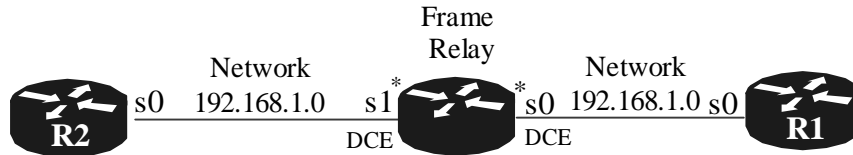


### 3 ROUTER SETUP WITH FRAME RELAY



#### Hardware Requirement:

- 1 Router with 2 Serials
- 2 Router with 1 Serial
- 2 DTE/DCE Serial Cables
- IOS Version 11.x or later

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### CONFIGURATION OF FRAME RELAY ROUTER

```
Router>enable
Router#conf t
Router(config)#hostname FR
FR(config)#enable password cisco
FR(config)#frame-relay switching
FR(config-if)#int s0
FR(config-if)# no ip address
FR(config-if)# encapsulation frame-relay
FR(config-if)# clockrate 64000
FR(config-if)# frame-relay lmi-type ansi
FR(config-if)# frame-relay intf-type dce
FR(config-if)# frame-relay route 100 interface Serial11 200
FR(config-if)# no shut
FR(config-if)#int s1
FR(config-if)# no ip address
FR(config-if)# encapsulation frame-relay
FR(config-if)# clockrate 64000
FR(config-if)# frame-relay lmi-type ansi
FR(config-if)# frame-relay intf-type dce
FR(config-if)# frame-relay route 200 interface Serial10 100
FR(config-if)# no shut
FR(config-line)#line vty 0 4
FR(config-line)# password cisco
FR(config-line)# login
FR(config-line)#end
FR#write
```

---

## CONFIGURATION OF ROUTER 1

```
Router>Enable
Router#conf t
Router(config)#hostname R1
R1(config)#enable password cisco
R1(config-line)#line vty 0 4
R1(config-line)# password cisco
R1(config-line)# login
R1(config)#int loopback 0
R1(config-if)#ip add 1.1.1.1 255.255.255.255
R1(config-if)#no shut
R1(config-if)#int s0
R1(config-if)# encapsulation frame-relay
R1(config-if)# frame-relay lmi-type ansi
R1(config-if)# no shut
R1(config)#int Serial0.1 point-to-point
R1(config-subif)# ip address 192.168.1.1 255.255.255.0
R1(config-subif)# frame-relay interface-dlci 100
R1(config)#ip route 0.0.0.0 0.0.0.0 192.168.1.2
R1#write
```

---

## CONFIGURATION OF ROUTER 2

```
Router>Enable
Router#conf t
Router(config)#hostname R2
R2(config)#enable password cisco
R2(config-line)#line vty 0 4
R2(config-line)# password cisco
R2(config-line)# login
R2(config)#int loopback 0
R2(config-if)#ip add 2.2.2.2 255.255.255.255
R2(config-if)#no shut
R2(config)#int s0
R2(config-if)# no ip address
R2(config-if)# encapsulation frame-relay
R2(config-if)# frame-relay lmi-type ansi
R2(config-if)# no shut
R2(config-if)#interface Serial0.1 point-to-point
R2(config-subif)# ip address 192.168.1.2 255.255.255.0
R2(config-subif)# frame-relay interface-dlci 200
R2(config-if)#no ip classless
R2(config)#ip route 0.0.0.0 0.0.0.0 192.168.1.1
R2#write
```

## TEST CONNECTIVITY OF FRAME RELAY ROUTER

FR#**sho frame route**

Input Intf	Input Dlci	Output Intf	Output Dlci
Serial0	100	Serial1	200
Serial1	200	Serial0	100

FR#

---

## TESTING CONNECTIVITY ROUTER 1

R1#**ping 192.168.1.2**

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2 seconds:

!!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 32/32/36 ms

R1#**ping 192.168.1.1**

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:

!!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 60/61/64 ms

R1#**show frame-relay map**

Serial0.1 (up): point-to-point dlci, dlci 100(0x64,0x1840), broadcast status defined, active

R1#**sho ip route**

(Output omitted)

Gateway of last resort is 192.168.1.2 to network 0.0.0.0

1.0.0.0/32 is subnetted, 1 subnets

C 1.1.1.1 is directly connected, Loopback0

C 192.168.1.0/24 is directly connected, Serial0.1

S\* 0.0.0.0/0 [1/0] via 192.168.1.2

R1#

---

## TESTING CONNECTIVITY ROUTER 2

```
R2#ping 192.168.1.1
```

```
Type escape sequence to abort.  
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:  
!!!!  
Success rate is 100 percent (5/5), round-trip min/avg/max = 32/32/36 ms
```

```
R2#ping 192.168.1.2
```

```
Type escape sequence to abort.  
Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2 seconds:  
!!!!  
Success rate is 100 percent (5/5), round-trip min/avg/max = 60/62/68 ms
```

```
R2#sho frame map
```

```
Serial0.1 (up): point-to-point dlci, dlci 200(0xC8,0x3080), broadcast  
status defined, active
```

```
R2#sho ip route
```

```
(Output omitted)
```

```
Gateway of last resort is 192.168.1.1 to network 0.0.0.0
```

```
2.0.0.0/32 is subnetted, 1 subnets  
C      2.2.2.2 is directly connected, Loopback0  
C      192.168.1.0/24 is directly connected, Serial0.1  
S*    0.0.0.0/0 [1/0] via 192.168.1.1  
R2#
```

### Frame Relay Monitoring

**Router# show interface or show interface serial** are the most common commands which show a wide variety of information including showing you the **DLCI used for LMI**. When monitoring Frame Relay information on the router, a number of items are typically monitored including DLCI and LMI.

**Router# debug frame-relay LMI** command that you would use to monitor LMI information

### Frame Relay Troubleshooting

If a Frame-Relay DLCI attains a state other than “active” meaning inactive or deleted, you can check the Frame-Relay configuration to make sure its configuration matches the configuration of the router acting as the Frame-Relay DTE device.

**Router# show frame-relay pvc** - can be used to verify that the Frame-Relay PVCs are active and operational

**Router# show frame-relay route** - can be used to get a listing of the status of all the PVC's

**Router# show frame-relay map** - can be used to verify that inverse ARP has successfully mapped remote network layer addresses to the appropriate DLCI.

End of Lab

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