

PAP vs CHAP Authentication

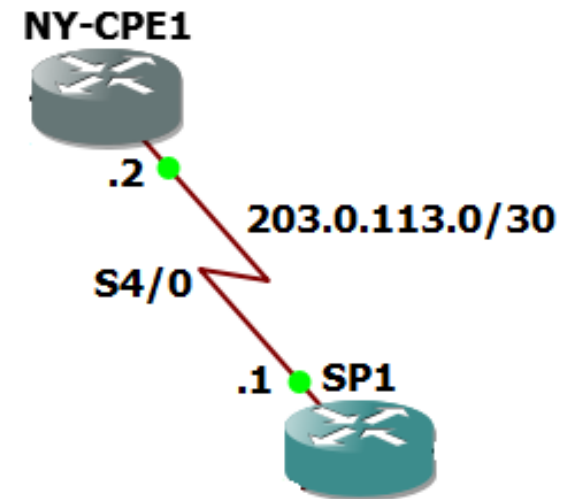


- Password Authentication Protocol (PAP) or Challenge Handshake Authentication Protocol (CHAP) can optionally be used to authenticate PPP sessions.
- PAP authenticates using a static user name and password combination.
- CHAP creates a unique challenge phrase (a randomly generated string) for each authentication.
- CHAP is more secure than PAP because all transmitted information is dynamic.

PPP with CHAP Authentication (One Way)

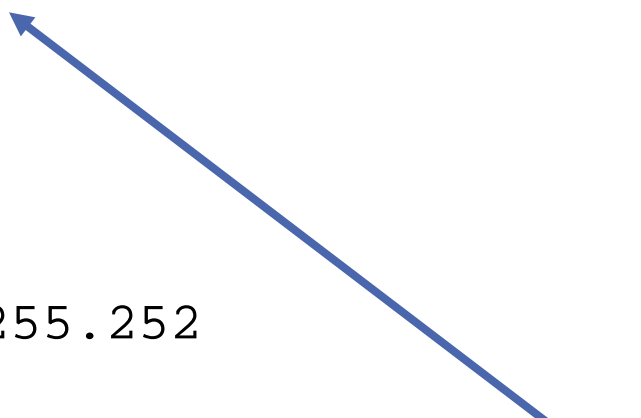
```
SP1(config)#username NY-CPE1 password Flackbox (username matches peer hostname)
SP1(config)#int s4/0
SP1(config-if)#clock rate 128000
SP1(config-if)#encapsulation ppp
SP1(config-if)#ppp authentication chap callin
SP1(config-if)#ip add 203.0.113.1 255.255.255.252
SP1(config-if)#no shutdown
```

```
NY-CPE1(config)#int s4/0
NY-CPE1(config-if)#ip add 203.0.113.2 255.255.255.252
NY-CPE1(config-if)#encapsulation ppp
NY-CPE1(config-if)#ppp chap password Flackbox
NY-CPE1(config-if)#no shutdown
```



PPP with CHAP Authentication (Two Way)

```
SP1(config)#username NY-CPE1 password Flackbox (username is peer hostname)
SP1(config)#int s4/0
SP1(config-if)#clock rate 128000
SP1(config-if)#encapsulation ppp
SP1(config-if)#ppp authentication chap
SP1(config-if)#ip add 203.0.113.1 255.255.255.252
SP1(config-if)#no shutdown
```



```
NY-CPE1(config)# username SP1 password Flackbox (password must match!)
NY-CPE1(config)#int s4/0
NY-CPE1(config-if)#ip add 203.0.113.2 255.255.255.252
NY-CPE1(config-if)#encapsulation ppp
NY-CPE1(config-if)#ppp authentication chap
NY-CPE1(config-if)#no shutdown
```

PPP Troubleshooting – Wrong credentials

```
NY-CPE1#ping 203.0.113.1
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 203.0.113.1, timeout is 2 seconds:
```

```
.....
```

```
Success rate is 0 percent (0/5)
```

```
NY-CPE1#sh ip int brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	unassigned	YES	NVRAM	administratively down	down
Serial4/0	203.0.113.2	YES	manual	up	down

PPP Troubleshooting – debug ppp authentication

```
NY-CPE1#debug ppp authentication
```

```
NY-CPE1(config-if)#shutdown
```

```
NY-CPE1(config-if)#no shutdown
```

```
*Sep 25 11:31:19.035: Se4/0 PPP: Session handle[D2000018] Session id[24]
```

```
*Sep 25 11:31:19.127: Se4/0 PPP: No authorization without authentication
```

```
*Sep 25 11:31:19.131: Se4/0 PAP: Using hostname from interface PAP
```

```
*Sep 25 11:31:19.131: Se4/0 PAP: Using password from interface PAP
```

```
*Sep 25 11:31:19.131: Se4/0 PAP: O AUTH-REQ id 1 len 18 from "NY1"
```

```
*Sep 25 11:31:19.179: Se4/0 PAP: I AUTH-NAK id 1 len 26 msg is "Authentication failed"
```