Configuring Network Address Translation

This chapter contains the following sections:

About NAT

Network Address Translation (NAT) enables private IP internetworks that use non-registered IP addresses to connect to the Internet. NAT operates on a router, usually connecting two networks, and translates the private (not globally unique) addresses in the internal network into legal addresses before packets are forwarded onto another network. NAT can be configured to advertise only one address for the entire network to the outside world. This ability provides additional security by effectively hiding the entire internal network behind that one address.

In Cisco UCS Director, you can configure NAT on the following Cisco network devices:

- Cisco ASA 5500 Series firewall
- Cisco Adaptive Security Virtual Appliance (ASAv)

Configuring NAT

Before You Begin

Ensure that the real source and destination IP addresses and mapped source and destination IP addresses are preconfigured on the device.

Step 1 Choose **Physical** > **Network**.

Step 2 On the **Network** page, choose the pod.

Step 3 Select the network device to be configured.
The summary of the device is displayed.

Step 4 Click **Configure NAT**.

Step 5 In the **Configure NAT** screen, complete the required fields, including the following:

Name	Description
Real Source field	Click **Select** and choose an object as real source address.
Mapped Source field	Click **Select** and choose an object as mapped source address.
Real Destination field	Click **Select** and choose an object as real destination address.
Mapped Destination field	Click **Select** and choose an object as mapped address.

Step 6 Click **Submit**.

Configuring Context NAT

Step 1 Choose **Physical** > **Network**.

Step 2 On the **Network** page, choose the pod.

Step 3 Select the network device to be configured.
The summary of the device is displayed.

Step 4 Click **Configure Context NAT**.

Step 5 In the **Configure Context NAT** screen, complete the required fields, including the following:

Name	Description
Protocol drop-down	Choose **TCP** or **UDP** from the list.

Name	Description
Mapped Interface Name drop-down list	Choose an interface name to be mapped for NAT.
Mapped IP Address Destination field	The IP address to be mapped for NAT.
Mapped Port field	The port to be mapped for NAT.
Real Interface Name drop-down	Choose a real interface name for NAT.
Real IP Address field	The real IP address for NAT.
Real Port field	The port for NAT.

Step 6 Click **Submit**.

Creating a Network Object

All NAT rules that are configured as a parameter of a network object are considered as network object NAT rules. A network object NAT is a quick and easy way to configure NAT for a network object, which can be a single IP address, a range of addresses, or a subnet. After you configure the network object, you can then identify the mapped address for that object.

You can create a network object using this procedure, or you can use the **Create Network Object** workflow task from the task library.

Step 1 Choose **Physical** > **Network**.

Step 2 On the **Network** page, choose the pod.

Step 3 Select the device for which you want to create the network object.

Step 4 Choose **Network Objects**.

Step 5 Click **Add**.

Step 6 In the **Create Network Object** screen, complete the required fields, including the following:

Name	Description
Network Object Name field	Enter a unique name for the network object.

Name	Description
IP Address field	Enter the IP address of the host, or an IP address range, or the subnet of the host. For example: Host IP address - 10.1.1.1 IP address range - 10.1.1.1-10.1.1.20 Subnet of the host - 10.1.1.0/255.255.255.0
Description field	Enter a description for the network object.
Copy Running configuration to Startup configuration check box	Check the check box if you want this configuration to be saved as the startup configuration.

Step 7 Click **Submit**.
The object is created and listed on the **Network Object** screen.

What to Do Next

You must create a network object group.

Creating a Network Object Group

By grouping similar NAT network objects together, you can use the object group in an Access Control entry (ACE) instead of specifying an ACE for each object separately. You can create the following types of object groups:

- Protocol
- Network
- Service
- ICMP type

You can also nest object groups in other object groups.

You can create a network object group using this procedure, or you can use the **Create Network Object Group** workflow task from the task library.

Before You Begin

You must create a network object prior to creating the network object group.

Step 1 Choose **Physical** > **Network**.

Step 2 On the **Network** page, choose the pod.

Step 3 Select the device for which you want to create the network object group.

Step 4 Choose **Network Object Groups**.

Step 5 Click **Create Network Object Group**.

Step 6 In the **Create Network Object Group** screen, complete the required fields, including the following:

Field	Description
Network Object Group Name field	Enter a name for the network object group.
Description field	Enter a description for the network object group.
Host field	Enter the IP address of the host for this network object group.
Network Address field	Enter the network address for this object group. The format should be the IP address followed by the subnet address.
Network Object list	Expand the list to select an object.
Copy Running configuration to Startup configuration check box	Check the check box if you want this configuration to be saved as the startup configuration.

Step 7 Click **Submit**.

What to Do Next

You must create a service object.

Creating a Service Object

You can create a service object using this procedure, or you can use the **Create Service Object** workflow task from the task library.

Before You Begin

You should have created a network object, and a network object group before you create a service object.

Step 1 Choose **Physical** > **Network**.

Step 2 On the **Network** page, choose the pod.

Step 3 Select the device for which you want to create the service object.

Step 4 Choose **Service Objects**.

Step 5 Click **Add**.

Step 6 In the **Create Service Object** screen, complete the following fields:

Name	Description
Context Name drop-down list	Expand the list to select a context.
Service Object Name field	Enter a name for the service object.
Description field	Enter a description for the service object.
Protocol drop-down list	Choose a protocol from the drop-down list. It can be one of the following: • TCP • UDP
Source Operator drop-down list	Choose a source operator from the drop-down list.
Source Port field	Enter the name or the number of the source port.
Destination Operator drop-down list	Choose a destination operator from the drop-down list.
Destination Port field	Enter the name or the number of the destination port.
Copy Running configuration to Startup configuration check box	Check the check box if you want this configuration to be saved as the startup configuration.

Step 7 Click **Submit**.

What to Do Next

You must create an object-based NAT.

Creating Object-Based NAT

When a packet enters the ASA, the source and destination IP addresses are checked against the network object NAT rules.

You can create an object-based NAT using this procedure, or you can use the **Configure Network Object NAT** workflow task from the task library.

Step 1 Choose **Physical** > **Network**.

Step 2 On the **Network** page, choose the pod.

Step 3 Select the device for which you want to create the object-based NAT.

Step 4 Choose **NAT**.

Step 5 Click **Configure Network Object NAT**.

Step 6 In the **Configure Network Object NAT** screen, complete the following fields:

Name	Description
Real Interface list	Expand the list to select an interface.
Mapped Interface list	Expand the list to select an interface
Mode drop-down list	Select a mode for the object. It can be one of the following: • **Static** • **Dynamic**
Network Object Name field	Specify a name for the network object.
Real IP Address field	Enter the IP address of the host, or an IP address range, or the subnet of the host.
Type drop-down list	Choose a type of mapped IP address from the drop-down list. It can be one of the following options: • Network object • Network object group • Host Based on the selection you make in this drop-down list, you will have to expand a list and select an entry.
Interface check box	Check this check box to include interface-specific settings.
PAT check box	Check this check box to include Port Address Translation (PAT) specific settings.

Name	Description
Protocol drop-down list	Choose a protocol from the drop-down list. It can be one of the following options: • TCP • UDP This field is displayed only when you check the **PAT** check box.
Mapped Port field	Enter the mapped port number. This field is displayed only when you check the **PAT** check box.
Real Port field	Enter the real port number. This field is displayed only when you check the **PAT** check box.
Copy Running configuration to Startup configuration check box	Check this check box if you want this configuration to be saved as the startup configuration.

Step 7 Click **Submit**.

Configuring Twice NAT

You can configure twice NAT using this procedure, or you can use the **Configure Twice NAT** workflow task from the task library.

Step 1 Choose **Physical** > **Network**.

Step 2 On the **Network** page, choose the pod.

Step 3 Select the device for which you want to create the twice NAT.

Step 4 Click **Configure Twice NAT**.

Step 5 In the **Configure Twice NAT** screen, complete the required fields, including the following:

Name	Description
Real Interface list	Expand the list to select an interface.
Mapped Interface list	Expand the list to select an interface

Name	Description
Source Mode drop-down list	Select a mode from the drop-down list. It can either be **Static** or **Dynamic**.
Source Real Object Type drop-down list	Select a source object type from the drop-down list. It can either be **Network Object** or **Network Object Group**. By default, **Network Object** is selected.
Source Real Object Network Object list	Expand the list to check the check boxes of the network object. After you select an object, click **Validate**. This field is displayed only if you selected **Network Object** in the **Source Real Object Type** drop-down list.
Source Real Network Object Group list	Expand the list to check the check boxes of the network object groups. This field is displayed only if you selected **Network Object Group** in the **Source Real Object Type** drop-down list.
Source Mapped Object Type drop-down list	Select a mapped object type from the drop-down list. It can either be **Network Object** or **Network Object Group**. By default, **Network Object** is selected.
Source Mapped Network Object list	Expand the list to check the check boxes of the network object. This field is displayed only if you selected **Network Object** in the **Source Mapped Object Type** drop-down list.
Source Mapped Network Object Group list	Expand the list to check the check boxes of the network object groups. This field is displayed only if you selected **Network Object Group** in the **Source Mapped Object Type** drop-down list.
Source Mapped Interface check box	Check the check box to source the mapped interface for Twice NAT.
Destination Mode drop-down list	This field displayed the destination mode. You cannot edit this field.
Destination Real Object Type drop-down list	Select either **Network Object** or **Network Object Group**. Based on the selection you make in this field, you must expand the list, and select either network objects or network object groups.

Name	Description
Destination Mapped Object Type drop-down list	Select either **Network Object** or **Network Object Group**. Based on the selection you make in this field, you must expand the list, and select either network objects or network object groups.
Destination Mapped Interface check box	Check the check box to include a destination mapped interface.
Is PAT check box	Check this check box to enable PAT. After you check this check box, you must expand the **Real Service Object** and **Mapped Service Object** lists and select the devices.
Real Service Object list	Expand the list to select a real service object. After selecting an object, click **Validate**.
Mapped Service Object list	Expand the list to select a mapped service object. After selecting an object, click **Validate**.
Description field	Enter a description for the configuration.
Copy Running configuration to Startup configuration check box	Check this check box if you want this configuration to be saved as the startup configuration.

Step 6 Click **Submit**.