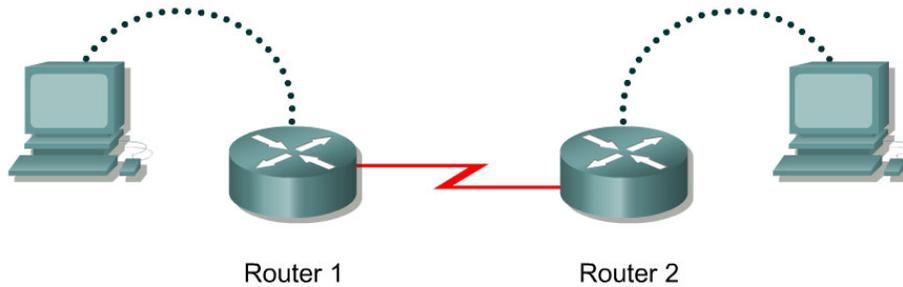
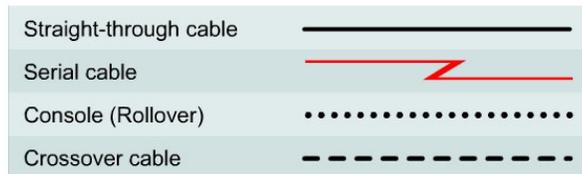


### Lab 3.1.5 Configuring a Serial Interface



Router Designation	Router Name	Interface type	Serial 0 Address	Subnet mask	Enable secret password	Enable/VTY/Console passwords
Router 1	GAD	DCE	192.168.15.1	255.255.255.0	class	cisco
Router 2	BHM	DTE	192.168.15.2	255.255.255.0	class	cisco



#### Objective

- Configure a serial interface on each of two routers so they can communicate.

#### Background/Preparation

Any router that meets the interface requirements may be used. Possible routers include 800, 1600, 1700, 2500, 2600 routers, or a combination. 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. The following steps are intended to be executed on each router unless specifically instructed otherwise.

Start a HyperTerminal session as performed in the Establishing a HyperTerminal session lab.

**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.

#### Step 1 Basic Router Configuration

- Configure the router. Connect the routers as shown in the diagram. This lab requires a null serial cable and two rollover or console cables.

## Step 2 Configure the name and passwords for Router 1

- On Router 1, enter the global configuration mode and configure the hostname as shown in the chart.
- Configure the console, virtual terminal and enable passwords. If there are any problems, refer to the Lab 3.1.3 Configuring Router Passwords.

## Step 3 Configure serial interface Serial 0

From global configuration mode, configure serial interface Serial 0 on Router GAD. Refer to Interface Summary.

```
GAD(config)#interface serial 0
GAD(config-if)#ip address 192.168.15.1 255.255.255.0
GAD(config-if)#clock rate 56000
GAD(config-if)#no shutdown
GAD(config-if)#exit
GAD(config)#exit
```

**Note:** Once the interface configuration mode is entered, note the IP address of the interface. Enter the subnet mask. Enter the clock rate only on the DCE side of the device. The command **no shutdown** turns on the interface. Shutdown is when the interface is off.

## Step 4 Save the running configuration

Save the running configuration to the startup configuration at the privileged EXEC mode:

```
GAD#copy running-config startup-config
```

**Note:** Save the running configuration for the next time that the router is restarted. The router can be restarted either by a software **reload** command or a power shutdown. The running configuration will be lost if the running configuration is not saved. The router uses the startup configuration when the router is started.

## Step 5 Display information about Serial interface 0 on GAD

- Enter the command **show interface serial 0** on GAD. Refer to interface chart.

```
GAD#show interface serial 0
```

This will show the details of interface serial 0.

- List at least three details discovered by issuing this command.
  - Serial 0 is \_\_\_\_\_. Line protocol is \_\_\_\_\_.
  - Internet address is \_\_\_\_\_.
  - Encapsulation \_\_\_\_\_
  - To what OSI layer is the “Encapsulation” referring? \_\_\_\_\_
  - If the Serial interface was configured, why did the **show interface serial 0** say that the interface is down?
-

## Step 6 Configure the name and passwords for Router 2

- a. On the Birmingham router, enter the global configuration mode. Configure hostname, console, virtual terminal and enable passwords as shown in the previous chart.

## Step 7 Configure serial interface Serial 0

From the global configuration mode, configure serial interface Serial 0 on Router BHM. Refer to interface chart.

```
BHM(config)#interface serial 0
BHM(config-if)#ip address 192.168.15.2 255.255.255.0
BHM(config-if)#no shutdown
BHM(config-if)#exit
BHM(config)#exit
```

## Step 8 Save the running configuration

Save the running configuration to the startup configuration at the privileged EXEC mode:

```
BHM#copy running-config startup-config
```

## Step 9 Display information about Serial interface 0 on BHM

- a. Enter the command `show interface serial 0` on BHM. Refer to interface chart.

```
BHM#show interface serial 0
```

This will show the details of interface serial 0.

- b. List at least three details discovered by issuing this command.
  - c. Serial 0 is \_\_\_\_\_, line protocol is \_\_\_\_\_.
  - d. Internet address is \_\_\_\_\_.
  - e. Encapsulation \_\_\_\_\_
  - f. What is the difference in the Line and Protocol status recorded on GAD earlier? Why?
- 

## Step 10 Verify that the serial connection is functioning

- a. `ping` the serial interface of the other router.

```
BHM#ping 192.168.15.1
```

```
GAD#ping 192.168.15.2
```

- b. From GAD, ping the BHM router serial interface. Does the ping work? \_\_\_\_\_
- c. From BHM, ping the GAD router serial interface. Does the ping work? \_\_\_\_\_
- d. If the answer is no for either question, troubleshoot the router configurations to find the error. Then ping the interfaces again until the answer to both questions is yes.

Upon completion of the previous steps, logoff by typing `exit`. Turn the router off. Remove and store the cables and adapter.

## Erasing and reloading the router

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

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

```
Router>enable
```

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**.

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

<b>Router Interface Summary</b>					
Router Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2	Interface #5
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 the type of router as well as 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>					