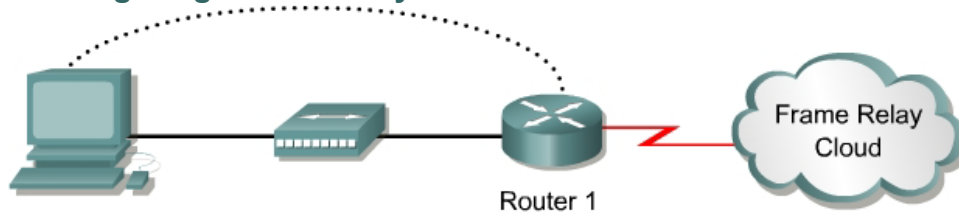


Lab 5.2.1 Configuring Frame Relay



Router Designation	Router Name	Enable Password	Secret Password	FastEthernet 0 Address/Subnet Mask	Serial 0 Address	Adtran Connection
Router 1	Cork	class	cisco	192.168.14.1/24	NA	1/1

Straight-through cable	—————
Serial cable	————— ⚡
Console (rollover)	
Crossover cable	- - - - -

Objective

Configure a router to establish a connection to a local Frame Relay switch/cloud.

Background/Preparation

An Adtran Atlas550 Frame Relay emulator is used to simulate the Frame Relay switch/cloud.

The Cork Wholesale Food Company has just had a Frame Relay circuit installed to its local central office (CO) by the telco carrier. The network administrator must confirm that the router and Frame Relay switch are able to successfully communicate.

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 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 Configuring the serial interface

- a. In Frame Relay, the customer router is considered the DTE device. In order to configure the serial interface the Layer 2 Frame Relay frame type must be defined. To configure the frame type, use the following commands:

```
Cork#configure terminal
Cork(config)#interface serial 0
Cork(config-if)#encapsulation frame-relay ietf
```

- b. Next the format of the Frame Relay management protocol must be configured. To configure the Local Management Interface (LMI) type, use the following commands:

```
Cork(config-if)#frame-relay lmi-type ansi
Cork(config-if)#no shutdown
Cork(config-if)#end
```

Step 3 Verifying the Frame Relay configuration

- a. To verify the configuration, use the `show interface` commands, related to Frame Relay. To view the serial interface configuration use the following command:

```
Cork#show interface serial 0
```

- b. What is the state of the interface? Serial 0 is _____, line protocol is _____.
- c. What is the encapsulation type?

- d. What state is the DTE LMI in?

- e. What is the LMI type?

Step 4 Reviewing switch assignments

- a. To verify that the data-link connection identifiers (DLCIs) are defined on the switch use `show frame-relay pvc`. The DLCIs are learned by the router via LMI, and can be viewed with the following command:

```
Cork#show frame-relay pvc
```

b. What DLCI numbers are available on the switch?

c. What is the PVC status of the first DLCI?

Step 5 Check the Frame Relay map

```
Cork#show frame-relay map
```

This output shows that none of the DLCIs, defined on the switch, are in use. The permanent virtual circuit (PVC) is inactive and there is no current mapping between the Layer 2 DLCI and Layer 3 IP address as seen in the `show frame-relay map` command.

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.				