

VIT-AP UNIVERSITY, ANDHRA PRADESH

Lab Sheet 10 :Router Serial Point to Point Connection HDLC,PPP with PAP and CHAP in Cisco packet tracer.

Academic year: 2020-2021

Semester: Winter

Branch/ Class: B.Tech/M.Tech

Date: 03/4/2021

Faculty Name: Dr.HUSSAIN SYED School: SCOPE

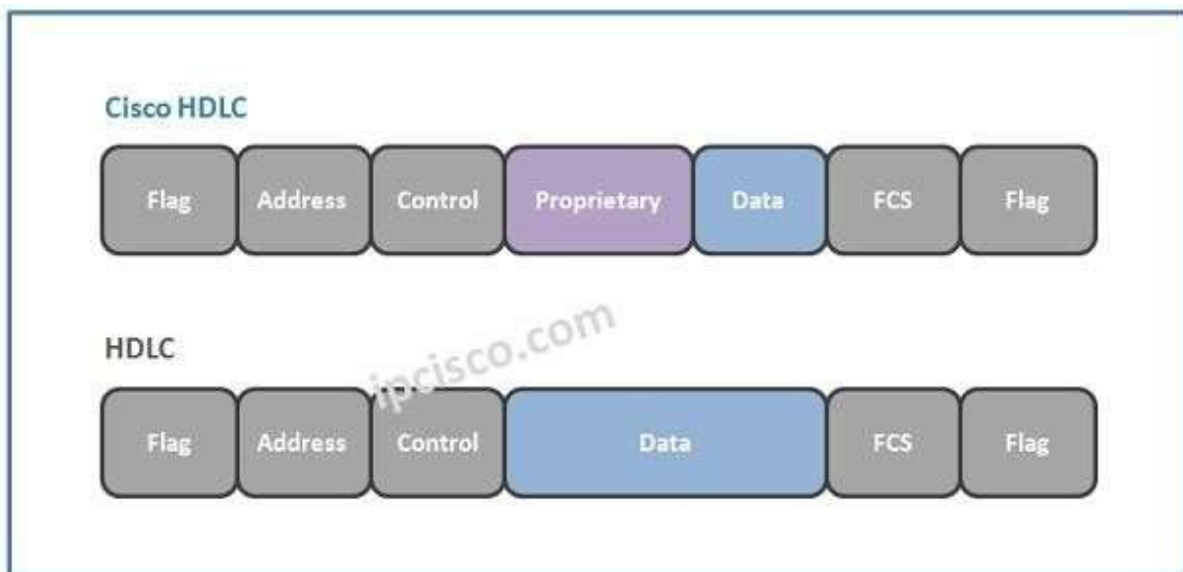
Student name: Hariprasad K K

Reg. no.: 19BCE7079

Router Serial Point to Point Connection HDLC, PPP with PAP and CHAP

HDLC (High-level Data Link Control) is a WAN protocol intended to perform the encapsulation of the data in the data link layer. The encapsulation of the data means to change the format of the data. HDLC protocol is developed by IBM and submitted to the ANSI and ISO for the acceptance as the international standards.

HDLC has two versions. One of them is the standard one and the other is the Cisco proprietary version. The frame of standard version and Cisco proprietary version is similar. Only in Cisco proprietary HDLC, there is one additional proprietary field. Below, you can check both of the frames:



Cisco HDLC is the default enabled WAN protocol of Cisco for Point-to-Point WAN links. And we can use Cisco HDLC only between Cisco devices. Other vendor devices cannot use Cisco HDLC.

Lastly, there is no Authentication mechanism in HDLC. So, security is a concern for this WAN protocol.

PPP (Point to Point Protocol) is also a WAN Encapsulation Protocol that is based on HDLC but we can say that it is the enhanced version of HDLC. There are many additional features in **PPP** if we compare with HDLC.

PPP supports two Authentication Protocols. These Authentication Protocols are:

- **PAP (Password Authentication Protocol)**

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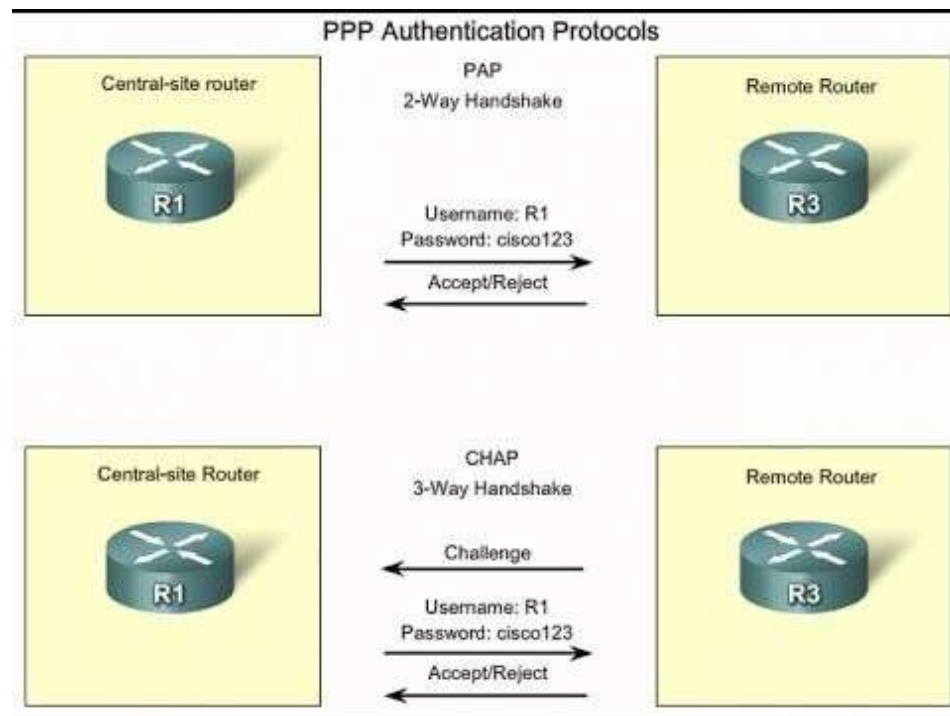
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• CHAP (Challenge Handshake Authentication Protocol)

PAP (Password Authentication Protocol) is the simplest Authentication method. It uses 2-way handshake. Both ends send the passwords in “clear text” in this method. And passwords are exchanged only at the beginning.

CHAP (Challenge Handshake Authentication Protocol) is the more complex Authentications method. CHAP uses 3-way handshake and with this mechanism it checks the remote node periodically. CHAP uses MD5 hash. One end sends “Hash” to other node and the other node also sends a hash. If the hashes are same, then the communication starts.

PAP v/s CHAP



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PAP VERSUS CHAP

PAP	CHAP
A password based authentication protocol used by Point to Point Protocol (PPP) to validate users	A communication protocol that authenticates a user or network host to an authenticating entity
Stands for Password Authentication Protocol	Stands for Challenge Handshake Authentication Protocol
During link establishment, PAP stops working after establishing the authentication, which can lead to attacks on the network	CHAP conducts periodic challenges to make sure that the remote host still has valid password value
Not secure like CHAP	Provide better security than PAP
	Visit www.PEDIAA.com

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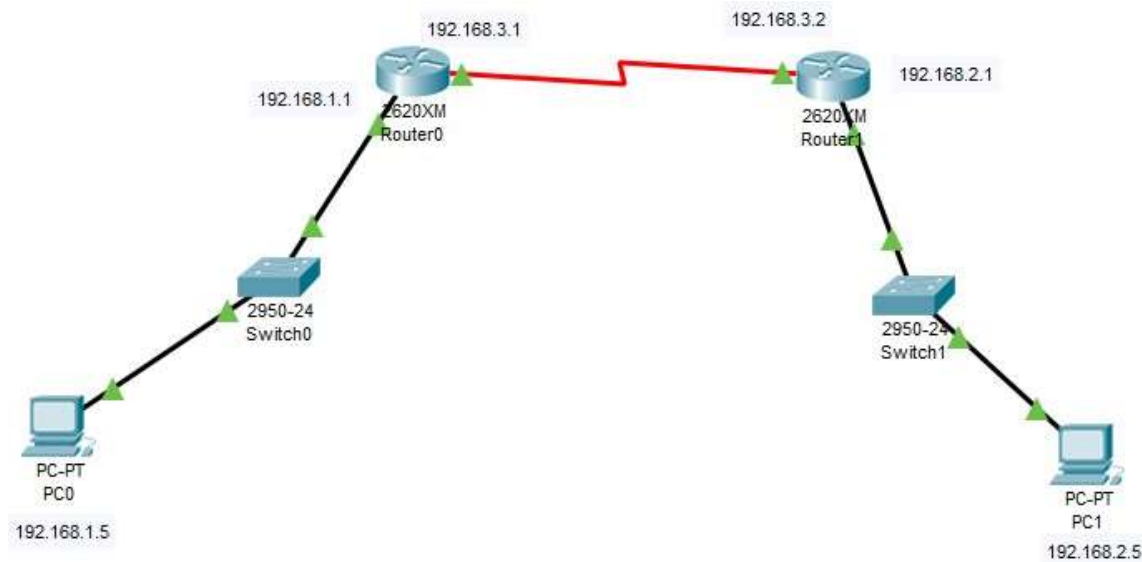
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By default HDLC encapsulation is works in CISCO devices. In case it is not there
Then by simple command we can configure:

```
Router(Config)# int s0/0
#encapsulation HDLC
```

Addressing Table:

Device	Interface	IP Address	Subnet Mask
PC1	NIC	192.168.1.5	255.255.255.0
PC2	NIC	192.168.2.5	255.255.255.0
Router1 Fast Ethernet 0/1	NIC	192.168.1.1	255.255.255.0
Router1 Serial 0/0	NIC	192.168.3.1	255.255.255.0
Router2 Fast Ethernet 0/1	NIC	192.168.2.1	255.255.255.0
Router2 Serial 0/0	NIC	192.168.3.2	255.255.255.0

Objectives:

1. Design a WAN with 2 Routers
2. Configure the Routers
3. Apply PPP (PAP and CHAP) authentication on it.
4. Verify Connection.

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