CHAPTER 10

Internet Protocol

This chapter describes the level of support that Cisco ANA provides for IP, as follows:

For information on network topology, see Chapter 38, "Cisco ANA VNE Topology."

Technology Description

This section provides the following IP technology descriptions:

Please see Part 1: Cisco VNEs in this guide for information about which devices support the various technologies.

IP

IP is a network layer (Layer 3) protocol that contains addressing information and some control information that enables packets to be routed. IP is documented in RFC 791 and is the primary network layer protocol in the Internet protocol suite. Along with TCP, IP represents the heart of the Internet protocols. IP has two primary responsibilities: providing connectionless, best-effort delivery of datagrams through an internetwork; and providing fragmentation and reassembly of datagrams to support data links with different maximum transmission unit (MTU) sizes.

ARP

Address Resolution Protocol (ARP) is a protocol for mapping an IP address to a physical machine address (a MAC address) that is recognized in the local network. For example, in IP version 4 (IPv4), the most common level of IP in use today, an address is 32 bits long. In an Ethernet LAN, however, addresses for attached devices are 48 bits long. A table, usually called the ARP cache, is used to maintain a correlation between each MAC address and its corresponding IP address. ARP provides the protocol rules for making this correlation and providing address conversion in both directions.

HSRP

Hot Standby Router Protocol (HSRP) is a routing protocol that provides automatic router backup by allowing host computers on the Internet to use multiple routers that act as a single virtual router, maintaining connectivity even if the first hop router fails, because other routers are on hot standby and ready to go. The protocol is fully compatible with Novell's Internetwork Packet Exchange (IPX), AppleTalk, and Banyan VINES, and (in some configurations) with Xerox Network Systems (XNS) and DECnet.

Developed by Cisco and specified in RFC 2281, HSRP ensures that only a single router (called the active router) is forwarding packets on behalf of the virtual router at any given time. A standby router is chosen to be ready to become the active router, in the event that the current active router fails. HSRP defines a mechanism used to determine active and standby routers by referring to their IP addresses. Once these are determined, the failure of an active router will not cause any significant interruption of connectivity.

On any given LAN, there may be multiple, possibly overlapping, hot standby groups, each with a single MAC address and IP address. The IP address should belong to the primary subnet, but must be different from any actual or virtual addresses allocated to any routers or hosts on the network.

GRE

Generic Routing Encapsulation (GRE) is a tunneling protocol, originated by Cisco Systems and standardized in RFC 2784. It was designed to encapsulate a wide variety of network layer packets inside IP tunneling packets. The original packet is the payload for the final packet. The protocol is used on the Internet to secure VPNs.

Carrier-Grade NAT (CGN)

Carrier-Grade NAT is large-scale NAT, capable of providing private-IPv4-to-public-IPv4 translation in the order of millions of translations. Carrier-Grade NAT can support several hundred thousand subscribers with the bandwidth throughput of at least 10Gb/s full-duplex. With IPv4 addresses reaching depletion, Carrier-Grade NAT is vital in providing private IPv4 connectivity to the public IPv4 internet.

IPv6

IP version 6 (also known as IPv6, specified in RFC 2373, "IP Version 6 Addressing Architecture") is the successor to IPv4. The changes from IPv4 to IPv6 fall primarily into these categories:

- Expanded Addressing Capabilities—IPv6 increases the IP address size from 32 bits to 128 bits, supporting more levels of addressing hierarchy, a much greater number of addressable nodes, and simpler auto-configuration of addresses. It improves scalability of multicast routing by adding a scope field to multicast addresses. It also defines a new type of "anycast" address, used to send a packet to any one of a group of nodes.
- Header Format Simplification— Some IPv4 header fields have been dropped or made optional, to reduce the common-case processing cost of packet handling and to limit the bandwidth cost of the IPv6 header.
- Improved Support for Extensions and Options—Changes in the way IP header options are encoded allows for more efficient forwarding, less stringent limits on the length of options, and greater flexibility for introducing new options in the future.
- Flow Labeling Capability—This new capability enables the labeling of packets belonging to particular traffic flows for which the sender requests special handling, such as non default quality of service or real-time service.

Currently, Cisco ANA support for IPv6 has the following limitations:

- ANA does not support native IPv6 devices; this implies use of dual stack on all devices.
- ANA implementation of IPv6 is limited to discovery and display of IPv6-enabled interfaces and IPv6-enabled VPNs.
- Fault management of IPv6-enabled interfaces and VPN is limited to parsing and displaying the events reported for those interfaces and VPNs. ANA does not correlate or otherwise process these events.
- None of the routing protocols are supported for IPv6-enabled interfaces. To get topology links among IPv6-enabled interfaces, Cisco Discovery Protocol (CDP) must be enabled.

Provider Backbone Bridge (PBB)

Provider backbone bridges (PBBs), specified by IEEE 802.1ah-2008, provide a way to increase the number of service provider supported Layer 2 service instances beyond the number supported by QinQ and VPLS. PBB adds a backbone VLAN tag and backbone destination and source MAC addresses to encapsulate customer Ethernet frames and create a MAC tunnel across core switches.

Cisco ANA models the IB type of Backbone edge bridges which includes both I-type and B-type components.

IP SLA Responder Service

Cisco IOS Service Level Agreements (SLAs) software allows you to analyze IP service levels for IP applications and services by using active traffic monitoring to measure network performance. The IP SLA responder is a component embedded in the destination Cisco device that allows the system to anticipate and respond to IP SLAs request packets. The responder provides accurate measurements without requiring dedicated probes. The responder uses the Cisco IOS IP SLAs Control Protocol to provide a mechanism through which it can be notified on which port it should listen and respond.

Two-Way Active Measurement Protocol (TWAMP) defines a standard for measuring round-trip network performance between any two devices that support the protocol.

Information Model Objects (IMOs)

This section describes the following IMOs:

- IP Interface (IIPInterface)
- IP Multiplexer Entry (IIPMuxEntry)
- IP Interface Address (IIPInterfaceAddress)
- IP Subnetwork (IPSubnet)
- Routing Entity (IRoutingEntity)
- Routing Entry (IRoutingEntry)
- ARP Entity (IARPEntity)
- ARP Entry (IARPEntry)
- IP Address Pool (IIPPool)
- IP Range-Based Address Pool Entry (IIPRangeBasedIPPoolEntry)
- IP Subnet-Based Address Pool Entry (IIPSubnetBasedIPPoolEntry)
- Hot Standby Router Protocol (HSRP) Group Entry (IHSRPGroupEntry)
- Generic Routing Encapsulation (GRE) Tunnel Interface (ITunnelGRE)
- Bridge ILan (IBridgeILan)
- IB Bridge Entry (IIBBridgeEntry)
- IP SLA Responder Service (IIPSLAResponderService)
- IP SLA IP Address Port Pair (IIIPSLAIPAddressPortPair)
- CGN Service (IcgnService)
- CGN Statistics Entry (ICgnStatsEntry)
- CGN Service Address Pool (ICgnServiceAddressPool)
- CGN Service Location (ICgnServiceLocation)

IP Interface

The network layer IP Interface IMO represents the IP-level functionality of an interface configuration in a network element. Its Containing Termination Points attribute is its primary binding to a data link layer interface object. It is accessed primarily by a Routing Entity.

Table 10-1 IP Interface (IIPInterface)

Attribute Name	Attribute Description	Scheme	Polling Interval
IP Address	IP addresses (including IPv6)	Product	Configuration
Subnetwork Mask	IP subnetwork masks (including IPv6)	Product	Configuration
IP Interface Addresses Array	Array of all IP Interface Addresses (including IPv6)	Product	Configuration
Interface Name	Interface name	Product	Configuration
Interface Description	Interface description	Product	Configuration
IP Interface State	IP interface state (*Unknown, Up, Down*)	Product	Configuration

Table 10-1 IP Interface (IIPInterface) (continued)

Attribute Name	Attribute Description	Scheme	Polling Interval
Broadcast Address	The broadcast address of the subnetwork	Any	Configuration
MTU	Maximum transmit units	Any	Configuration
Lookup Method	Lookup method (*Route Table First*, *Host Table First*)	Any	Configuration
Address Resolution Type	Address resolution type	Any	Configuration
ARP Timeout	ARP table entry aging timeout	Any	Configuration
Secured ARP	Secured ARP settings (*Enable*, *Disable*)	Any	Configuration
ICMP Mask Reply	Control message mask reply	Any	Configuration
IGMP Proxy	Group management proxy	Any	Configuration
HSRP Groups	Arrays of Hot Standby Router Protocol (HSRP) Group Entry (valid only for Cisco routers that implement HSRP)	Any	Configuration
IP Multiplexing Table	Array of IP Multiplexing Entries	Any	Configuration
IANA Type	Internet Assigned Numbers Authority (IANA) type of the sublayer	N/A	N/A
Containing Termination Points	Underlying termination points (connection or physical)	Any	N/A
Contained Connection Termination Points	Bound connection termination points	Any	N/A

IP Multiplexer Entry

The IP Multiplexer Entry IMO represents an entry in the IP Multiplexing Table of an IP Interface object. It is used when an IP Interface is bound to multiple virtual connection-based data link layer interfaces (such as ATM Interface and Frame Relay Interface) in order to map a destination IP subnet to a specific virtual connection.

Table 10-2 IP Multiplexer Entry (IIPMuxEntry)

Attribute Name	Attribute Description	Scheme	Polling Interval
Termination Point	Virtual data link layer encapsulation	Any	Configuration
Destination IP Subnet	Destination IP subnet	Any	Configuration

IP Interface Address

The IP Interface Address IMO represents one of several possible IP addresses and their subnetwork masks that can be assigned to an IP Interface using an IP Subnetwork IMO. It indicates whether it is the primary or a secondary address.

Table 10-3 IP Interface Address (IIPInterfaceAddress)

Attribute Name	Attribute Description	Scheme	Polling Interval
Type	IP address type (for IPv4: *Primary*, *Secondary*; for IPv6, *IPv6 Link-local*, *IPv6 Unicast*, *IPv6 Anycast*, *IPv6 Multicast*)	Any	Configuration
IP Subnet	IP subnetwork (supports IPv6)	Any	Configuration

IP Subnetwork

The IP Subnetwork type (it is not an IMO) describes either an IP Subnetwork Address (with the host part zeroed) or, alternatively, a host IP address along with the IP subnetwork mask.

Table 10-4 IP Subnetwork (IPSubnet)

Attribute Name	Attribute Description	Scheme	Polling Interval
IP Address	IP address (supports IPv6)	Any	Configuration
Subnetwork Mask	IP subnetwork mask (supports IPv6)	Any	Configuration

Address Family

The Address Family IMO represents the VRF route targets associated with IPv4 and IPv6 address family configurations.

Table 10-5 Address Family (IAddressFamily)

Attribute Name	Attribute Description	Scheme	Polling Interval
Address family type	Address family type (*IPv4 address family*, *IPv6 address family*)	Any	Configuration
Export route targets	List of export route targets	Any	Configuration
Import route targets	List of import route targets	Any	Configuration

Routing Entity

The Routing Entity IMO represents the routing and address resolution protocol-independent forwarding component of an IP router. It is bound by its Logical Sons attribute to all the network-layer IP Interface IMOs among which this Routing Entity is routing IP packets.

Table 10-6 Routing Entity (IRoutingEntity)

Attribute Name	Attribute Description	Scheme	Polling Interval
Routing Table	Array of routing table entries. **Note** By default BGP routes are modeled in the Product scheme and not modeled in the IpCore scheme. This behavior can be changed by registry customization.	Any	Configuration
ARP Entity	Address resolution entity (ARP Entity). The ARP Entity holds the ARP table associated with the specific routing domain modeled by the Routing Entity.	Any	Configuration
Routing Table Changes	Routing table changes count	Any	Configuration
Name	Routing entity name. This attribute is used when one device has multiple routing domains.	Any	Configuration
Logical Sons	Array of all IP Interfaces between which IP packets are being routed by this Routing Entity.	Any	N/A

Routing Entry

The Routing Entry IMO describes a routing table's entries. Each routing table entry is an array of entries sharing a single IP Subnetwork destination.

Each routing table entry represents an active route to a particular destination. The routing table can contain multiple active routes to the same destination, also known as Equal Cost Multi Path (ECMP).

Route Entry is represented in the IP-MIB as an entry in the ipRouteTable (ipRouteEntry: 1.3.6.1.2.1.4.21.1) which does not support ECMP, or in the IP-FORWARDING-MIB as an entry in the inetCidrRouteTable (inetCidrRouteEntry: 1.3.6.1.2.1.4.24.7.1) which supports ECMP.

Note Based on their protocol type, some of a device's routing table entries which are not relevant to the Cisco ANA Information Model may be omitted from this table structure.

Table 10-7 Routing Entry (IRoutingEntry)

Attribute Name	Attribute Description	Scheme	Polling Interval
Destination IP Subnet	Final destination IP subnet	Any	Configuration
Next Hop IP Address	Next hop IP address	Any	Configuration
Type	Routing entry type (*Null*, *Other*, *Invalid*, *Direct*, *Indirect*, *Static*)	Any	Configuration

Table 10-7 Routing Entry (IRoutingEntry) (continued)

Attribute Name	Attribute Description	Scheme	Polling Interval
Routing Protocol Type	Routing protocol type (*Null, Other, Local, Network Managed, ICMP, EGP, GGP, Hello, RIP, IS-IS, ES-IS, Cisco IGRP, BBN SPF IGP, OSPF, BGP, EIGRP*)	Any	Configuration
Outgoing Interface Name	Outgoing IP interface name	Any	Configuration
Prefix Length	The number of bits set in the subnet mask (the shorthand way of expressing the subnet mask).	Any	Configuration

ARP Entity

The ARP Entity IMO describes a domain-wide IP address to MAC Address Resolution Protocol (ARP) entity.

Table 10-8 ARP Entity (IARPEntity)

Attribute Name	Attribute Description	Scheme	Polling Interval
ARP Table	Array of ARP Entries	Product	Configuration

ARP Entry

The ARP Entry IMO describes a domain-wide IP address to MAC Address Resolution Protocol (ARP) table entry.

Table 10-9 ARP Entry (IARPEntry)

Attribute Name	Attribute Description	Scheme	Polling Interval
IP Address	IP address	Product	Configuration
MAC Address	MAC address	Product	Configuration
Port	Data link layer (MAC) interface	Product	Configuration
Entry Type	ARP entry type (*Null, Other, Invalid, Dynamic, Static*)	Product	Configuration

IP Address Pool

The IP Address Pool IMO, with its associated IP Range-Based Address Pool Entry and IP Subnet-Based Address Pool Entry IMOs, describes an IP address pool of a gateway or router device. Protocols such as Dynamic Host Configuration Protocol (DHCP) and IP Control Protocol (IPCP) use these pools to distribute IP assignments to local and remote parties.

Table 10-10 IP Address Pool (IIPPool)

Attribute Name	Attribute Description	Scheme	Polling Interval
IP Address Pool Entries	Array of IP Range Based Address Pool Entries or IP Subnet Based Address Pool Entries	Any	Configuration
Name	IP addresses pool name	Any	Configuration
Index	IP addresses pool index	Any	Configuration

IP Range-Based Address Pool Entry

See the description for IP Address Pool.

Table 10-11 IP Range-Based Address Pool Entry (IIPRangeBasedIPPoolEntry)

Attribute Name	Attribute Description	Scheme	Polling Interval
Start IP Address	Start IP address of the IP address pool	Any	Configuration
End IP Address	End IP address of the IP address pool	Any	Configuration
Unused Addresses	Unused addresses count	Any	Configuration
Used Addresses	Used addresses count	Any	Configuration
Reserved Addresses	Reserved addresses count	Any	Configuration

IP Subnet-Based Address Pool Entry

See the description for IP Address Pool.

Table 10-12 IP Subnet-Based Address Pool Entry (IIPSubnetBasedIPPoolEntry)

Attribute Name	Attribute Description	Scheme	Polling Interval
IP Subnet	IP Subnetwork of the IP address pool	Any	Configuration
Unused Addresses	Unused addresses count	Any	Configuration
Used Addresses	Used addresses count	Any	Configuration
Reserved Addresses	Reserved addresses count	Any	Configuration

Hot Standby Router Protocol (HSRP) Group Entry

The Hot Standby Router Protocol (HSRP) Group Entry IMO represents both the configuration and the result of running HSRP within a group of routers connected to the same segment of an Ethernet network. HSRP provides backup for router failures by presenting the group of routers to the LAN as a single virtual router with a single set of IP and MAC addresses.

Table 10-13 Hot Standby Router Protocol (HSRP) Group Entry (IHSRPGroupEntry)

Attribute Name	Attribute Description	Scheme	Polling Interval
Group Number	Group number	Product	Configuration
Port Description	Port description	Product	Configuration
Priority	Priority from *0* (*Lowest*) to *255* (*Highest*) used for active router selection	Product	Configuration
Coupled Router	Coupled active or standby router IP address (as the grouping is implemented using only two routers)	Product	Configuration
State	Protocol state (*Disabled, Initial, Learn, Listen, Speak, Standby, Active*)	Product	Configuration
Virtual IP Address	Virtual IP address used by this group	Product	Configuration
Virtual MAC Address	Virtual MAC address used by this group	Product	Configuration

Generic Routing Encapsulation (GRE) Tunnel Interface

The network-layer Generic Routing Encapsulation (GRE) Tunnel Interface IMO represents a GRE tunnel interface configuration in a network element. It is accessed primarily by an IP Interface bound by its Contained Connection Termination Points attribute.

Table 10-14 Generic Routing Encapsulation (GRE) Tunnel Interface (ITunnelGRE)

Attribute Name	Attribute Description	Scheme	Polling Interval
Name	Tunnel name	Product	Configuration
Tunnel Destination and Source	Tunnel destination and source IP addresses	Product	Configuration
IP Address	Primary IP address	Product	Configuration
IP Interface State	IP interface state (*Unknown, Up, Down*)	Any	Configuration
IANA Type	Internet Assigned Numbers Authority (IANA) type of the sublayer	N/A	N/A
Containing Connection Termination Points	Underlying termination points (connection or physical)	Any	N/A
Contained Connection Termination Points	Bound connection termination points	Any	N/A
Keep Alive State	Indicates whether the GRE keep alive is *set* or *not set*	Any	N/A
Keep Alive Time	The interval at which GRE will try to send keepalive packets	Any	N/A
Keep Alive Retry	Number of times the GRE will try to send keepalive packets without a response before bringing down the interface or tunnel protocol	Any	N/A

Bridge ILan

This IMO encapsulates the bridge mapping associations between the backbone edge bridges and the BridgeILan tunnel.

Table 10-15 Bridge ILan (IBridgeILan)

Attribute Name	Attribute Description	Scheme	Polling Interval
IBBridgeMapping	The object which associates the I-SID, I type Backbone Edge Bridge and B type Backbone Edge Bridge with the BridgeILan tunnel.	IpCore	Configuration
ID	On 7600 devices, this is the ID of the created MAC tunnel. On ASR 9000 devices, the ID is composed from the Bridge group and Bridge domain on the B-Bridge component.	IpCore	Configuration

IIBBridgeEntry

This IMO encapsulates the MAC-in-MAC tunnel properties, including I-SID and XID of the I-Bridge Component and the XID of the B-Bridge component.

Table 10-16 IB Bridge Entry (IIBBridgeEntry)

Attribute Name	Attribute Description	Scheme	Polling Interval
B Type Bridge	The B type Backbone Edge Bridge ID.	IpCore	Configuration
I Type Bridge	The I type Backbone Edge Bridge ID.	IpCore	Configuration
I-SID	The 24 bit Service Instance ID.	IpCore	Configuration

IP SLA Responder Service

The IP SLA Responder Service IMO represents the IMO interface for the IP SLA Responder that allows the system to anticipate and respond to IP SLAs request packets. Cisco IP SLA allows monitoring of network performance between Cisco routers or from a Cisco router to a remote IP device. This object supports UDP_ECHO and TCP_CONNECT operation types. The UDP_ECHO operation measures end-to-end response time or connectivity between a Cisco router and IP devices. The TCP_CONNECT operation tests the connection to specific destination ports on a remote server.

Table 10-17 IP SLA Responder Service (IIPSLAResponderService)

Attribute Name	Attribute Description	Scheme	Polling Interval
Responder Status	Status of the IP SLA Responder (*Up, Down*).	Product	Configuration
TWAMP Responder Status	Status of the IP SLA TWAMP responder (*Up, Down*).	Product	Configuration
TCP Connect	Destination IP address and port number used for the TCP connect operation, as in IP SLA Address Port Pair.	Product	Configuration
UDP Echo	Destination IP address and port number used for the UDP echo operation.	Product	Configuration

IP SLA Address Port Pair

The IP SLA Address Port Pair IMO represents the pair consisting of IP address and port for the TCP Connect and UDP Echo data in IP SLA Responder Service. The IP Address can be IPv4 or IPv6.

Table 10-18 IP SLA IP Address Port Pair (IIIPSLAIPAddressPortPair)

Attribute Name	Attribute Description	Scheme	Polling Interval
IP Address	The IP address in the pair. The IP address can be IPv4 or IPv6.	Product	Configuration
Port	The port in the pair.	Product	Configuration

CGN Service

The CGN Service object models the Carrier Grade NAT service, including its name, statistics, address pools, associated service infra interface and service app interface and locations.

Table 10-19 CGN Service (IcgnService)

Attribute Name	Attribute Description	Scheme	Polling Interval
CGN Name	The service name configured for the CGN service.	IpCore	configuration
Statistics	A set of statistics relating to the CGN service. See CGN Statistics Entry.	IpCore	configuration
Address Pools	The private to public address pool mapping that is managed by the CGN service.	IpCore	configuration
Locations	The preferred locations where the CGN service is configured.	IpCore	configuration
Service Interfaces	The service interfaces associated with the CGN service (service infra and service app). The service infra interface represents the control connection to the card running the CGN service. The service app interfaces are used for delivering packets to and from the card running the CGN service.	IpCore	configuration

CGN Statistics Entry

The CGN Statistics Entry object models all the statistics for a given Carrier Grade NAT service as a name value pair.

The supported statistics are:

- Translations create rate
- Translations delete rate
- Inside to outside forward rate
- Outside to inside forward rate
- Inside to outside drops port limit exceeded
- Inside to outside drops system limit reached
- Inside to outside drops resource depletion

Table 10-20 CGN Statistics Entry (ICgnStatsEntry)

Attribute Name	Attribute Description	Scheme	Polling Interval
Statistics Name	The name of the statistic for the CGN service.	IpCore	configuration
Statistics Value	The value of the statistic for the CGN service.	IpCore	configuration

CGN Service Address Pool

The CGN Service Address Pool object models the address pool configured for a given Carrier Grade NAT service, including its address family, address pool, inside VRFs and outside VRFs.

Table 10-21 CGN Service Address Pool (ICgnServiceAddressPool)

Attribute Name	Attribute Description	Scheme	Polling Interval
Outside VRF	The outside VRF associated with this address pool. The outside VRF is used for packet flow from the public network to the private network.	IpCore	configuration
Address Pool	The range of IP addresses that is managed by the outside VRF.	IpCore	configuration
Inside VRF	The inside VRF associated with this address pool. The inside VRF is used for packet flow from the private network to the public network.	IpCore	configuration
Address Family	The address family type that is translated by the inside VRF, either IPv4 or IPv6.	IpCore	configuration

CGN Service Location

The CGN Service Location object models the service location configured for a given Carrier Grade NAT service.

Table 10-22 CGN Service Location (ICgnServiceLocation)

Attribute Name	Attribute Description	Scheme	Polling Interval
Instance Name	The preferred active location of the CGN service.	IpCore	configuration
Location	Hyperlink to the physical inventory of the preferred active location of the CGN service.	IpCore	configuration
Infra Interface	The interface that represents the control connection to the card running the CGN service,	IpCore	configuration
Location Type	The configured location type, active or standby.	IpCore	configuration
Redundancy Status	The operational state of the redundancy.	IpCore	configuration

CGN IP Interface

The CGN IP Interface object extends the IP Interface object as a differentiator for a CGN IP interface. See IP Interface for a description of the attributes associated with this object.

Network Topology

Discovery of the IP network layer is unsupported. However, IP addresses and subnets are used in signature and test of the underlying topology discovery (for example, MPLS, PPP, HDLC, BFD,

GRE Tunnel Information) when searching for the local IP address in any one-hop-away remote side's routing table. In particular, the local and remote IP addresses of IP Interface found under the same subnet are compared.

For more information, see Chapter 15, "Multiprotocol Label Switching," Chapter 23, "Point-to-Point Protocol," and Chapter 24, "High-Level Data Link Control."

Service Alarms

The following alarms are supported for this technology:

- All IP Interfaces Down, page 41-5
- GRE Tunnel Down, page 41-35
- HSRP Group Status Changed, page 41-36
- Carrier Grade NAT Translations Create Rate, page 41-16
- Carrier Grade NAT Translations Delete Rate, page 41-17
- Carrier Grade NAT Inside-to-Outside Forward Rate, page 41-18
- Carrier Grade NAT Outside-to-Inside Forward Rate, page 41-18
- Carrier Grade NAT Inside-to-Outside Drops Port Limit Exceeded, page 41-19
- Carrier Grade NAT Inside-to-Outside Drops System Limit Reached, page 41-20
- Carrier Grade NAT Inside-to-Outside Drops Resource Depletion, page 41-21