contains objects to manage IP Tunnels independent of the encapsulation scheme in use.

UDP-MIB (RFC 4113)

The UDP-MIB (RFC4113) contains objects to manage the User Datagram Protocol (UDP) on the router. There are no constraints.

VRRP-MIB

The VRRP-MIB contains objects to manage Virtual Router Redundancy Protocol (VRRP) routers.