

Lab 1 Frame Relay and PPP

1. Hub and Spoke Frame Relay

R1 is the hub, and R2 and R3 are spoke routers.
DLCI 102 is connected to DLCI 201 and DLCI 103
is connected to DLCI301. No direct DLCI
connection between R2 and R3.

R1:

```
int s0/0
  shut
  encaps frame-relay
  no frame inv
  frame map ip 10.10.0.1 102
  frame map ip 10.10.0.2 102 broadcast
  frame map ip 10.10.0.3 103 br
  ip addr 10.10.0.1 255.255.255.0
  no shut
```

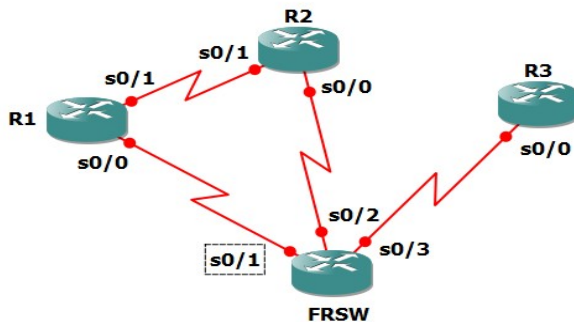
R2:

```
int s0/0
  shut
  encaps frame-relay
  no frame inv
  ip addr 10.10.0.2 255.255.255.0
  frame map ip 10.10.0.1 201 br
  frame map ip 10.10.0.2 201
  frame map ip 10.10.0.3 201
  no shut
```

R3:

```
int s0/0
  shut
  encaps frame-relay
  no frame inv
  ip addr 10.10.0.3 255.255.255.0
  frame map ip 10.10.0.1 301 br
  frame map ip 10.10.0.2 301
  frame map ip 10.10.0.3 301
  no shut
```

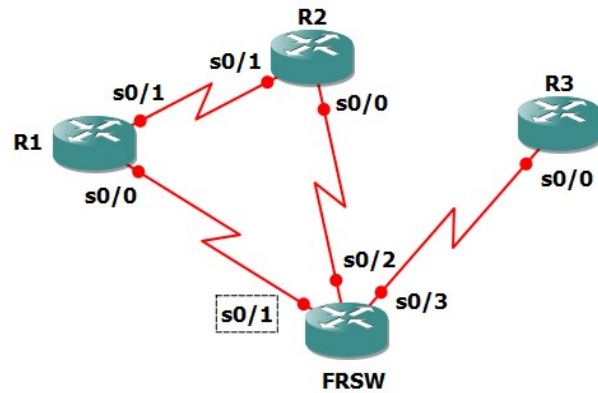
```
ping 10.10.0.x
```



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2. Point to Point Frame Relay

R1 is the hub, and R2 and R3 are spoke routers. DLCI 102 is connected to DLCI 201 and DLCI 103 is connected to DLCI301. No direct DLCI connection between R2 and R3.



R1:

```
int s0/0
  no ip addr
  no encap frame-relay
  encap frame
int s0/0.2 point-to-point
  ip addr 10.10.12.1 255.255.255.0
  frame interface-dlci 102
int s0/0.3 point-to-point
  ip addr 10.10.13.1 255.255.255.0
  frame interface-dlci 103
```

R2:

```
int s0/0
  no ip addr
  no encap frame-relay
  encap frame
int s0/0.1 point-to-point
  ip addr 10.10.12.2 255.255.255.0
  frame interface-dlci 201
```

R3:

```
int s0/0
  no ip addr
  no encap frame-relay
  encap frame
int s0/0.1 point-to-point
  ip addr 10.10.13.3 255.255.255.0
  frame interface-dlci 301
```

```
ping 10.10.12.x
ping 10.10.13.x
```

R2:

```
ip route 10.10.13.0 255.255.255.0 10.10.12.1
```

R3:

```
ip route 0.0.0.0 0.0.0.0 10.10.13.1
```

Lab 1 Frame Relay and PPP

3. PPP FR with EIGRP routing

EIGRP AS number 100

3-0 remove all static routes

3-1 Configure Fa0/0 and loopback0 IP addresses as follows:

R1-fa0/0:10.1.0.1/24 lo0:1.1.1.1/32

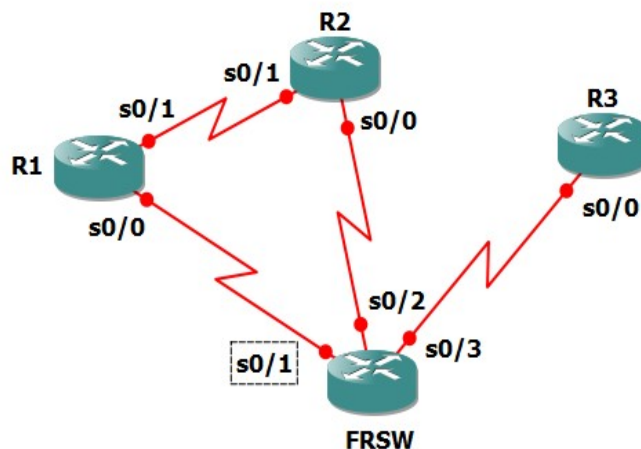
R2-fa0/0:10.2.0.1/24 lo0:2.2.2.2/32

R3-fa0/0:10.3.0.1/24 lo0:3.3.3.3/32

3-2 Add EIGRP routing and introduce all interfaces into EIGRP database.

```
router eig 100
  net 0.0.0.0 255.255.255.255
```

sh ip route when completed



4. Hub and Spoke Frame Relay with EIGRP routing

4-1 Remove all subinterfaces by **no** command.

4-2 Reconfigure your s0/0 as in 1. Hub and Spoke Frame Relay.

4-3 **sh ip route** and check the routing tables on R2 and R3.

Remedy:

```
R1
int s0/0
  no ip split-horizon eigrp 100
```

5. PPP authentication

Please configure the following:

```
R1
user R2 pass 1234
int s0/1
  no shut
  encap ppp
  ppp authen chap
```

```
R2
user R1 pass 1234
int s0/1
  no shut
  encap ppp
  ppp authen chap
```

do **sh cdp nei** before and after **no shut**, **encap ppp**, and **user Rx pass 1234** to test the communications.