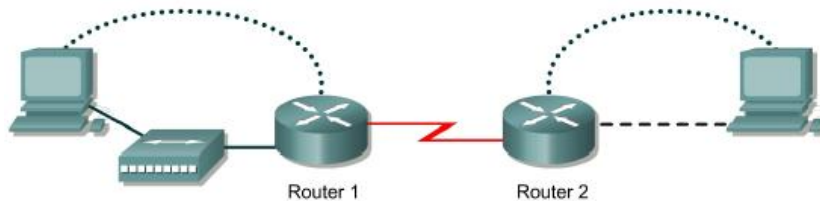


# SECTION 1

## Configuring Static Routes



Router ID	Router Name	Enable secret password	Enable/VTY/ and Console passwords	Routing protocol	RIP network statements
Router 1	GAD	class	cisco	none	none
Router 2	BHM	class	cisco	none	none

Router ID	IP host name	Fast Ethernet 0 address	Interface type Serial 0	Serial 0 address	Interface type Serial 1	Serial 1 address	Subnet mask all addresses
Router 1	GAD	192.168.14.1	DCE	192.168.15.1	NA	No address	255.255.255.0
Router 2	BHM	192.168.16.1	DTE	192.168.15.2	NA	No address	255.255.255.0

### Objective:

- Configure static routes between routers to allow data transfer between routers without the use of dynamic routing protocols

**Note:** Go to the erase and reload instructions at the end of this lab. Perform those steps before continuing with this lab

**Step 1:** Configure both routers

**Step 2:** Configure the workstations

- Remember how to check that your router is DCE or DTE.

s The configuration for the host connected to the **GAD** Router is:

- IP Address **192.168.14.2**
- IP Subnet Mask **255.255.255.0**
- Default Gateway **192.168.14.1**

The configuration for the host connected to the **BHM** Router is:

- IP Address **192.168.16.2**
- IP Subnet Mask **255.255.255.0**
- Default Gateway **192.168.16.1**

Check connectivity between the workstations using **ping**

**From the workstation attached to the GAD router, ping the workstation attached to the BHM router.**

C:\ping **192.168.16.2**

**Step 3:** Check interface status

Check the interfaces on both routers with the command

**show ip interface brief**

**Step 4:** Check the routing table entries

GAD>**show ip route**

BHM>**show ip route**

**Step 5:** Adding static routes

In global configuration mode, add a static route on Router1 to network 192.168.16.0 and on Router2 to network 192.168.14.0

GAD(config)#**ip route 192.168.16.0 255.255.255.0 192.168.15.2**

BHM(config)#**ip route 192.168.14.0 255.255.255.0 192.168.15.1**

**Step 6:** Verify the new routes

GAD>**show ip route**

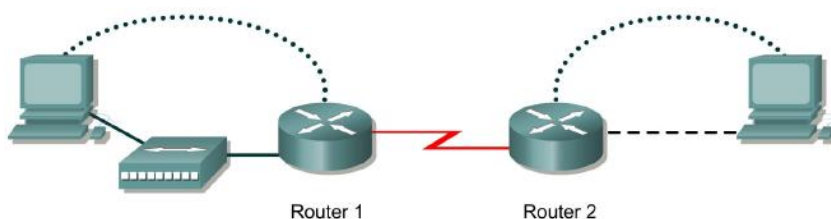
BHM>**show ip route**

**Step 7:** ping host to host again

---

## SECTION 2

### Configuring RIP



Router ID	Router Name	Enable secret password	Enable/VTY/ and Console passwords	Routing protocol	RIP network statements		
Router 1	GAD	class	cisco	none	none		
Router 2	BHM	class	cisco	none	none		
Router ID	IP host name	Fast Ethernet 0 address	Interface type Serial 0	Serial 0 address	Interface type Serial 1	Serial 1 address	Subnet mask all addresses
Router 1	GAD	192.168.14.1	DCE	192.168.15.1	NA	No address	255.255.255.0
Router 2	BHM	192.168.16.1	DTE	192.168.15.2	NA	No address	255.255.255.0

**Objective:**

- Setup an IP addressing scheme using class B networks

- Configure the RIP dynamic routing protocol on routers

**Note:** Go to the erase and reload instructions at the end of this lab.

Perform those steps before continuing with this lab

**Step 1:** Configure the routers

**Step 2:** Check the routing table entries

GAD>**show ip route**

BHM>**show ip route**

**Step 3:** Configure the routing protocol on the GAD router

GAD(config)#**router rip**

GAD(config-router)#**network 192.168.14.0**

GAD(config-router)#**network 192.168.15.0**

GAD(config-router)#**exit**

GAD(config)#**exit**

**Step 4:** Configure the routing protocol on the BHM router

BHM(config)#**router rip**

BHM(config-router)# **network 192.168.16.0**

BHM(config-router)# **network 192.168.15.0**

BHM(config-router)#**exit**

BHM(config)#**exit**

**Step 5:** Configure the hosts with the proper IP address, subnet mask and default gateway

**Step 6:** Verify that the internetwork is functioning by pinging the FastEthernet interface of the other router

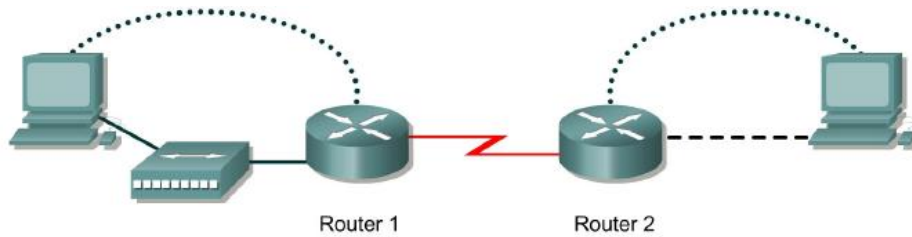
**Step 7:** Show the routing tables for each router

GAD>**show ip route**

BHM>**show ip route**

## SECTION 3

### Troubleshooting RIP



Router Designation	Router Name	Fast Ethernet 0 Address	Interface type	Serial 0 Address	Subnet mask for both interfaces	Enable secret password	Enable, VTY and console password
Router 1	GAD	172.16.0.1	DCE	172.17.0.1	255.255.0.0	class	cisco
Router 2	BHM	172.18.0.1	DTE	172.17.0.2	255.255.0.0	class	cisco

#### Objective:

- Set up an IP addressing scheme using class B networks
- Configure RIP on routers
- Observe routing activity using the **debug ip rip** command
- Examine routes using the **show ip route** command

**Note:** Go to the erase and reload instructions at the end of this lab.

Perform those steps before continuing with this lab

**Step 1:** Configure the routers

**Step 2:** Configure the hosts with the proper IP address, subnet mask and default gateway

**Step 3:** Make sure that routing updates are being sent

Type the command **debug ip rip** at the privileged EXEC mode prompt. Wait for at least 45 seconds.

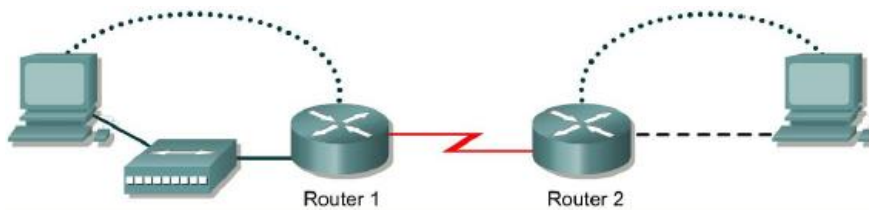
**Step 4:** Show the routing tables for each router

**Step 5:** Show the RIP routing table entries for each router

**Step 6:** Verify that the internetwork is functioning by pinging the FastEthernet interface of the other router

## SECTION 4

### Preventing Routing Updates through an Interface



Router designation	Router Name	Enable secret password	Enable/VTY/ and Console passwords	Routing protocol	RIP network statements	
Router 1	GAD	class	cisco	RIP	192.168.14.0	192.168.15.0
Router 2	BHM	class	cisco	RIP	192.168.15.0	192.168.16.0

Router designation	IP Host Table Entry	Fast Ethernet 0 address	Interface type Serial 0	Serial 0 address	Interface type Serial 1	Serial 1 address	Subnet mask all addresses
Router 1	BHM	192.168.14.1	DCE	192.168.15.1	NA	No address	255.255.255.0
Router 2	GAD	192.168.16.1	DTE	192.168.15.2	NA	No address	255.255.255.0

#### Objective:

- Prevent routing updates through an interface to regulate advertised routes
- Use the **Passive-interface** command

**Note:** Go to the erase and reload instructions at the end of this lab.

Perform those steps before continuing with this lab

**Step 1:** Configure the hostname and passwords on the routers

**Step 2:** Configure the hosts with the proper IP address, subnet mask and default gateway

**Step 3:** Check Basic Routing Configuration

Enter **show ip protocol** command on each router

**Step 4:** Observe RIP routing updates

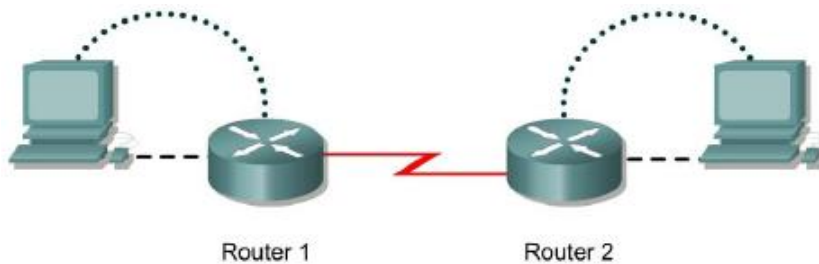
**Step 5:** Stop routing updates from GAD to BHM

GAD(config)#**router rip**

GAD(config-router)# **passive-interface default**

## SECTION 5

### Backing up Configuration Files



Router Designation	Router Name	Fast Ethernet 0 Address	Interface type	Serial 0 Address	Subnet mask for both interfaces	Enable secret password	Enable/VTY/ Console passwords
Router 1	GAD	172.16.0.1	DCE	172.17.0.1	255.255.0.0	class	cisco
Router 2	BHM	172.18.0.1	DTE	172.17.0.2	255.255.0.0	class	cisco

#### Objectives:

- Demonstrate the capture of the running configuration of a router to an ASCII text file with HyperTerminal
- Edit or modify the configuration with a text editor such as Notepad
- Use the edited text file to configure another router using HyperTerminal
- Cable an example network

**Note:** Go to the erase and reload instructions at the end of this lab.

Perform those steps before continuing with this lab

**Step 1:** Configure the hostname and passwords on the GAD router

**Step 2:** Configure the interfaces and routing protocol on the GAD router

```
GAD(config)#interface fastEthernet 0/0
GAD(config-if)#ip address 172.16.0.1 255.255.0.0
GAD(config-if)#no shutdown
GAD(config-if)#exit
GAD(config)#interface serial 0/3/0
GAD(config-if)#ip address 172.17.0.1 255.255.0.0
GAD(config-if)#clock rate 56000
GAD(config-if)#no shutdown
GAD(config-if)#exit
GAD(config)#router rip
GAD(config-if)#network 172.16.0.0
GAD(config-if)#network 172.17.0.0
```

*GAD(config-if)#exit*

*GAD(config)#exit*

**Step 3:** *Configure the hostname and passwords on the BHM router*

**Step 4:** *Configure the interfaces and routing protocol on the BHM router*

**Step 5:** *Save the BHM router configuration*

**Step 6:** *Verify that internetwork is functioning*

*Ping the FastEthernet interface of the other router*

**Step 7:** Start capturing the configuration file

Start the process of copying the router configuration to a text file

In HyperTerminal click on **Transfer**

### **Capture Text**

Specify the name of the router for the filename and use **.txt** for the extension. Browse to find a location to store the text file on the computer. This will be edited and used in later steps of this lab.

Click on **Start** button to start capturing text

Enter the **show running-config** command

**Step 9:** Stop capturing the configuration file

On the HyperTerminal menu bar select

**Transfer>Capture text>Stop**

**Step 10:** Clean up captured configuration file


**Step 11:** Test the backup configuration

**Step 12:** Restart the router to remove the running configuration

**Step 13:** Reconfigure the router from the saved text file

Verify that the internetwork is functioning again

### **CABLE TYPES**

Straight-through cable	
Serial cable	
Console (Rollover)	
Crossover cable	

### **ERASING AND RELOADING THE ROUTER**

Enter into the privileged EXEC mode by typing **enable**

*Router>enable*

If prompted for a password, enter **class**. If "class" does not work, ask the instructor for assistance.

The responding line prompt will be:

Erasing the nvram filesystem will remove all files! Continue?  
[confirm]

Press **Enter** to confirm.

The response should be:

Erase of nvram: complete

Now at the privileged EXEC mode, enter the command **reload**.

*Router#***reload**

The responding line prompt will be:

System configuration has been modified. Save? [yes/no]:

Type **n** and press **Enter**.

The responding line prompt will be:

Proceed with reload? [confirm]

Press **Enter** to confirm.

In the first line of the response will be:

Reload requested by console.

After the router has reloaded the line prompt will be:

Would you like to enter the initial configuration dialog? [yes/no]

Type **n** and press **Enter**.

The responding line prompt will be:

Press RETURN to get started!

Press **Enter**.

The router is ready for the assigned lab to be performed.