Lab 3.3.3 Configuring PPP Authentication
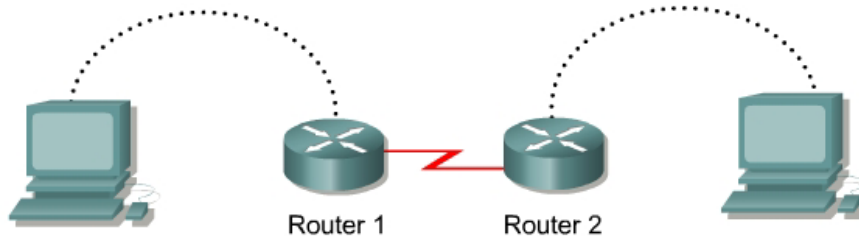
Router 1   Router 2

Router Designation	Router Name	Interface Type	Serial 0 Address	Subnet Mask	Enable Secret Password	Enable/VTY/ Console Passwords
Router 1	Madrid	DCE	192.168.15.1	255.255.255.0	class	cisco
Router 2	Tokyo	DTE	192.168.15.2	255.255.255.0	class	cisco

Straight-through cable	————————
Serial cable	———Z———
Console (rollover)	••••••••••••••••••
Crossover cable	— — — — — — — ·
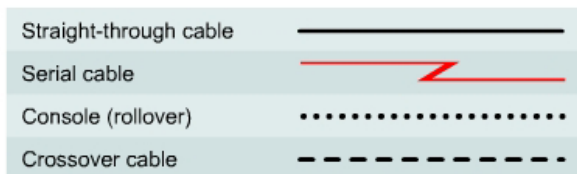
Objective

- Configure PPP authentication using CHAP on two routers.

Background/Preparation

Cable a network similar to the one in the diagram above. Any router that meets the interface requirements displayed on the above diagram may be used. This includes the following and any of their possible combinations:

- 800 series routers

- 1600 series routers

- 1700 series routers

- 2500 series routers

- 2600 series routers

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. Conduct the following steps on each router unless specifically instructed otherwise.

Start a HyperTerminal session.

Note: Refer 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

Configure all of the following according to the chart:

- The hostname
- The console
- The virtual terminal
- The enable passwords

If problems occur during this configuration, refer to Lab 1.1.4a Configuring NAT.

Step 2 Configure the Tokyo interface as shown

Configure the Tokyo router serial interface as follows:

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

Step 3 Configure the Madrid interface as shown

Configure the Madrid router serial interface as follows:

```
Madrid(config)#interface serial 0
Madrid(config-if)#ip address 192.168.15.1 255.255.255.0
Madrid(config-if)#clockrate 64000
Madrid(config-if)#encapsulation ppp
Madrid(config-if)#no shutdown
Madrid(config-if)#exit
Madrid(config)#exit
```

Step 4 Save the configuration

```
Madrid#copy running-config startup-config

Tokyo#copy running-config startup-config
```

Step 5 Enter the command `show interface serial 0` on Madrid

```
Madrid#show interface serial 0
```

Encapsulation _____

Step 6 Enter the command `show interface serial 0` on Tokyo

```
Tokyo#show interface serial 0
```

Encapsulation _____

Step 7 Verify that the serial connection is functioning by pinging the serial interface of the other router

```
Madrid#ping 192.168.15.2

Tokyo#ping 192.168.15.1
```

If the pings are unsuccessful, troubleshoot the router configurations to find the error. Then do the pings again until both pings are successful.

Step 8 Configure PPP authentication

Configure usernames and password on the Madrid router. The passwords must be the same on both routers. The username must reflect the other routers hostname exactly. The password and user names are case sensitive:

```
Madrid(config)#username Tokyo password cisco
Madrid(config)#interface serial 0
Madrid(config-if)#ppp authentication chap
```

Step 9 Verify that the serial connection is functioning

a. Verify that the serial connection is functioning by pinging the serial interface of the other router:

```
Madrid#ping 192.168.15.2
```

b. Is the ping successful? _____

c. Why? _____

Step 10 Configure PPP authentication

Configure usernames and password on the Tokyo router. The passwords must be the same on both routers. The username must reflect the other routers hostname exactly. The password and user names are case sensitive:

```
Tokyo(config)#username Madrid password cisco
Tokyo(config)#interface serial 0
Tokyo(config-if)#ppp authentication chap
```

Step 11 Verify that the serial connection is functioning

a. Verify that the serial connection is functioning by pinging the serial interface of the other router:

```
Tokyo#ping 192.168.15.1
```

b. Is the ping successful? _____

c. Why? _____

Upon completion of the previous steps, finish the lab by doing the following:

- 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 that does not work, ask the instructor).

```
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 an IOS command to represent the interface.