NetSim®
NETWORK SIMULATOR®

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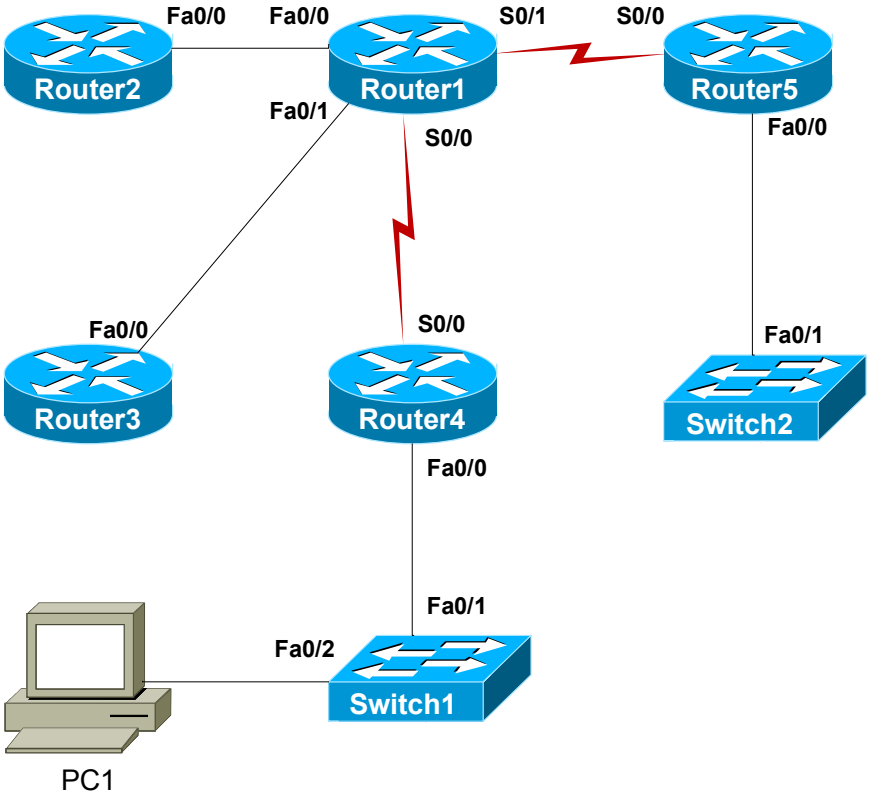
Stand-Alone Lab: Loopback Interfaces

Objective

Learn to create and configure loopback interfaces. A loopback address is used for local testing of the interface and protocol stack. Routers will not forward packets that contain the loopback address within the source or destination address fields. Because loopback interfaces are logical, not physical, a loopback interface can never fail.

Lab Topology

The topology diagram below represents the NetMap in the Simulator.



Command Summary

Command	Description
configure terminal	enters global configuration mode from privileged EXEC mode
enable	enters privileged EXEC mode
end	ends and exits configuration mode
hostname *host-name*	sets the device name
interface *type number*	changes from global configuration mode to interface configuration mode; the **no** form removes an interface
ip address *ip-address subnet-mask*	assigns an IP address to an interface
ping *ip-address*	sends an Internet Control Message Protocol (ICMP) echo request to the specified address

Command	Description
show ip interface brief	displays a brief summary of interface status and configuration
show running-config	displays the active configuration file

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

IP Addresses

Device	Interface	IP Address	Subnet Mask
Router1	Loopback 0	1.1.1.1	255.255.255.0

Lab Tasks

Task 1: Configure a Loopback Interface on Router1

1. Configure Router1 with a host name of **Router1**.

2. On Router1, create the Loopback 0 interface.

3. Configure the Loopback 0 interface with the appropriate IP address and subnet mask; refer to the IP Addresses table.

4. What is one of the benefits of loopback interfaces? When loopback interfaces are created, must they then be enabled? _____

Task 2: Verify the Loopback Interface on Router1

This task involves issuing **show** commands to verify the configurations you have made.

1. On Router1, verify that the Loopback 0 interface has been created.

2. From Router1, Ping the Loopback 0 interface (1.1.1.1). The ping should be successful.

3. On Router1, review the entry for the Loopback 0 interface in the running configuration.

Task 3: Remove the Loopback Interface on Router1

1. Unlike physical interfaces, loopback interfaces can be removed. On Router1, remove the Loopback 0 interface.

2. On Router1, display a summary of the interface state on the router. Verify that the interface was removed.

3. On Router1, display the running configuration to verify that Loopback 0 was removed.

Lab Solutions

Task 1: Configure a Loopback Interface on Router1

1. Issue the following commands to configure Router1 with the appropriate host name:

```
Router>enable
Router#configure terminal
Router(config)#hostname Router1
```

2. By default, a router does not have a loopback interface. To create a loopback interface on Router1, you should issue the **interface loopback** *number* command in global configuration mode. After you issue this command, the device will create the loopback interface and will enter interface configuration mode.

```
Router1(config)#interface loopback 0
Router1(config-if)#
```

3. On Router1, Issue the following command to configure the Loopback 0 interface with the appropriate IP address and subnet mask:

```
Router1(config-if)#ip address 1.1.1.1 255.255.255.0
```

4. One benefit of loopback interfaces is that they are not physical and therefore will not fail. Loopback interfaces are enabled by default when they are created, so there is no need to manually enable them.

Task 2: Verify the Loopback Interface on Router1

1. On Router1, issue the **show ip interface brief** command to verify that the Loopback 0 interface has been created. A loopback interface is a virtual interface and should be listed just as the physical interfaces are listed. Sample output is shown below:

```
Router1(config-if)#end
Router1#show ip interface brief
Interface          IP-Address   OK? Method Status                 Protocol
Serial0/0          unassigned   YES unset  administratively down  down
Serial0/1          unassigned   YES unset  administratively down  down
FastEthernet0/0    unassigned   YES unset  administratively down  down
FastEthernet0/1    unassigned   YES unset  administratively down  down
Loopback0          1.1.1.1      YES unset  up                     up
```

2. A ping from Router1 to the Loopback 0 interface (1.1.1.1) should be successful.

```
Router1#ping 1.1.1.1
```

3. On Router1, issue the **show running-config** command, and find the entry for the Loopback 0 interface. Sample output is shown below:

```
Router1#show running-config
Building configuration...
Current configuration : 647 bytes
!
Version 12.3
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Router1
!
ip subnet-zero
!
ip cef
no ip domain-lookup
!
interface Loopback0
 ip address 1.1.1.1 255.255.255.0
 no ip directed broadcast
!
<output omitted>
```

Task 3: Remove the Loopback Interface on Router1

1. Unlike physical interfaces, loopback interfaces can be removed. On Router1, issue the following commands to remove the Loopback 0 interface:

```
Router1#configure terminal
Router1(config)#no interface loopback 0
```

2. On Router1, issue the **show ip interface brief** command to verify that the interface was removed. Sample output is shown below:

```
Router1(config)#end
Router1#show ip interface brief
Interface          IP-Address   OK? Method Status                Protocol
Serial0/0          unassigned   YES unset  administratively down down
Serial0/1          unassigned   YES unset  administratively down down
FastEthernet0/0    unassigned   YES unset  administratively down down
FastEthernet0/1    unassigned   YES unset  administratively down down
```

3. On Router1, issue the **show running-config** command to verify that the configuration for Loopback 0 was removed. The Sample Configuration Script section of this lab contains sample output.

Sample Configuration Script

Router1

```
Router1#show running-config
Building configuration...
Current configuration : 647 bytes
!
Version 12.3
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Router1
!
ip subnet-zero
!
ip cef
no ip domain-lookup
!
interface Serial0/0
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial0/1
 no ip address
 no ip directed-broadcast
 shutdown
!
interface FastEthernet0/0
 no ip address
 no ip directed-broadcast
 shutdown
!
interface FastEthernet0/1
 no ip address
 no ip directed-broadcast
 shutdown
!
ip classless
no ip http server
!
line con 0
line aux 0
line vty 0 4
!
no scheduler allocate
end
```