NetSim®
NETWORK SIMULATOR®

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NetSim® NETWORK SIMULATOR®

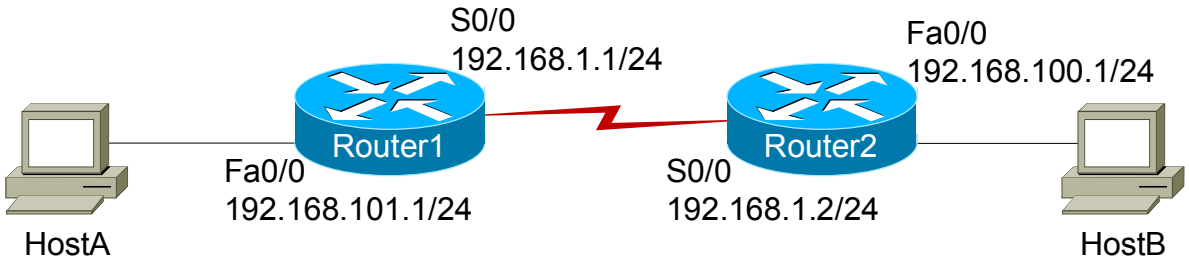
Scenario Lab: Static NAT

Objective

Learn the basic commands needed to configure Network Address Translation (NAT) and Routing Information Protocol version 2 (RIPv2) on a Cisco network.

Lab Topology

The topology diagram below represents the NetMap in the Simulator.



Command Summary

Command	Description
clock rate *clock-rate*	sets the clock rate for a Data Communications Equipment (DCE) interface
configure terminal	enters global configuration mode from privileged EXEC mode
enable	enters privileged EXEC mode
end	ends and exits configuration mode
exit	exits one level in the menu structure
hostname *host-name*	sets the device name
interface *type number*	changes from global configuration mode to interface configuration mode
ip address *ip-address subnet-mask*	assigns an IP address to an interface
ip nat inside	defines the inside interface for NAT
ip nat inside source static *inside-local-address inside-global-address*	creates a static NAT translation
ip nat outside	sets an interface to be an outside interface
network *network-address*	activates RIP on the specified network
no shutdown	enables an interface
ping *ip-address*	sends an Internet Control Message Protocol (ICMP) echo request to the specified address
router rip	enables RIP routing
show ip nat translations	displays the NAT translation table
show running-config	displays the active configuration file
version 2	enables RIPv2

The IP addresses and subnet masks used in this lab are shown in the tables below:

IP Addresses

Device	Interface	IP Address	Subnet Mask
Router1	FastEthernet 0/0 Serial 0/0	192.168.101.1 192.168.1.1	255.255.255.0 255.255.255.0
Router2	FastEthernet 0/0 Serial 0/0	192.168.100.1 192.168.1.2	255.255.255.0 255.255.255.0

Device	IP Address	Subnet Mask	Default Gateway
HostA	192.168.101.2	255.255.255.0	192.168.101.1
HostB	192.168.100.2	255.255.255.0	192.168.100.1

Lab Tasks

1. Configure Router1 with a host name of **Router1**. Configure the appropriate IP addresses on the interfaces; refer to the IP Addresses table. A DCE cable is connected to Router1. The Serial link should have a speed of **64** Kbps. Enable the interfaces.

2. Configure Router2 with a host name of **Router2**. Configure the appropriate IP addresses on the interfaces; refer to the IP Addresses table. Enable the interfaces.

3. Configure the routers with RIP; do not advertise Router1's FastEthernet 0/0 interface network.

4. On Router1, configure NAT so that HostA appears as the IP address 192.168.1.100 to external networks.

5. Ping from HostA to HostB (192.168.100.2) to populate the NAT translation table and to verify your configuration of RIPv2. The ping should be successful.

6. On Router1, issue the **show ip nat translations** command to verify your NAT configuration.

Lab Solutions

1. On Router1, issue the following commands to configure a host name, to configure the appropriate IP addresses, to configure a clock rate on the Serial 0/0 interface, and to enable the interfaces:

```
Router>enable
Router#configure terminal
Router(config)#hostname Router1
Router1(config)#interface fastethernet 0/0
Router1(config-if)#ip address 192.168.101.1 255.255.255.0
Router1(config-if)#no shutdown
Router1(config-if)#interface serial 0/0
Router1(config-if)#ip address 192.168.1.1 255.255.255.0
Router1(config-if)#clock rate 64000
Router1(config-if)#no shutdown
Router1(config-if)#exit
```

2. On Router2, issue the following commands to configure a host name, to configure the appropriate IP addresses, and to enable the interfaces:

```
Router>enable
Router#configure terminal
Router(config)#hostname Router2
Router2(config)#interface fastethernet 0/0
Router2(config-if)#ip address 192.168.100.1 255.255.255.0
Router2(config-if)#no shutdown
Router2(config-if)#interface serial 0/0
Router2(config-if)#ip address 192.168.1.2 255.255.255.0
Router2(config-if)#no shutdown
Router2(config-if)#exit
```

3. On Router1 and Router2, issue the following commands to configure RIP, without advertising Router1's FastEthernet 0/0 interface network:

```
Router1(config)#router rip
Router1(config-router)#version 2
Router1(config-router)#network 192.168.1.0
Router1(config-router)#exit

Router2(config)#router rip
Router2(config-router)#version 2
Router2(config-router)#network 192.168.1.0
Router2(config-router)#network 192.168.100.0
Router2(config-router)#end
```

4. On Router1, issue the following commands to appropriate configure NAT:

```
Router1(config)#ip nat inside source static 192.168.101.2 192.168.1.100
Router1(config)#interface fastethernet 0/0
Router1(config-if)#ip nat inside
Router1(config-if)#interface serial 0/0
Router1(config-if)#ip nat outside
Router1(config-if)#end
```

5. A ping from HostA to HostB (192.168.100.2) should be successful.

6. On Router1, issue the **show ip nat translations** command to verify your NAT configuration. Sample output is shown below:

```
Router1#show ip nat translations
Pro  Inside global     Inside local       Outside local      Outside global
---    192.168.1.100      192.168.101.2           ---                ---
```

Sample Configuration Script

Router1	Router1 (continued)
Router1#show running-config Building configuration... Current configuration : 866 bytes ! Version 12.3 service timestamps debug uptime service timestamps log uptime no service password-encryption ! hostname Router1 ip cef ! ip subnet-zero ! interface Serial0/0 ip address 192.168.1.1 255.255.255.0 no ip directed-broadcast clock rate 64000 ip nat outside ! interface Serial0/1 no ip address no ip directed-broadcast shutdown !	interface FastEthernet0/0 ip address 192.168.101.1 255.255.255.0 no ip directed-broadcast ip nat inside ! interface FastEthernet0/1 no ip address no ip directed-broadcast shutdown ! router rip version 2 network 192.168.1.0 ! ip nat inside source static 192.168.101.2 192.168.1.100 ! ip classless no ip http server ! line con 0 line aux 0 line vty 0 4 ! no scheduler allocate end