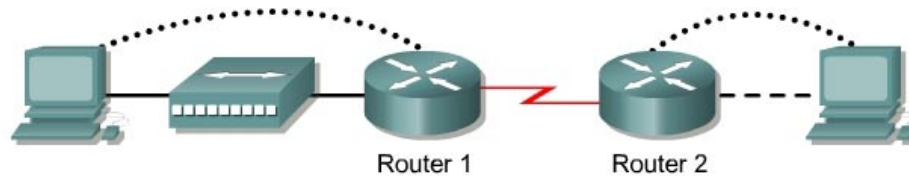


Lab 1.2.3 Review of Basic Router Configuration with RIP



Router Designation	Router Name	FastEthernet 0 Address	Interface Type	Serial 0 Address	Subnet Mask for Both Interfaces	Enable Secret Password	Enable, VTY, and 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

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

Objective

- Cable and configure workstations and routers
- Setup IP addressing scheme using Class B networks
- Configure Routing Information Protocol (RIP) on routers

Background / Preparation

Cable a network similar to the one shown in the diagram. Any router that meets the interface requirements displayed on the above diagram may be used. For example, router series 800, 1600, 1700, 2500, and 2600 or any such combination can be used. Please refer to the chart at the end of the lab to correctly identify the interface identifiers to be used based on the equipment in the lab. The configuration output used in this lab is produced from 1721 series routers. Any other router used may produce slightly different output. Perform the following steps on each router unless specifically instructed otherwise.

Note: Go to the erase and reload instructions at the end of this lab. Perform those steps on all routers in this lab assignment before continuing.

General Configuration Tips

- Use the question mark (?) and arrow keys to help enter commands.
- Each command mode restricts the set of available commands. If there is difficulty entering a command, check the prompt and then enter the question mark (?) for a list of available commands. The problem might be a wrong command mode or using the wrong syntax.
- To disable a feature, enter the keyword **no** before the command. For example, **no ip routing**.

- d. Save the configuration changes to NVRAM so that the changes are not lost if there is a system reload or power outage.

Router Command Modes			
Command Mode	Access Method	Router Prompt Displayed	Exit Method
User EXEC	Log in.	Router>	Use the <code>logout</code> command.
Privileged EXEC	From user EXEC mode, enter the <code>enable</code> command.	Router#	To exit to user EXEC mode, use the <code>disable</code> , <code>exit</code> , or <code>logout</code> command.
Global configuration	From the privileged EXEC mode, enter the <code>configure terminal</code> command.	Router(config)#	To exit to privileged EXEC mode, use the <code>exit</code> or <code>end</code> command, or press Ctrl-z .
Interface configuration	From the global configuration mode, enter the <code>interface type number</code> command, such as <code>interface serial 0</code> .	Router(config-if)#	To exit to global configuration mode, use the <code>exit</code> command.

Step 1 Basic router configuration

Connect a rollover cable to the console port on the router and the other end to the PC with a DB9 or DB25 adapter to a COM port. This should be completed prior to powering on of any devices.

Step 2 Start HyperTerminal program

- a. Turn on the computer and router.
- b. From the Windows taskbar, locate the HyperTerminal program:
Start > Programs > Accessories > Communications > HyperTerminal

Step 3 Name the HyperTerminal Session

- a. At the “Connection Description” popup, enter a name in the connection *Name:* field and select **OK**.



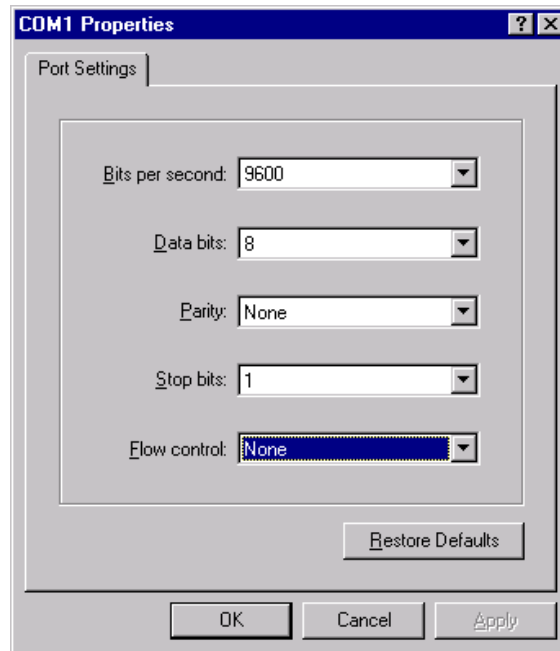
Step 4 Specify the computer connecting interface

- a. At the “Connect To” popup, use the drop down arrow in the *Connect using:* field to select **COM1** and select **OK**.

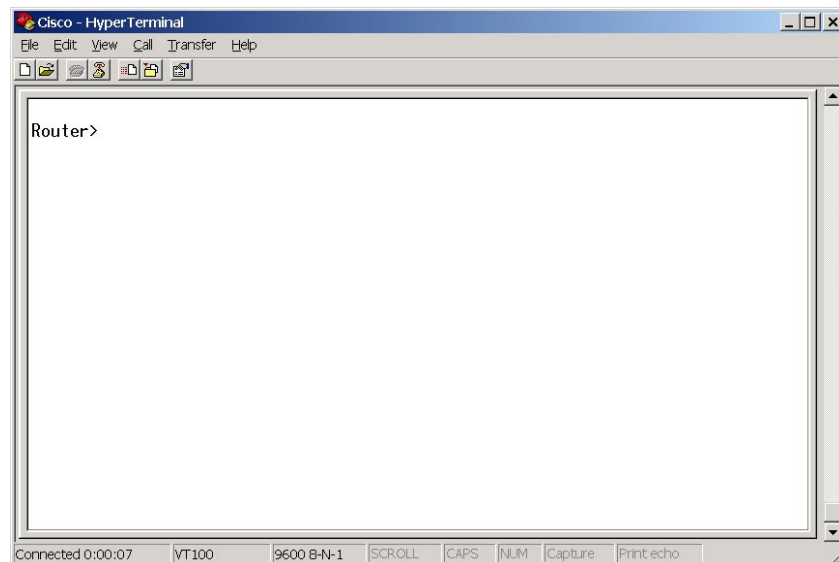


Step 5 Specify the interface connection properties

- a. At the “COM1 Properties” popup, use the drop down arrows to select:
 - Bits per second: **9600**
 - Data bits: **8**
 - Parity: **None**
 - Stop bits: **1**
 - Flow control: **None**
- b. Then select **OK**.



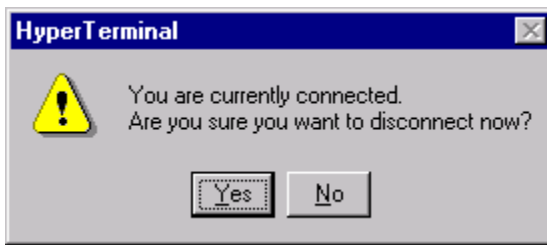
- c. When the HyperTerminal session window comes up, turn on the router or if router is already on, press the **Enter** key. There should be a response from the router.



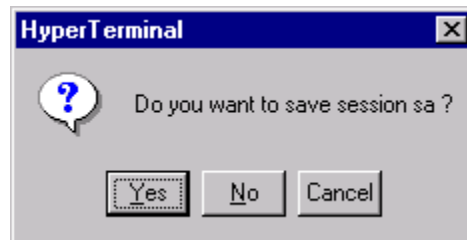
If the router responds, then the connection has been successfully completed.

Step 6 Closing the Session

- To end the console session from a HyperTerminal session, select:
File > Exit
- When the HyperTerminal disconnect warning popup appears, select **Yes**.



- c. The computer will then ask if the session is to be saved. Select **Yes**.



Step 7 Reopen the HyperTerminal connection, as shown in Step 2

- a. At the "Connection Description" popup, select **Cancel**.



- b. To open the saved console session from HyperTerminal, select:
File > Open
- c. The saved session will now appear and by double-clicking on the name, the connection will open without reconfiguring it each time.

Step 8 Configure the hostname and passwords on the router GAD

- a. Enter **enable** at the user mode prompt.

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

```
GAD(config)#enable secret class
GAD(config)#line console 0
GAD(config-line)#password cisco
GAD(config-line)#login
GAD(config-line)#line vty 0 4
GAD(config-line)#password cisco
GAD(config-line)#login
GAD(config-line)#exit
GAD(config)#
```

Step 9 Configure serial interface Serial 0 on router GAD

- a. From the global configuration mode, configure interface Serial 0 on router GAD. Refer to the interface chart.

```
GAD(config)#interface serial 0
GAD(config-if)#ip address 172.17.0.1 255.255.0.0
GAD(config-if)#clock rate 64000
GAD(config-if)#no shutdown
GAD(config-if)#exit
```

Step 10 Configure the fastethernet 0 interface on router GAD

```
GAD(config)#interface fastethernet 0
GAD(config-if)#ip address 172.16.0.1 255.255.0.0
GAD(config-if)#no shutdown
GAD(config-if)#exit
```

Step 11 Configure the IP host statements on router GAD

```
GAD(config)#ip host BHM 172.18.0.1 172.17.0.2
```

Step 12 Configure RIP routing on router GAD

```
GAD(config)#router rip
GAD(config-router)#network 172.16.0.0
GAD(config-router)#network 172.17.0.0
GAD(config-router)#exit
GAD(config)#exit
```

Step 13 Save the GAD router configuration

```
GAD#copy running-config startup-config
Destination filename [startup-config]? [Enter]
```

Step 14 Configure hostname and passwords on the router BHM

- a. Enter **enable** at the user mode prompt.

```
Router>enable
Router#configure terminal
Router(config)#hostname BHM
BHM(config)#enable secret class
BHM(config)#line console 0
BHM(config-line)#password cisco
BHM(config-line)#login
BHM(config-line)#line vty 0 4
BHM(config-line)#password cisco
BHM(config-line)#login
BHM(config-line)#exit
BHM(config)#
```

Step 15 Configure serial interface Serial 0 on router BHM

- a. From the global configuration mode, configure interface Serial 0 on router BHM. Refer to interface chart.

```
BHM(config)#interface serial 0
BHM(config-if)#ip address 172.17.0.2 255.255.0.0
BHM(config-if)#no shutdown
BHM(config-if)#exit
```

Step 16 Configure the fastethernet 0 interface on router BHM

```
BHM(config)#interface fastethernet 0
BHM(config-if)#ip address 172.18.0.1 255.255.0.0
BHM(config-if)#no shutdown
BHM(config-if)#exit
```

Step 17 Configure the IP host statements on router BHM

```
BHM(config)#ip host GAD 172.16.0.1 172.17.0.1
```

Step 18 Configure RIP routing on router BHM

```
BHM(config)#router rip
BHM(config-router)#network 172.18.0.0
BHM(config-router)#network 172.17.0.0
BHM(config-router)#exit
BHM(config)#exit
```

Step 19 Save the BHM router configuration

```
BHM#copy running-config startup-config
Destination filename [startup-config]? [Enter]
```

Step 20 Configure the hosts with the proper IP address, subnet mask, and default gateway

- a. Host connected to router GAD

IP Address: 172.16.0.2
Subnet mask: 255.255.0.0
Default gateway: 172.16.0.1

- b. Host connected to router BHM

IP Address: 172.18.0.2
Subnet mask: 255.255.0.0
Default gateway: 172.18.0.1

Step 21 Verify that the internetwork is functioning by pinging the Fast Ethernet interface of the other router

- a. From the host attached to GAD, ping the BHM router Fast Ethernet interface. Was the ping successful? _____
- b. From the host attached to BHM, ping the GAD router Fast Ethernet interface. Was the ping successful? _____
- c. If the answer is no for either question, troubleshoot the router configurations to find the error. Then do the pings again until the answer to both questions is yes. Then ping all interfaces in the network.

Step 22 Show the routing tables for each router

- a. From the enable privileged EXEC mode:
Examine the routing table entries, using the `show ip route` command on each router.
- b. What are the entries in the GAD routing table?

- c. What are the entries in the BHM routing table?

Once the previous steps are completed, logoff by typing `exit`, and turn the router off. Then remove and store the cables and adapter.

Erasing and reloading the router

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

```
Router>enable
```

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

At the privileged EXEC mode, enter the command **erase startup-config**.

```
Router#erase startup-config
```

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 then 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 then press **Enter**.

The responding line prompt will be:

```
Press RETURN to get started!
```

Press **Enter**.

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

Router Interface Summary				
Router Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2
800 (806)	Ethernet 0 (E0)	Ethernet 1 (E1)		
1600	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)
1700	FastEthernet 0 (FA0)	FastEthernet 1 (FA1)	Serial 0 (S0)	Serial 1 (S1)
2500	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)
2600	FastEthernet 0/0 (FA0/0)	FastEthernet 0/1 (FA0/1)	Serial 0/0 (S0/0)	Serial 0/1 (S0/1)
<p>In order to find out exactly how the router is configured, look at the interfaces. This will identify what type and how many interfaces the router has. There is no way to effectively list all of the combinations of configurations for each router class. What is provided are the identifiers for the possible combinations of interfaces in the device. This interface chart does not include any other type of interface even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in IOS command to represent the interface.</p>				