

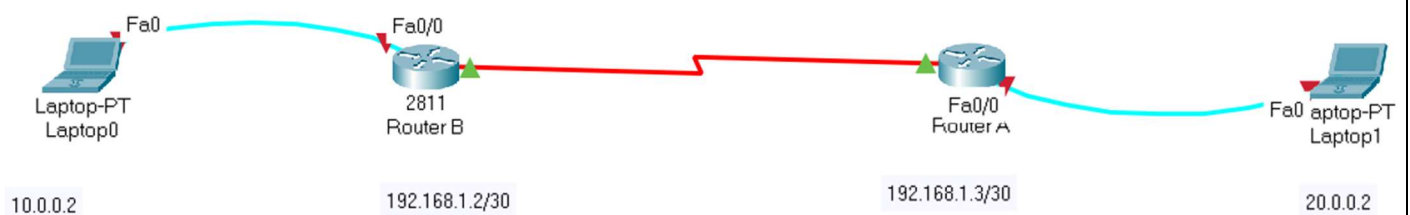
Ex.No:15	COMMUNICATION USING HDLC
Date:	

AIM:

To configure PPP using routers in Cisco Packet Tracer.

PROCEDURE:

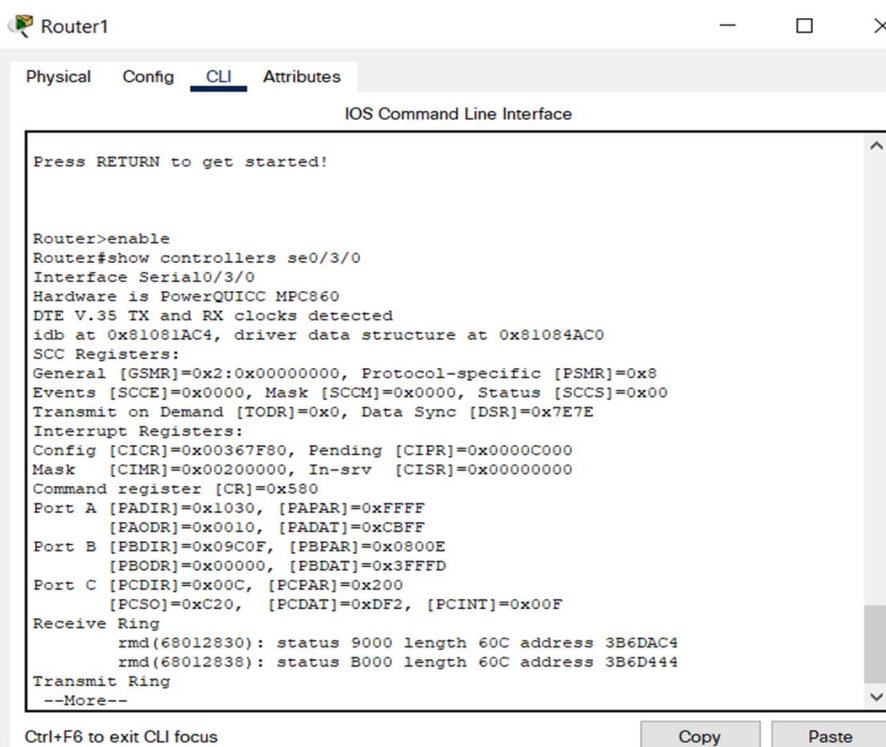
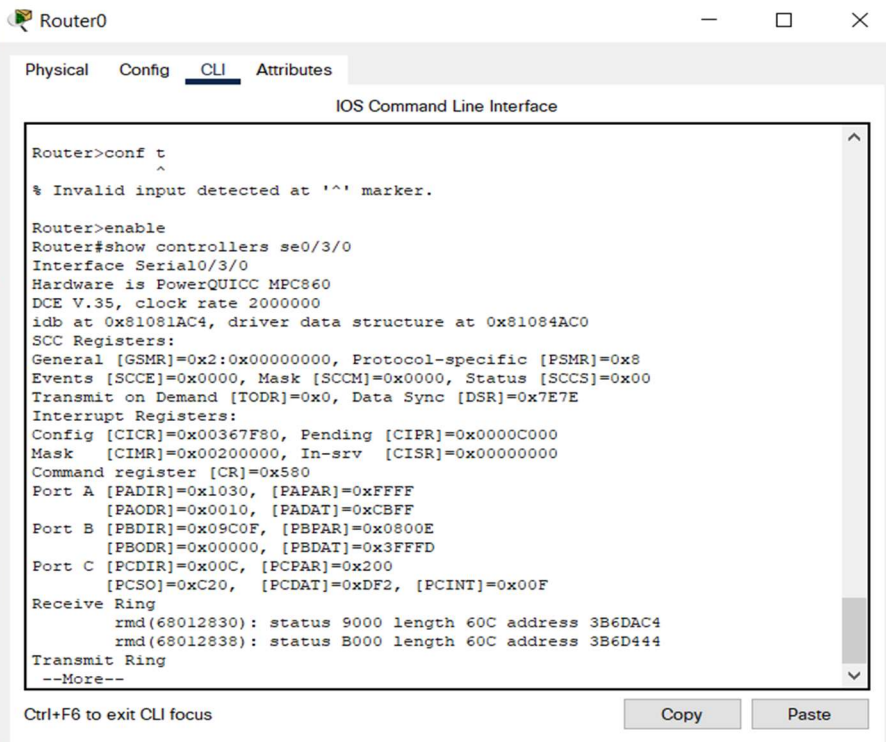
1 . Connect the devices as shown in the below figure.



2 . Initial IP configuration.

Device / Interface	IP Address	Connected with
PC0 / Fa0	10.0.0.2 /8	Router0 / Fa0/0
PC1 / Fa0	20.0.0.2 /8	Router1 / Fa0/0
Router0 / Se0/3/0	192.168.1.2 /30	Router1 / Se0/3/0
Router1 / Se0/3/0	192.168.1.3 /30	Router0 / Se0/3/0

3 . Use the connected laptops to find the DCE and DTE routers



Router0 being the DCE, clock rate has to be configured on Router0 serial 0/3/0 interface.

5. Then, configure PPP encapsulation and IP address on Router0 serial 0/3/0 interface. The **encapsulation ppp** configures PPP protocol on the serial interface. Router0 being the DCE side of the serial link, the 192.168.1.3 /30 IP address is configured on Router0 serial 0/3/0 interface. Don't forget to enable the interface with a no shutdown command.

The screenshot shows the Cisco Packet Tracer application window. At the top, there's a title bar with standard Windows controls (minimize, maximize, close) and the router icon labeled "Router0". Below the title bar is a navigation menu with four tabs: "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is currently selected and highlighted with a blue underline. In the center of the window, there's a large rectangular area titled "IOS Command Line Interface" which contains a terminal-like window. This window displays the following commands and their outputs:

```
Router(config-if)#  
Router(config-if)#  
Router(config-if)#  
Router(config-if)#  
Router(config-if)#  
Router(config-if)#  
Router(config-if)#  
Router(config-if)#  
Router(config-if)#  
Router(config-if)#  
Router(config-if)#exit  
Router(config)#  
Router(config)#int se0/3/0  
Router(config-if)#encapsulation ppp  
Router(config-if)#ip add 192.168.1.2 255.255.255.252  
Router(config-if)#no shut  
Router(config-if)#exit  
Router(config)#exit  
Router#  
%SYS-5-CONFIG_I: Configured from console by console
```

Below the CLI window, there are two buttons: "Copy" and "Paste". At the bottom left of the application window, below the main content area, there is a status bar that reads "Ctrl+F6 to exit CLI focus".

6. The show interfaces serial 0/3/0 confirms that PPP encapsulation is enabled on the interface : Encapsulation PPP, loopback not set, keepalive set (10 sec)

Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
Router#
Router#
Router#
Router#
Router#
Router#show int se0/3/0
Serial0/3/0 is up, line protocol is down (disabled)
  Hardware is HD64570
  Internet address is 192.168.1.2/30
  MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation PPP, loopback not set, keepalive set (10 sec)
  LCP Closed
  Closed: LEXCP, BRIDGECP, IPCP, CCP, CDPCP, LLC2, BACP
  Last input never, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max/drops); Total output drops: 0
  Queueing strategy: weighted fair
  Output queue: 0/1000/64/0 (size/max total/threshold/drops)
    Conversations  0/0/256 (active/max active/max total)
    Reserved Conversations 0/0 (allocated/max allocated)
    Available Bandwidth 1158 kilobits/sec
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    1 packets input, 52 bytes, 0 no buffer
    Received 1 broadcasts, 0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    1 packets output, 52 bytes, 0 underruns
    0 output errors, 0 collisions, 1 interface resets
--More--
```

Ctrl+F6 to exit CLI focus

Copy Paste

7. Finally, configure PPP encapsulation and IP address on Router1 serial 0/3/0 interface. The link comes up as both routers are correctly configured.

Router1

Physical Config CLI Attributes

IOS Command Line Interface

```

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/3/0, changed state to
down

Router>
Router>
Router>enable
Router#
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#int se0/3/0
Router(config-if)#
Router(config-if)#encapsulation ppp
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/3/0, changed state to
up

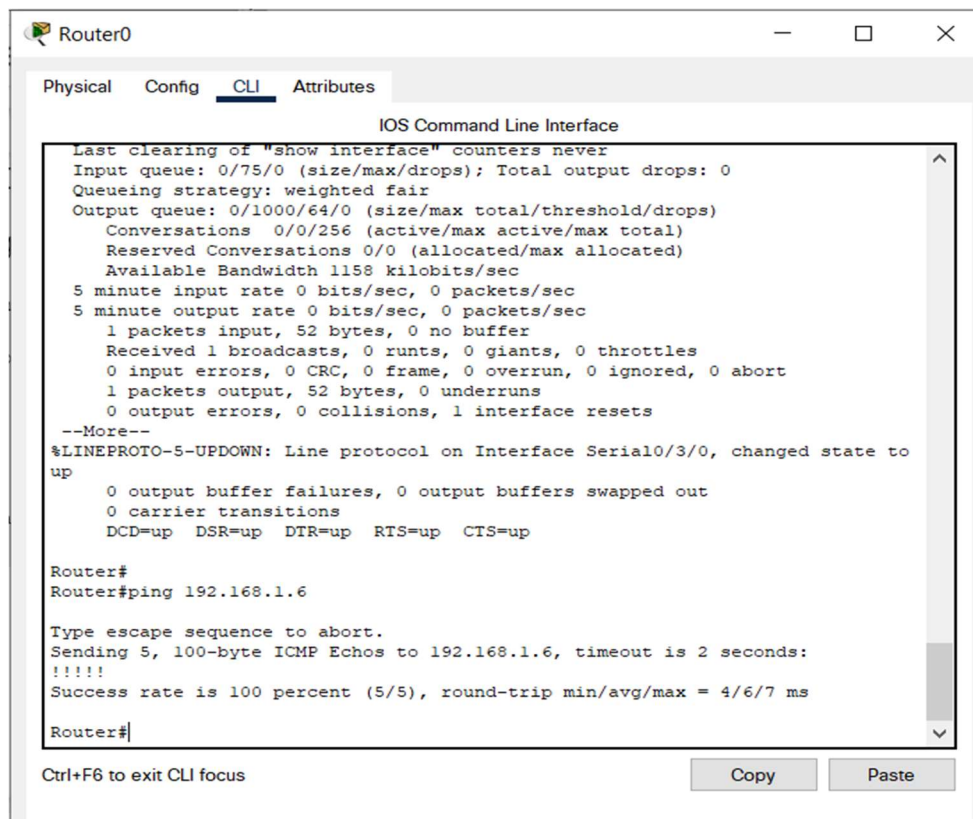
Router(config-if)#ip add 192.168.1.6 255.255.255.252
Router(config-if)#no shut
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#

```

Ctrl+F6 to exit CLI focus

Copy Paste

8. NOW CHECK THE CONNECTION BY PINGING EACH OTHER. First we go to Router0 and ping with Router1:



The screenshot shows the CLI of Router0. The 'CLI' tab is selected. The interface displays the output of the 'show interface' command, followed by a ping command to 192.168.1.6. The ping is successful with a 100% success rate.

```
Router0
Physical Config CLI Attributes
IOS Command Line Interface
Last clearing of "show interface" counters never
Input queue: 0/75/0 (size/max/drops); Total output drops: 0
Queueing strategy: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
Conversations 0/0/256 (active/max active/max total)
Reserved Conversations 0/0 (allocated/max allocated)
Available Bandwidth 1158 kilobits/sec
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
1 packets input, 52 bytes, 0 no buffer
Received 1 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
1 packets output, 52 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
--More--
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/3/0, changed state to
up
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up

Router#
Router#ping 192.168.1.6

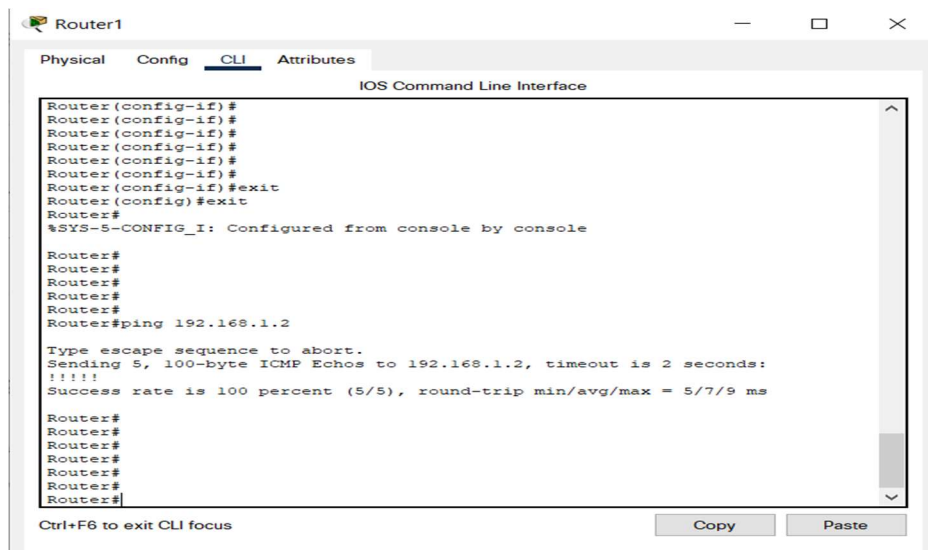
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.6, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/6/7 ms

Router#
```

Ctrl+F6 to exit CLI focus

Copy Paste

Now we go to Router1 and test the network by pinging the Router0 interface.



The screenshot shows the CLI of Router1. The 'CLI' tab is selected. The interface displays the output of the 'show interface' command, followed by a ping command to 192.168.1.2. The ping is successful with a 100% success rate.

```
Router1
Physical Config CLI Attributes
IOS Command Line Interface
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
Router#
Router#
Router#
Router#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 = 5/7/9 ms

Router#
Router#
Router#
Router#
Router#
Router#
Router#
```

Ctrl+F6 to exit CLI focus

Copy Paste

RESULT:

Hence successfully, configured PPP using routers in Cisco Packet Tracer.