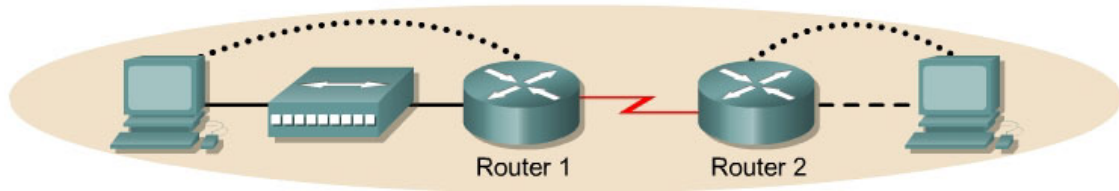


Lab 3.2.1 Configuring EIGRP Routing



| Router Designation | Router Name | Enable Secret Password | Enable, VTY, and Console Passwords | Routing Protocol | Network Statements |
|--------------------|-------------|------------------------|------------------------------------|------------------|----------------------------|
| Router 1 | Paris | class | cisco | EIGRP | 192.168.3.0 192.168.2.0 |
| Router 2 | Warsaw | class | cisco | EIGRP | 192.168.1.0 192.168.2.0 |

| Router Designation | IP Host Table Entry | FastEthernet 0 Address/Subnet Mask | Interface Type Serial 0 | Serial 0 Address/Subnet Mask | Loopback 0 Address/Subnet Mask |
|--------------------|---------------------|------------------------------------|-------------------------|------------------------------|--------------------------------|
| Router 1 | Warsaw | 192.168.3.1/24 | DCE | 192.168.2.1/30 | 192.168.0.2/24 |
| Router 2 | Paris | 192.168.1.1/24 | DTE | 192.168.2.2/30 | No address |

Note: The IP Host Table Entry column contents indicate the name(s) of the other router(s) in the IP host table.

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

Objective

- Setup an IP addressing scheme for the network.
- Configure and verify Enhanced Interior Gateway Routing Protocol (EIGRP) routing.

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.

Start a HyperTerminal session.

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 Configure the routers

On the routers, enter the global configuration mode and configure the hostname as shown in the chart. Then configure the console, virtual terminal and enable passwords. Next configure the interfaces according to the chart. Finally, configure the IP hostnames. Do not configure the routing

protocol until specifically told to. If there are any problems configuring the router basics, refer to the lab "Review of Basic Router Configuration with RIP".

Step 2 Save the configuration information from the privileged EXEC command mode

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

Step 3 Configure the hosts with the proper IP address, subnet mask and default gateway

- Each workstation should be able to ping the attached router. Troubleshoot as necessary. Remember to assign a specific IP address and default gateway to the workstation. If running Windows 98, check by using **Start > Run > winipcfg**. If running Windows 2000, check by using the **ipconfig** command in a DOS window.
- At this point the workstations will not be able to communicate with each other. The following steps will demonstrate the process required to get communication working using EIGRP as the routing protocol.

Step 4 View the routers configuration and interface information

- At the privileged EXEC mode prompt type:

```
Paris#show running-config
```

- Using the **show ip interface brief** command, check the status of each interface.
- What is the state of the interfaces on each router?

Paris:

FastEthernet 0: _____

Serial 0: _____

Warsaw:

FastEthernet 0: _____

Serial 0: _____

- Ping from one of the connected serial interfaces to the other.
- Was the ping successful? _____
- If the ping was not successful, troubleshoot the routers configuration, until the ping is successful.

Step 5 Configure EIGRP routing on router Paris

- Enable the EIGRP routing process on Paris, and configure the networks it will advertise. Use EIGRP autonomous system number 101.

```
Paris(config)#router eigrp 101
Paris(config-router)#network 192.168.3.0
Paris(config-router)#network 192.168.2.0
Paris(config-router)#network 192.168.0.0
Paris(config-router)#end
```

- Show the routing table for the Paris router.

```
Paris#show ip route
```

- c. Are there any entries in the routing table? _____
- d. Why? _____

Step 6 Configure EIGRP routing on router Warsaw

- a. Enable the EIGRP routing process on Warsaw, and configure the networks it will advertise. Use EIGRP autonomous system number 101.

```
Warsaw(config)#router eigrp 101  
Warsaw(config-router)#network 192.168.2.0  
Warsaw(config-router)#network 192.168.1.0  
Warsaw(config-router)#end
```

- b. Show the routing table for the Warsaw router.

```
Warsaw#show ip route
```

Step 7 Test network connectivity

Ping the Paris host from the Warsaw host. Was it successful? _____

If not troubleshoot as necessary.

Once the previous steps are completed, log off 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**.

If prompted for a password, enter **class**. If that 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(config)#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) |

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.