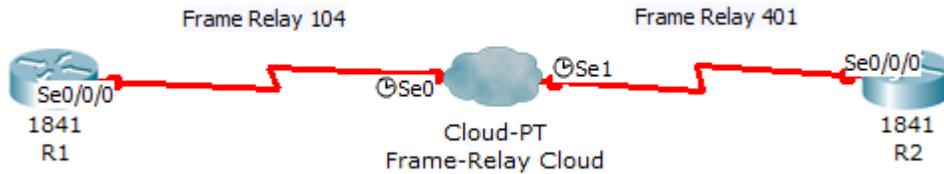


## Configuring Frame-Relay in Packet Tracer

1. Router interfaces used for Frame-Relay must be shut down.  
Also remember the DCE goes on the cloud interfaces.

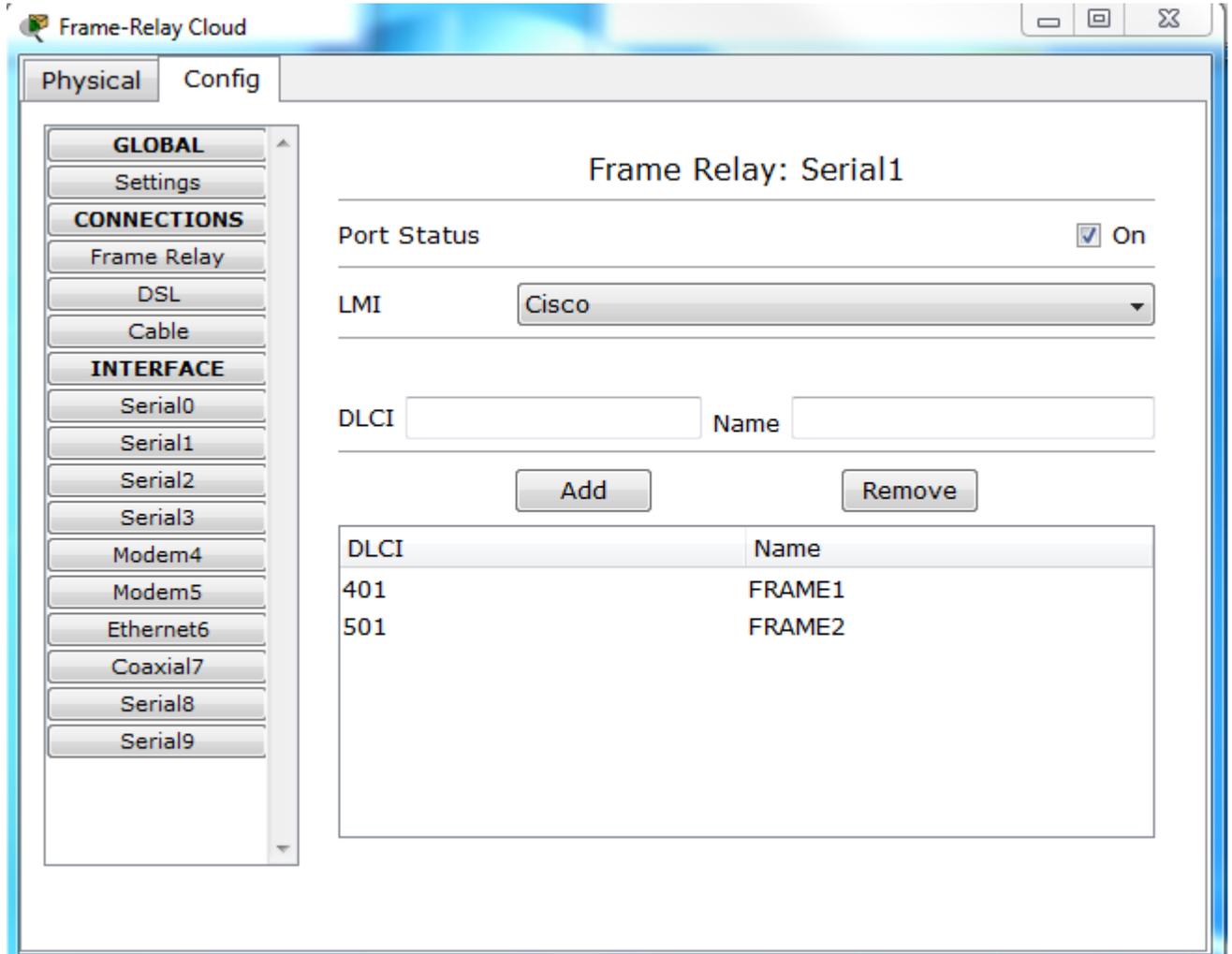


2. Configure some DLCI numbers on whichever serial interface you choose, and name and add them.  
We'll choose *DLCI 104 Named FRAME1* and *DLCI 105 Named FRAME2* on Serial0

The screenshot shows the configuration window for 'Frame-Relay Cloud'. The 'Config' tab is active, showing the configuration for 'Frame Relay: Serial0'. The 'Port Status' is set to 'On'. The 'LMI' is set to 'Cisco'. Below, there are input fields for 'DLCI' and 'Name'. A table below shows the configured DLCI numbers and names:

DLCI	Name
104	FRAME1
105	FRAME2

3. Configure some DLCI numbers on the next serial interface you choose, and name and add them. We'll choose *DLCI 401 Named FRAME1* and *DLCI 501 Named FRAME2* on Serial0



Frame-Relay Cloud

Physical Config

**GLOBAL**

Settings

**CONNECTIONS**

Frame Relay

DSL

Cable

**INTERFACE**

Serial0

Serial1

Serial2

Serial3

Modem4

Modem5

Ethernet6

Coaxial7

Serial8

Serial9

### Frame Relay: Serial1

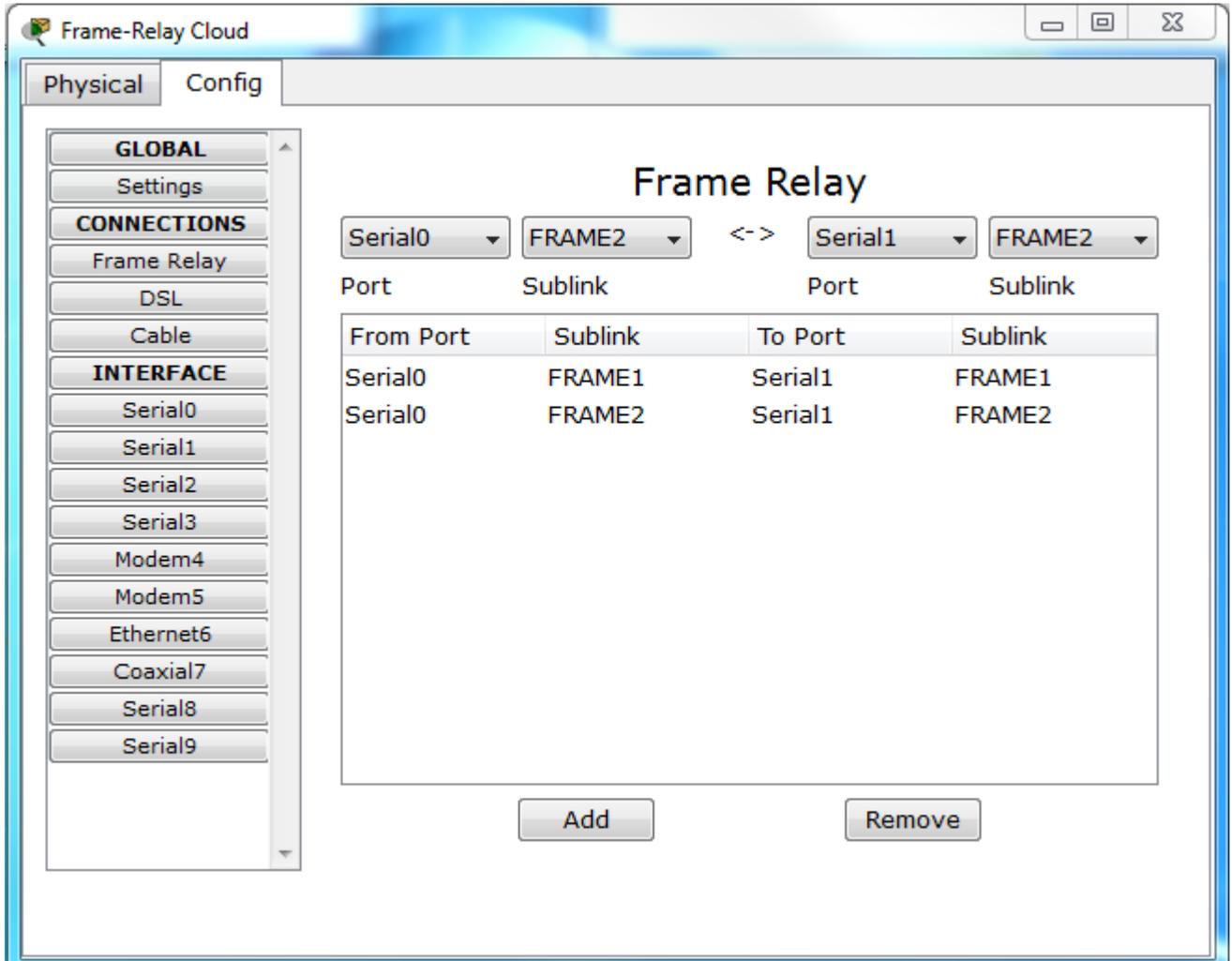
Port Status  On

LMI

DLCI  Name

DLCI	Name
401	FRAME1
501	FRAME2

- Here's the tricky part, you're going to be telling Frame-Relay how you want the Serial interfaces to communicate with the DLCIs you just made. That's it for the cloud.



- Configure routers interfaces as usual, **but do not turn on interfaces**. This step and next step can be done together, though I'd break it done for simplicity sake.

```
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#int se0/0/0
R1(config-if)#ip add 192.168.1.2 255.255.255.252
R1(config-if)#exit
R1(config)#

and

R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#int se0/0/0
R2(config-if)#ip add 192.168.1.1 255.255.255.252
R2(config-if)#exit
R2(config)#
```

6. Now it's time to connect and turn on the interfaces:

```
R1(config)#int se0/0/0
R1(config-if)#encapsulation frame-relay
R1(config-if)#frame-relay map ip 192.168.1.2 104 broadcast
R1(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
R1(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

R1(config-if)#exit
```

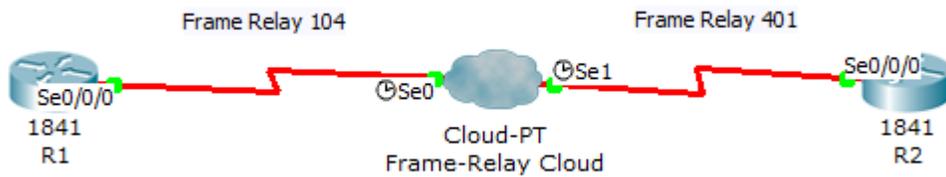
and

```
R2(config)#int se0/0/0
R2(config-if)#encapsulation frame-relay
R2(config-if)#frame-relay map ip 192.168.1.1 401 broadcast
R2(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
R2(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 192.168.1.2 (Serial0/0/0) is up: new adjacency
R2(config-if)#exit
```

As you can see by the read out, interface are up.



7. Now to test and the routers *Show Frame-Relay [lmi] [map] [pvc]*

Fire	Last Status	Source	Destination	Type	Color	Time (sec)
●	Successful	R2	R1	ICMP	■	0.000
●	Successful	R1	R2	ICMP	■	0.000

R1 show all Frame-Relay information.

```
R1#show frame-relay lmi
```

```
LMI Statistics for interface Serial0/0/0 (Frame Relay DTE) LMI TYPE = CISCO
```

```
Invalid Unnumbered info 0      Invalid Prot Disc 0
Invalid dummy Call Ref 0       Invalid Msg Type 0
Invalid Status Message 0       Invalid Lock Shift 0
Invalid Information ID 0       Invalid Report IE Len 0
Invalid Report Request 0       Invalid Keep IE Len 0
Num Status Enq. Sent 113       Num Status msgs Rcvd 112
Num Update Status Rcvd 0       Num Status Timeouts 16
```

```
R1#show frame-relay map
```

```
Serial0/0/0 (up): ip 192.168.1.2 dlci 104, static, broadcast, CISCO, status defined, active
```

```
Serial0/0/0 (up): ip 192.168.1.1 dlci 105, dynamic, broadcast, CISCO, status defined, active
```

```
R1#show frame-relay pvc
```

```
PVC Statistics for interface Serial0/0/0 (Frame Relay DTE)
```

```
DLCI = 104, DLCI USAGE = LOCAL, PVC STATUS = ACTIVE, INTERFACE = Serial0/0/0
```

```
input pkts 14055      output pkts 32795      in bytes 1096228
out bytes 6216155     dropped pkts 0         in FECN pkts 0
in BECN pkts 0       out FECN pkts 0       out BECN pkts 0
in DE pkts 0         out DE pkts 0
out bcast pkts 32795 out bcast bytes 6216155
```

```
DLCI = 105, DLCI USAGE = LOCAL, PVC STATUS = ACTIVE, INTERFACE = Serial0/0/0
```

```
input pkts 14055      output pkts 32795      in bytes 1096228
out bytes 6216155     dropped pkts 0         in FECN pkts 0
in BECN pkts 0       out FECN pkts 0       out BECN pkts 0
in DE pkts 0         out DE pkts 0
out bcast pkts 32795 out bcast bytes 6216155
```

R2 show all Frame-Relay information.

```
R2#show frame-relay lmi
LMI Statistics for interface Serial0/0/0 (Frame Relay DTE) LMI TYPE = CISCO
  Invalid Unnumbered info 0      Invalid Prot Disc 0
  Invalid dummy Call Ref 0      Invalid Msg Type 0
  Invalid Status Message 0      Invalid Lock Shift 0
  Invalid Information ID 0      Invalid Report IE Len 0
  Invalid Report Request 0      Invalid Keep IE Len 0
  Num Status Enq. Sent 88      Num Status msgs Rcvd 86
  Num Update Status Rcvd 0      Num Status Timeouts 16

R2#show frame-relay map
Serial0/0/0 (up): ip 192.168.1.1 dlci 401, static, broadcast, CISCO, status defi
ned, active
Serial0/0/0 (up): ip 192.168.1.2 dlci 501, dynamic, broadcast, CISCO, status def
ined, active
R2#show frame-relay pvc

PVC Statistics for interface Serial0/0/0 (Frame Relay DTE)
DLCI = 401, DLCI USAGE = LOCAL, PVC STATUS = ACTIVE, INTERFACE = Serial0/0/0

input pkts 14055      output pkts 32795      in bytes 1096228
out bytes 6216155    dropped pkts 0         in FECN pkts 0
in BECN pkts 0      out FECN pkts 0       out BECN pkts 0
in DE pkts 0        out DE pkts 0
out bcast pkts 32795  out bcast bytes 6216155

DLCI = 501, DLCI USAGE = LOCAL, PVC STATUS = ACTIVE, INTERFACE = Serial0/0/0

input pkts 14055      output pkts 32795      in bytes 1096228
out bytes 6216155    dropped pkts 0         in FECN pkts 0
in BECN pkts 0      out FECN pkts 0       out BECN pkts 0
in DE pkts 0        out DE pkts 0
out bcast pkts 32795  out bcast bytes 6216155
```

#### Frame-Relay Facts:

- the switches inside the cloud are not really switches, but routers acting as switches , remember Frame-Relay uses FRAMES, that's layer 2.
- Routers broadcast their DLCI number, yes a router broadcasting.
- Local Management Interface (LMI) messages are used for updates and to indicate Frame-Relay is functioning correctly, through status, keepalives, multicast, and multicast addressing.
- LMI types: Cisco (default), ANSI, and Q933A.