CHAPTER 13

Monitoring Carrier Grade NAT Properties

Carrier Grade NAT is a 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. In addition, Carrier Grade NAT is not limited to IPv4 NAT; it can also translate between IPv4 and IPv6 addresses.

Cisco Prime Network Vision (Prime Network Vision) supports Carrier Grade NAT on Cisco CRS routers containing a Cisco CRS-CGSE-PLIM card.

Note IPv4 Network Address Translation (NAT44) is not supported for devices running Cisco IOS XR software version 4.0.

The following topics describe using Prime Network Vision to view Carrier Grade NAT properties:

User Roles Required to View Carrier Grade NAT Properties

This topic identifies the roles that are required to view Carrier Grade NAT properties in Prime Network Vision. Prime Network determines whether you are authorized to perform a task as follows:

- For GUI-based tasks (tasks that do not affect elements), authorization is based on the default permission that is assigned to your user account.
- For element-based tasks (tasks that do affect elements), authorization is based on the default permission that is assigned to your account. That is, whether the element is in one of your assigned scopes and whether you meet the minimum security level for that scope.

For more information on user authorization, see the *Cisco Prime Network 3.8 Administrator Guide*.

The following tables identify the tasks that you can perform:

- Table 13-1 identifies the tasks that you can perform if a selected element **is not in** one of your assigned scopes.
- Table 13-2 identifies the tasks that you can perform if a selected element **is in** one of your assigned scopes.

By default, users with the Administrator role have access to all managed elements. To change the Administrator user scope, see the topic on device scopes in the *Cisco Prime Network 3.8 Administrator Guide*.

Table 13-1 Default Permission/Security Level Required for Viewing Carrier Grade NAT Properties - Element Not in User's Scope

Task	Viewer	Operator	OperatorPlus	Configurator	Administrator
View Carrier Grade NAT properties	—	—	—	—	X

Table 13-2 Default Permission/Security Level Required for Viewing Carrier Grade NAT Properties - Element in User's Scope

Task	Viewer	Operator	OperatorPlus	Configurator	Administrator
View Carrier Grade NAT properties	X	X	X	X	X

Related Topics

- Viewing Carrier Grade NAT Properties in Logical Inventory, page 13-2
- Viewing Carrier Grade NAT Properties in Physical Inventory, page 13-5

Viewing Carrier Grade NAT Properties in Logical Inventory

To view Carrier Grade NAT properties in logical inventory:

Step 1 In Prime Network Vision, double-click the Cisco CRS device configured for Carrier Grade NAT.

Step 2 In the inventory window, click **Logical Inventory > Carrier Grade NAT**.

The Carrier Grade NAT properties are displayed in logical inventory as shown in Figure 13-1.

Figure 13-1 Carrier Grade NAT in Logical Inventory

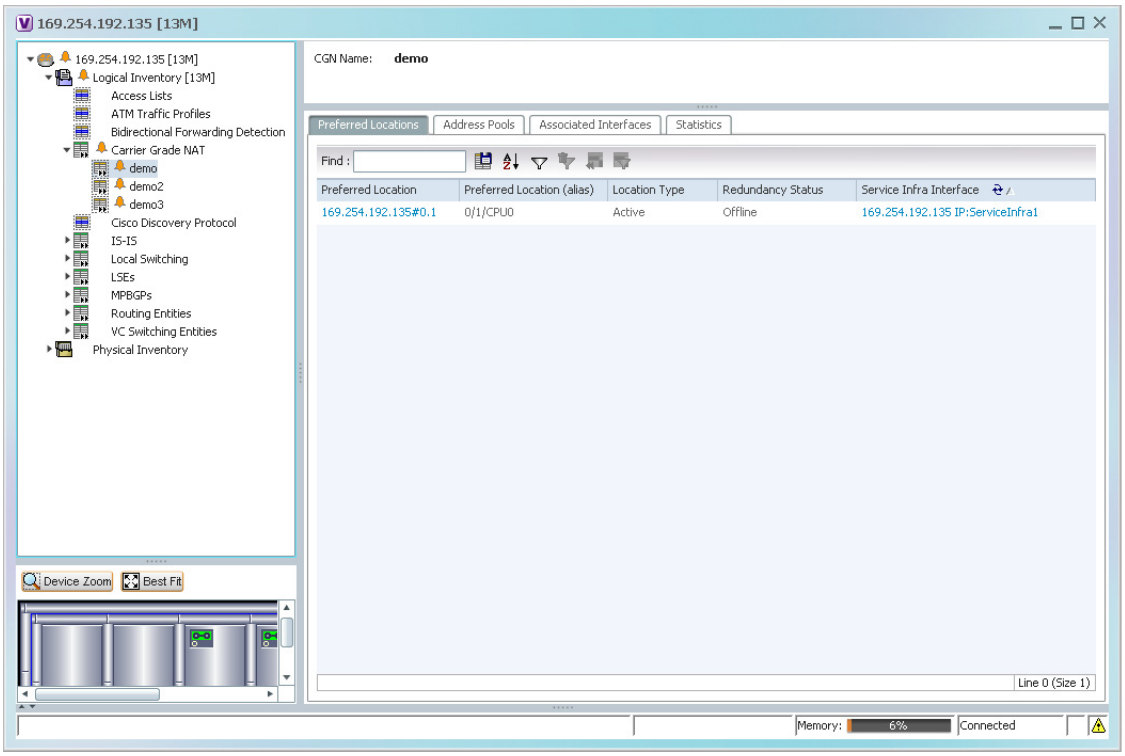


Table 13-3 describes the Carrier Grade NAT properties that are displayed.

Table 13-3 Carrier Grade NAT Properties in Logical Inventory

Field	Description
CGN Name	Name of the Carrier Grade NAT service.
Preferred Location Tab	
Preferred Location	Hyperlinked entry to the card in physical inventory.
Preferred Location (alias)	Location of module in clear text.
Location Type	Configured type of location: Active or Standby.
Redundancy Status	Redundancy state: Online or Offline. If the field is empty, it means the data was not collected from the device.
Service Infra Interface	Hyperlinked entry to the routing entity in logical inventory. For more information about routing entities in logical inventory, see Viewing Routing Entities, page 17-34.
Address Pools Tab	
Inside VRF	Hyperlinked entry to the inside VRF in logical inventory. For more information about VRF properties in logical inventory, see Viewing VRF Properties, page 17-30.
Address Family	Type of IP address in this pool: IPv4 or IPv6.

Table 13-3 Carrier Grade NAT Properties in Logical Inventory (continued)

Field	Description
Outside VRF	Hyperlinked entry to the outside VRF in logical inventory. For more information about VRF properties in logical inventory, see Viewing VRF Properties, page 17-30.
Address Pool	Range of IP addresses that can be used for the service instance. If an end address is not specified, the entire range of 255 addresses is used for the address pool.
Associated Interfaces Tab	
Interface	Hyperlinked entry to the associated entry in logical inventory: • For SVI service interfaces, hyperlinked entry to the routing entity in logical inventory. • For SVI service applications, hyperlinked entry to the VRF entity in logical inventory.
Service Types Tab	
Service Type Name	Name of the Carrier Grade NAT service.
Service Type	Type of Carrier Grade NAT service: 6RD, XLAT, or NAT44.
Statistics Tab	
Statistics Name	Name of the statistic. For statistic names and descriptions, see Table 13-4.
Statistics Value	Value of the statistic.

Table 13-4 Carrier Grade NAT Statistics in Logical Inventory

Statistic Name	Description
Inside to outside drops port limit exceeded	Number of packets dropped because the port limit has been exceeded. The value is calculated from the time Carrier Grade NAT was configured and running on the card.
Inside to outside drops resource depletion	Number of packets that are dropped because no ports are available. The value is calculated from the time Carrier Grade NAT was configured and running on the card.
Inside to outside drops limit system reached	Number of packets that are dropped because the system limit has been exceeded. The value is calculated from the time Carrier Grade NAT was configured and running on the card.
Inside to outside forward rate	Number of packets forwarded from the inside to the outside in the last one second.
Outside to inside forward rate	Number of packets forwarded from the outside to the inside in the last one second.
Translations create rate	Number of translation entries created in the last one second.
Translations delete rate	Number of translation entries deleted in the last one second.

Related Topics

- Viewing Carrier Grade NAT Properties in Physical Inventory, page 13-5
- Viewing Routing Entities, page 17-34
- Viewing VRF Properties, page 17-30

Viewing Carrier Grade NAT Properties in Physical Inventory

To view Carrier Grade NAT properties in physical inventory:

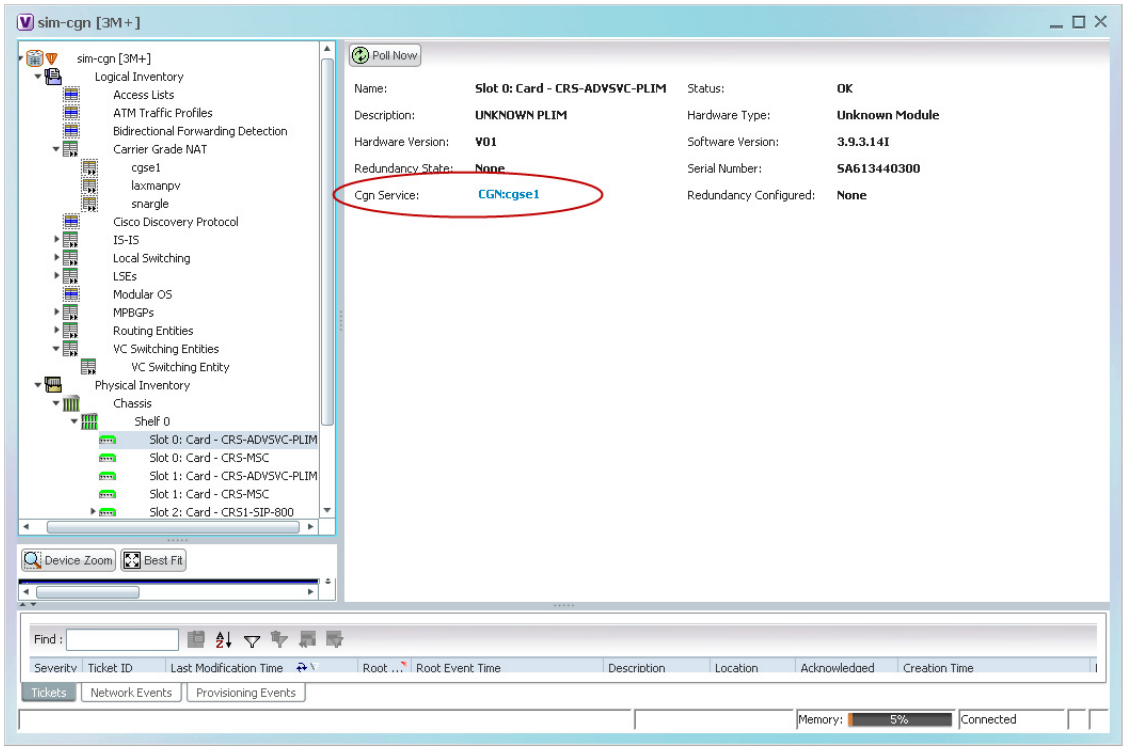
Step 1 In Prime Network Vision, double-click the Cisco CRS device configured for Carrier Grade NAT.

Step 2 To view Carrier Grade NAT properties configured on a specific interface, click **Physical Inventory > *chassis* > *shelf* > *slot* > *card* > *interface***. See Table 3-10 for a description of the information displayed in the Subinterfaces table.

Step 3 To view Carrier Grade NAT properties configured on a Cisco CRS-CGSE-PLIM card, click **Physical Inventory** > *chassis* > *shelf* > *slot* > *PLIM-card*.

Figure 13-2 shows an example of Carrier Grade NAT properties in physical inventory.

Figure 13-2 Carrier Grade NAT Properties in Physical Inventory



The field CGN Service is displayed, and the entry is hyperlinked to the associated Carrier Grade NAT service in logical inventory.

Related Topics

- Viewing Carrier Grade NAT Properties in Logical Inventory, page 13-2
- Viewing the Physical Properties of a Device, page 3-20
- User Roles Required to View Carrier Grade NAT Properties, page 13-1