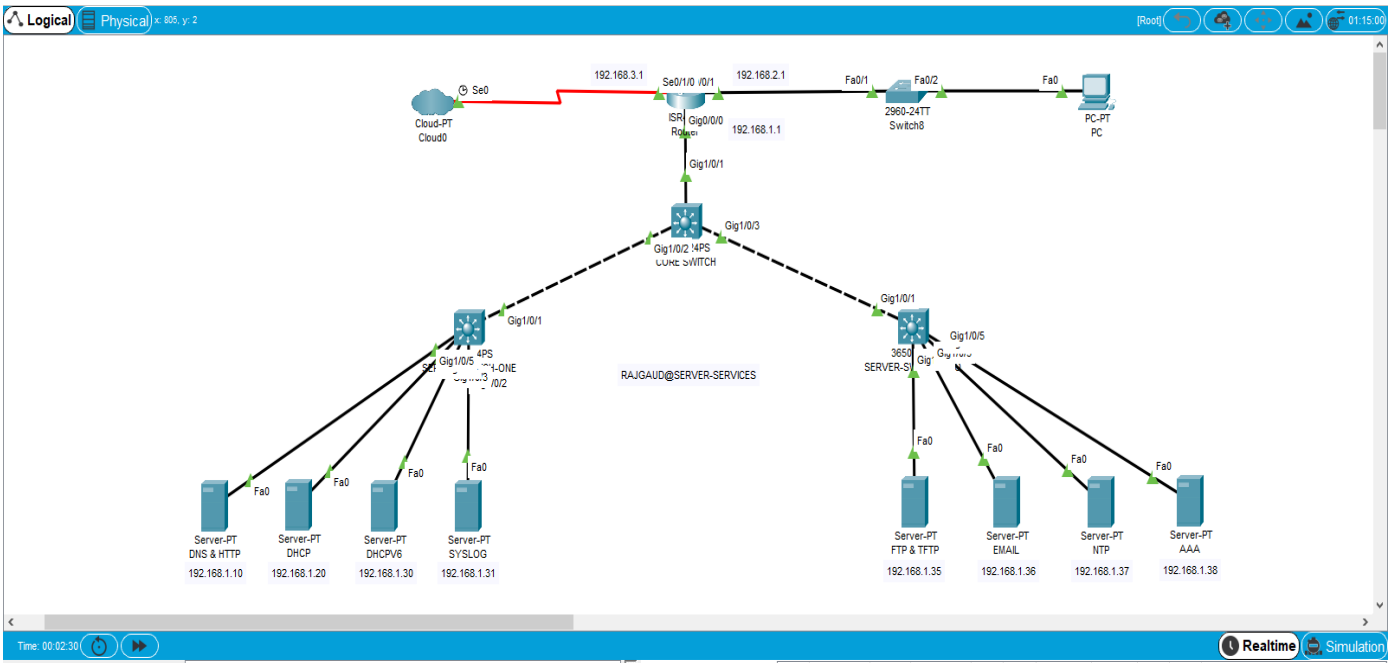
ENTERPRISE SERVER SERVICES

This project showcases the successful configuration and integration of various essential server services like DNS, HTTP, DHCP, Email, Syslog, and more. The topology features a dedicated server for each service, all operating within the 192.168.1.0/24 network.



Topology

The network topology consists of a main router acting as the default gateway (192.168.1.1), a central switch, and multiple servers, each providing a specific service.

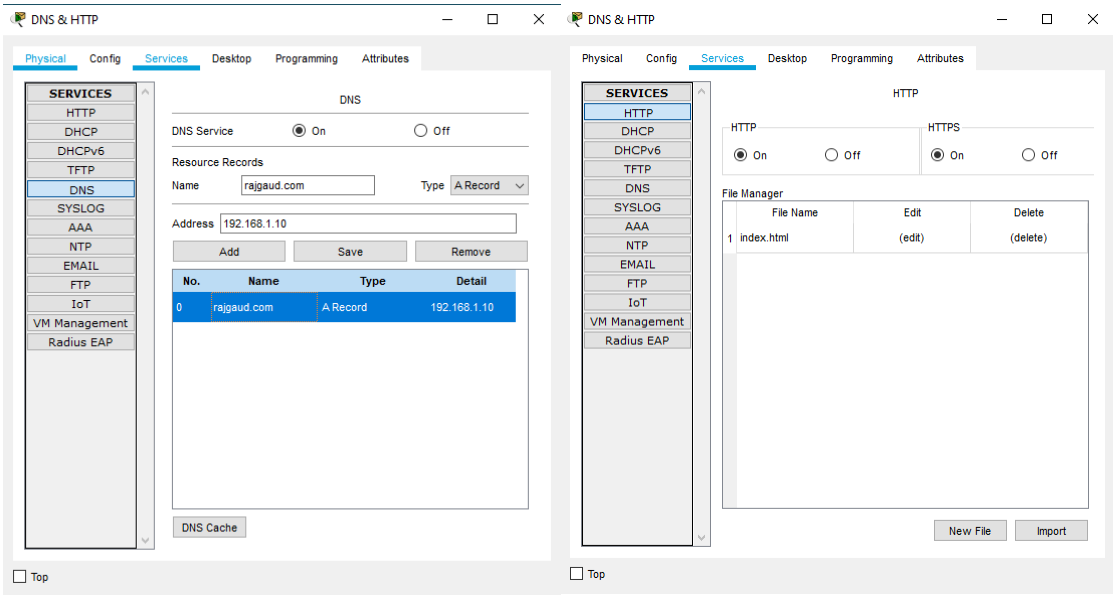
- **ISP** - Cloud-PT * 1
- **Router** - 4331 * 1
- **Multilayer Switches** - 3650 24PS * 3
- **Switch** – 2960-24TT * 1
- **PC** - End Devices * 1
- **Servers** - Server-PT * 8

Server Services

DNS | HTTP | DHCP | DHCPv6 | Syslog | FTP | TFTP | Email | NTP | AAA

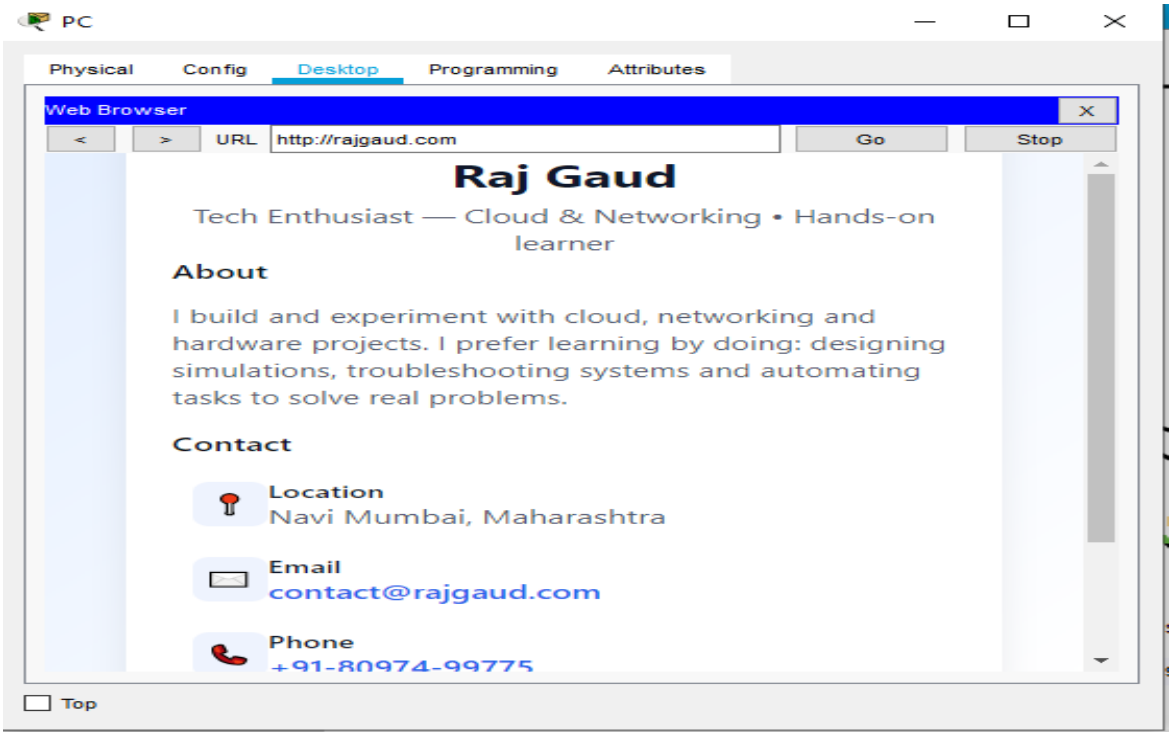
SERVER SERVICES CONFIG

1. DNS and HTTP Server (192.168.1.10)

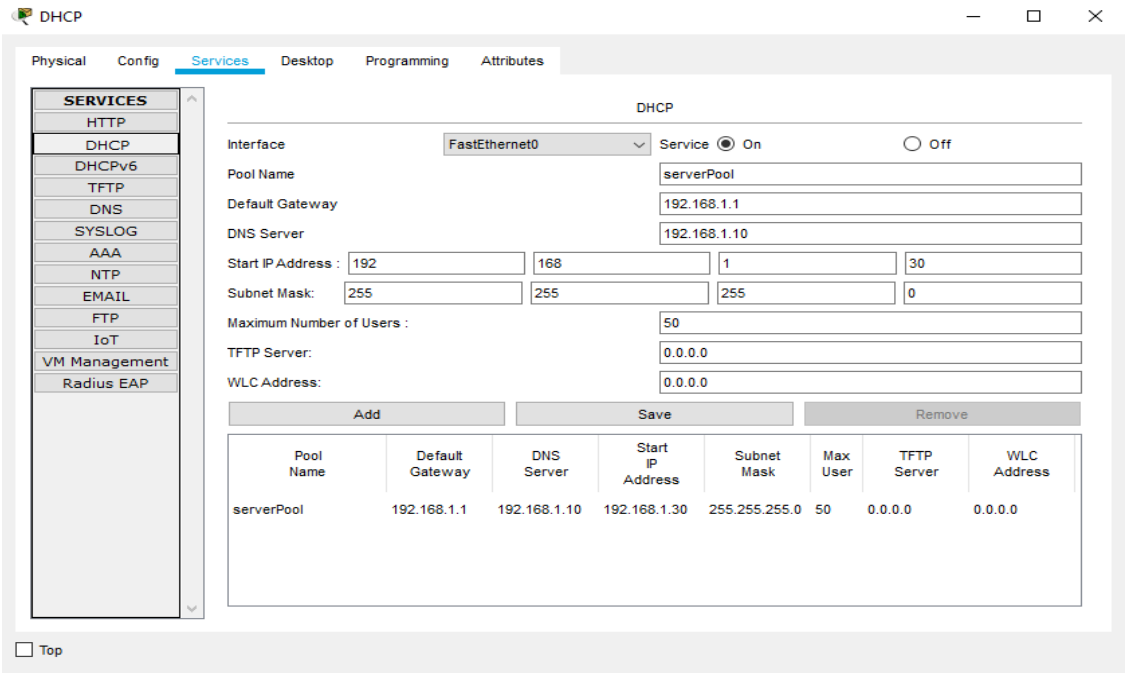


Purpose: The DNS service translates domain names to IP addresses, while the HTTP service hosts a basic webpage.

Verify:

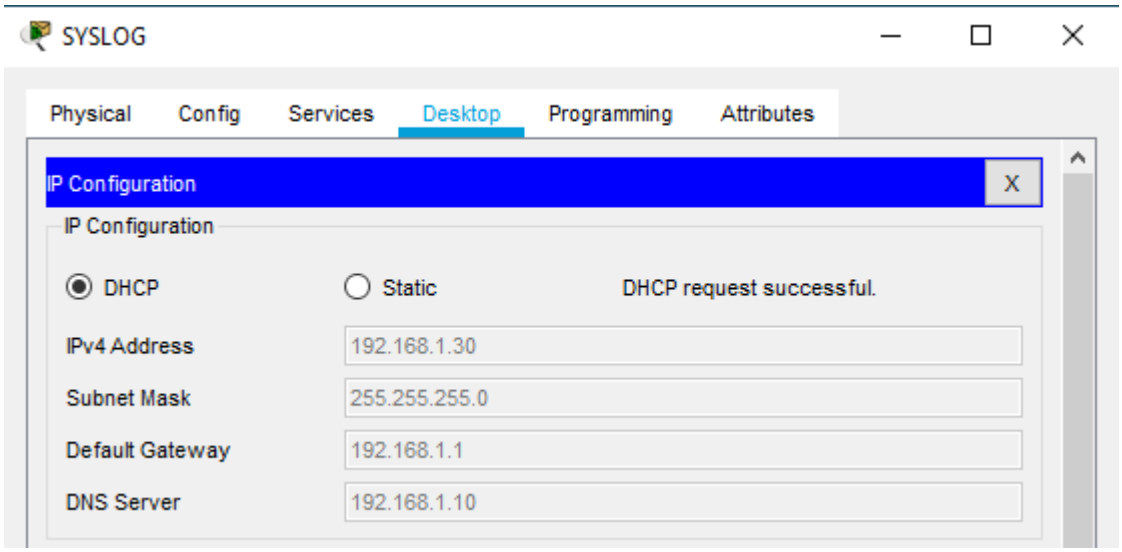


2. DHCP Server (192.168.1.20)



Purpose: The DHCP server automatically assigns IPv4 addresses to clients on the network.

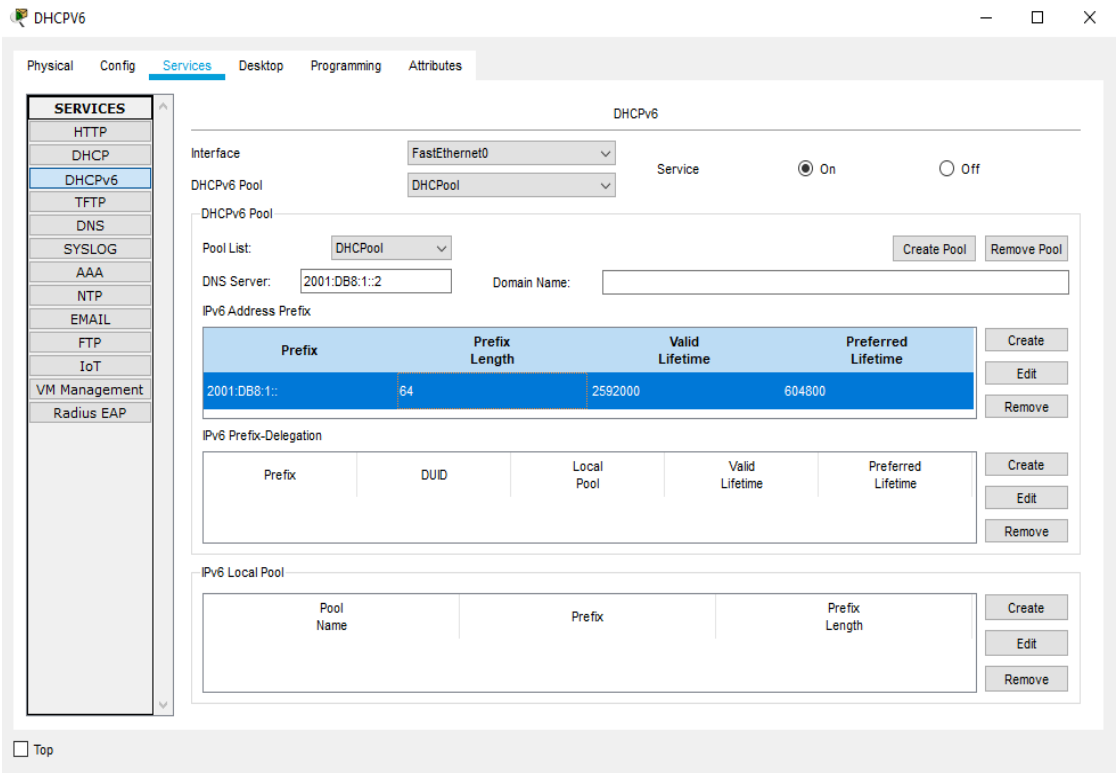
Verify:



Note: First Go to DHCP Server > Desktop > IP Configuration > IPV4 > Static

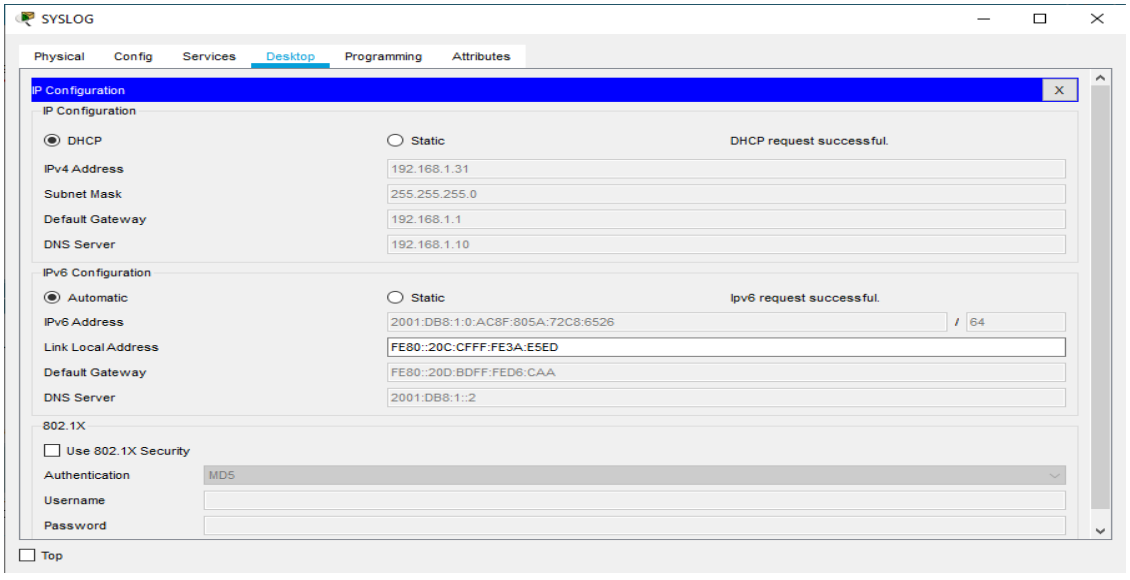
- Static IP Address: 192.168.1.20
- Subnet: 255.255.255.0
- Default Gateway: 192.168.1.1
- DNS Server: 192.168.1.10

3. DHCPv6 Server (192.168.1.30)



Purpose: The DHCP server automatically assigns IPv6 addresses to clients on the network.

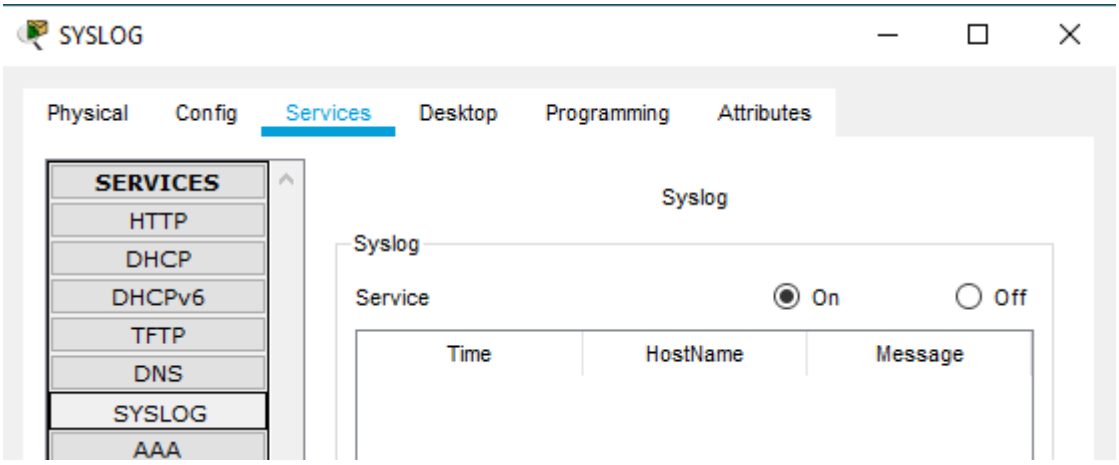
Verify:



Note: First Go to DHCPv6 Server > Desktop > IP Configuration > IPV6 > Static >

- Static IP Address: 2001:DB8:1::2
- Default Gateway: 2001:DB8:1::1
- DNS Server: 2001:DB8:1::2

4. Syslog Server (192.168.1.31)

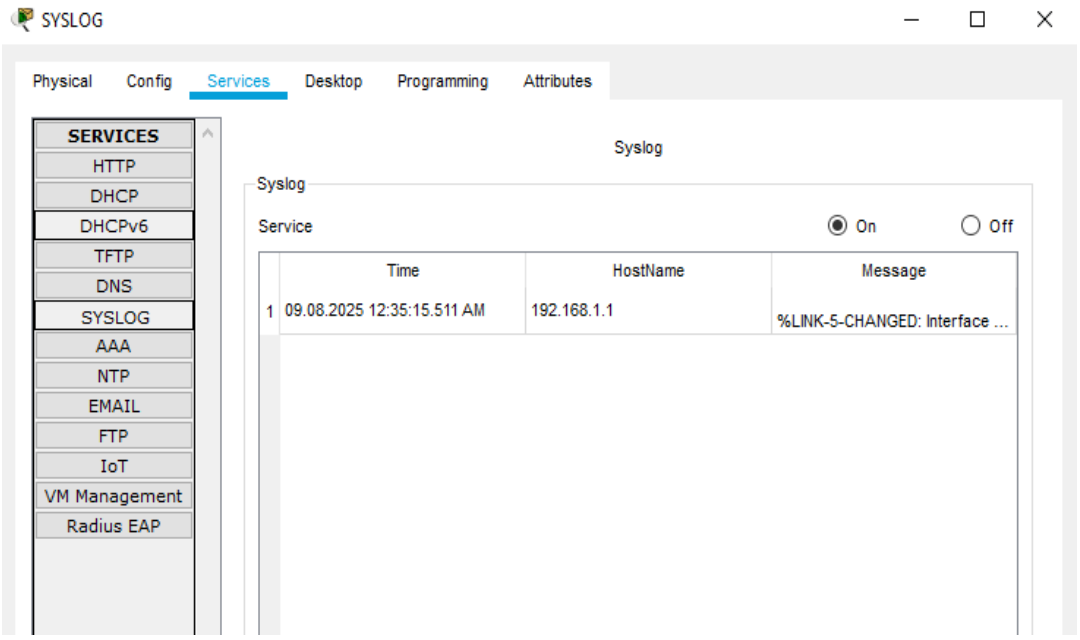


Enable Syslog at #**Router**:

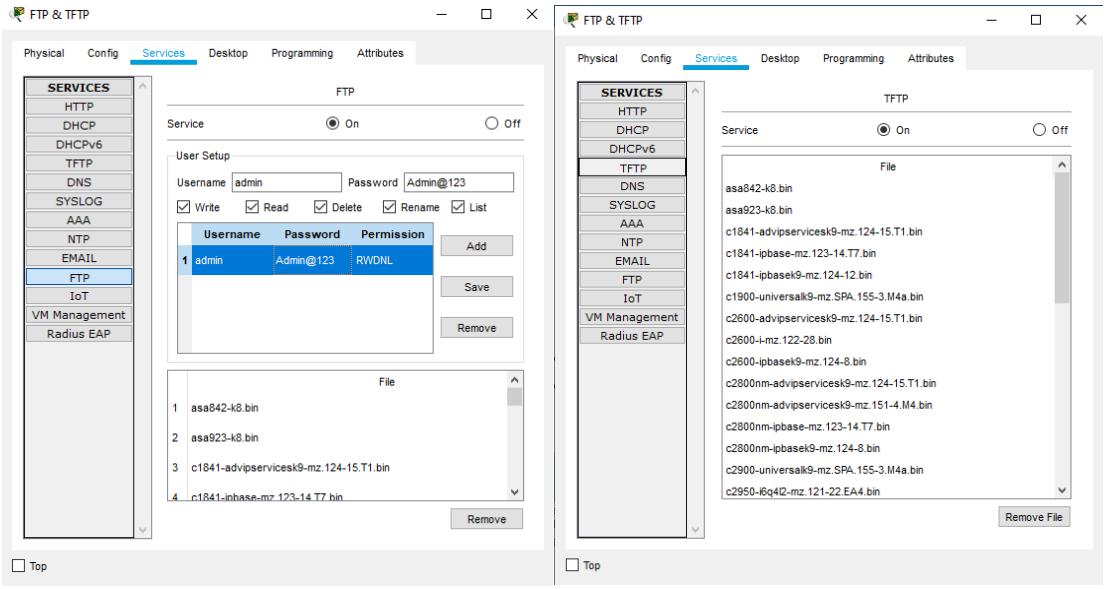
```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#logging 192.168.1.31
Router(config)#logging trap debugging
Router(config)#service timestamps log datetime msec
Router(config)#ex
Router#
*Sep 08, 00:33:14.3333: SYS-5-CONFIG_I: Configured from console by
console
*Sep 08, 00:33:14.3333:  %SYS-6-LOGGINGHOST_STARTSTOP: Logging to
host 192.168.1.31 port 514 started - CLI initiated
Router#
```

Purpose: Centralizes log messages from network devices for easier monitoring and troubleshooting.

Verify:

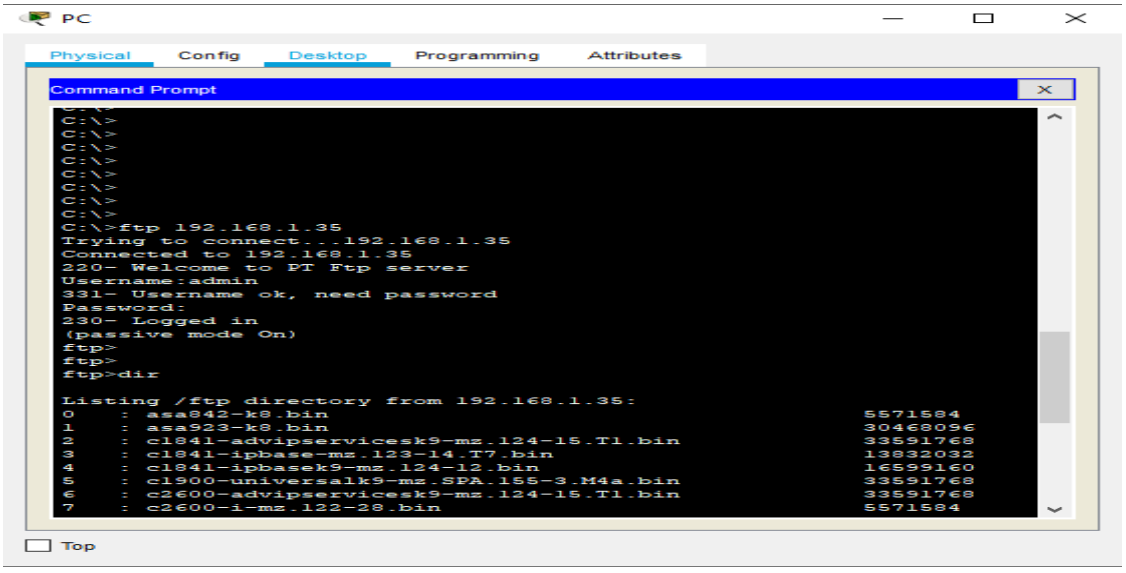


5. FTP and TFTP Server (192.168.1.35)



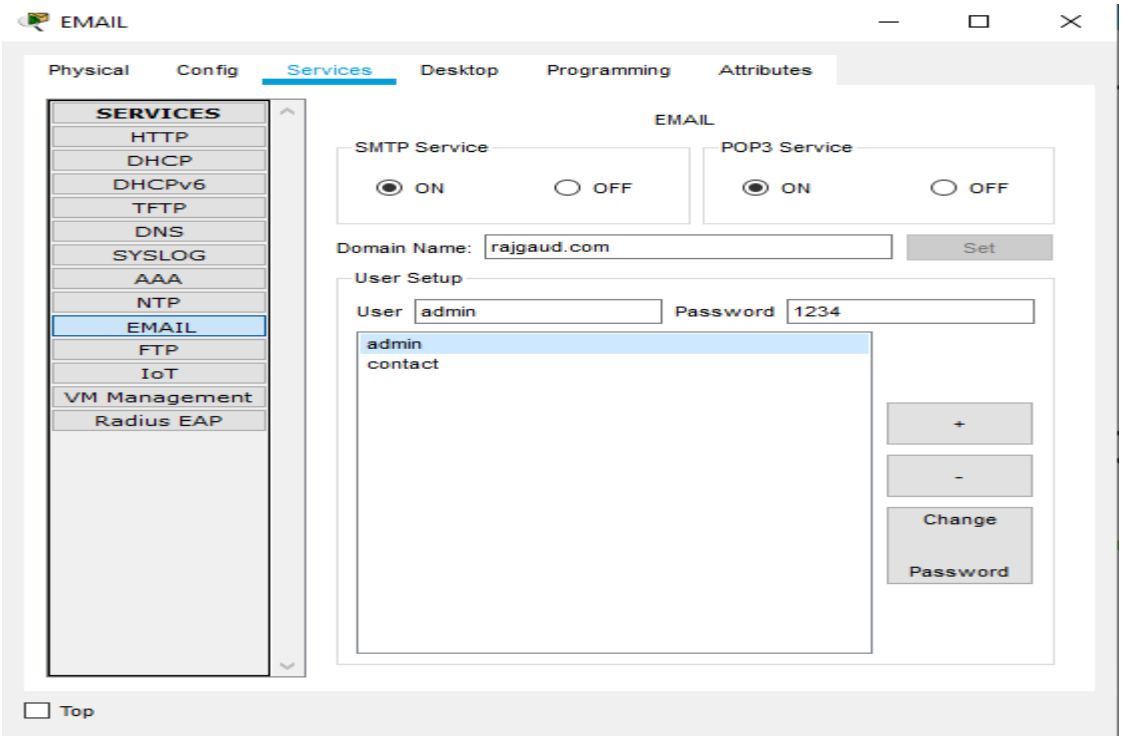
Purpose: FTP (File Transfer Protocol) allows for file transfers, while TFTP (Trivial File Transfer Protocol) is used for basic, unauthenticated file transfers, often for device configuration backups.

Verify:

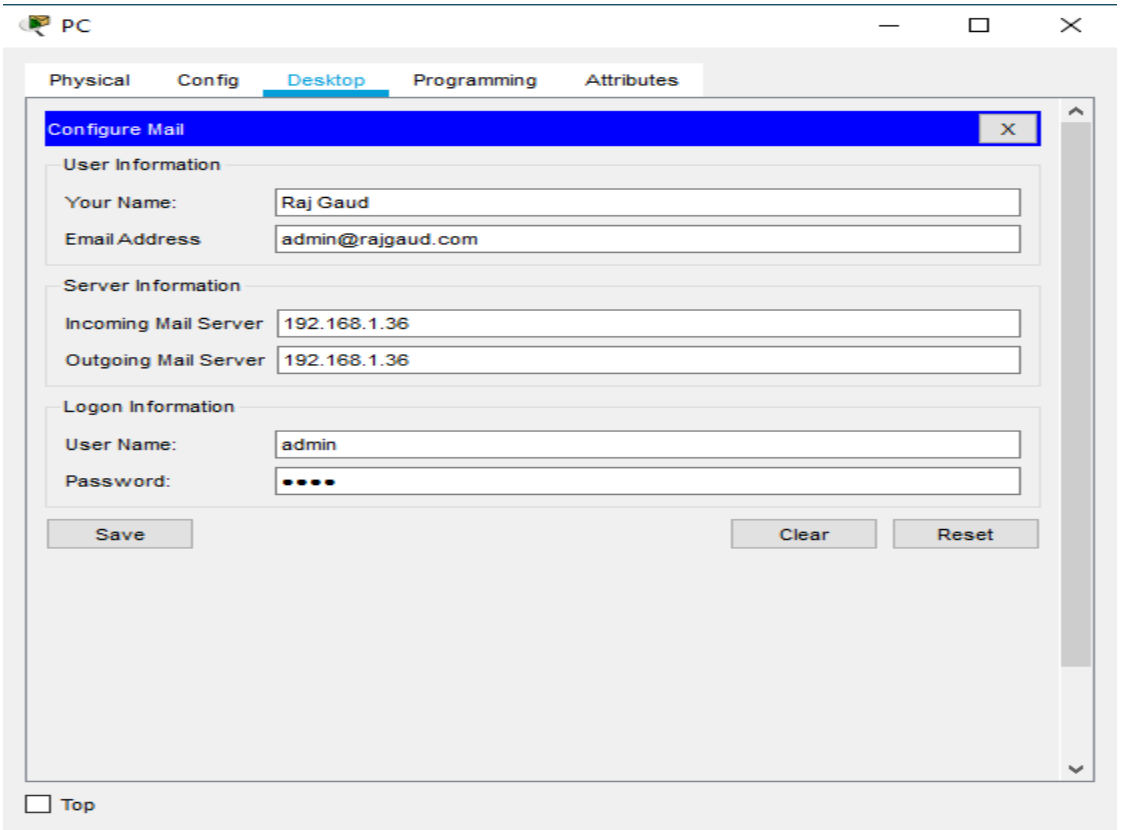



```
Router>en
Router#
Router#
Router#copy running-config tftp
Address or name of remote host []? 192.168.1.35
Destination filename [Router-confg]? backup.cfg

Writing running-config...!!
[OK - 1103 bytes]

1103 bytes copied in 0.001 secs (1103000 bytes/sec)
Router#
```

6. Email Server (192.168.1.36)



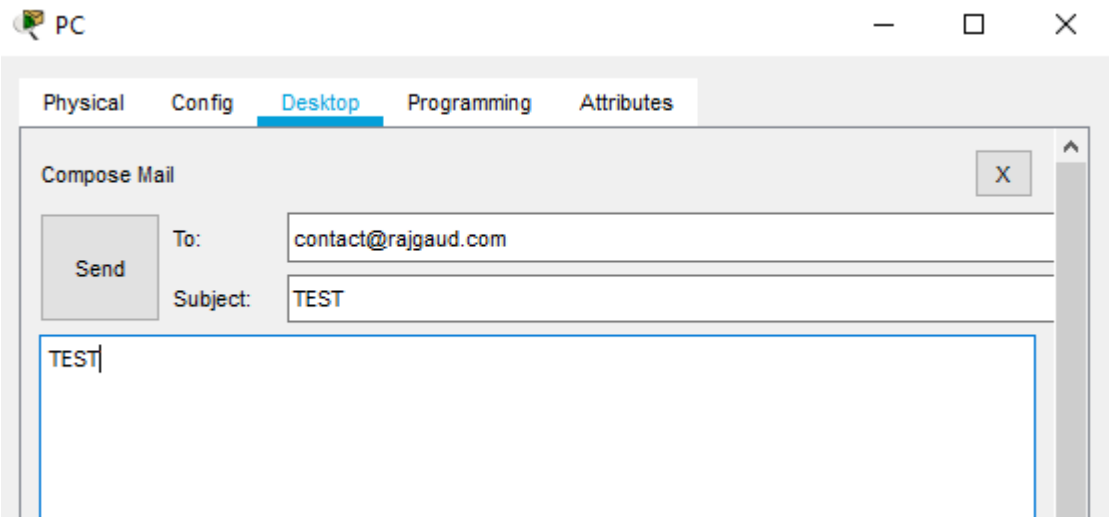
Configured Email Server > PC > Desktop > EMAIL > Configure Mail



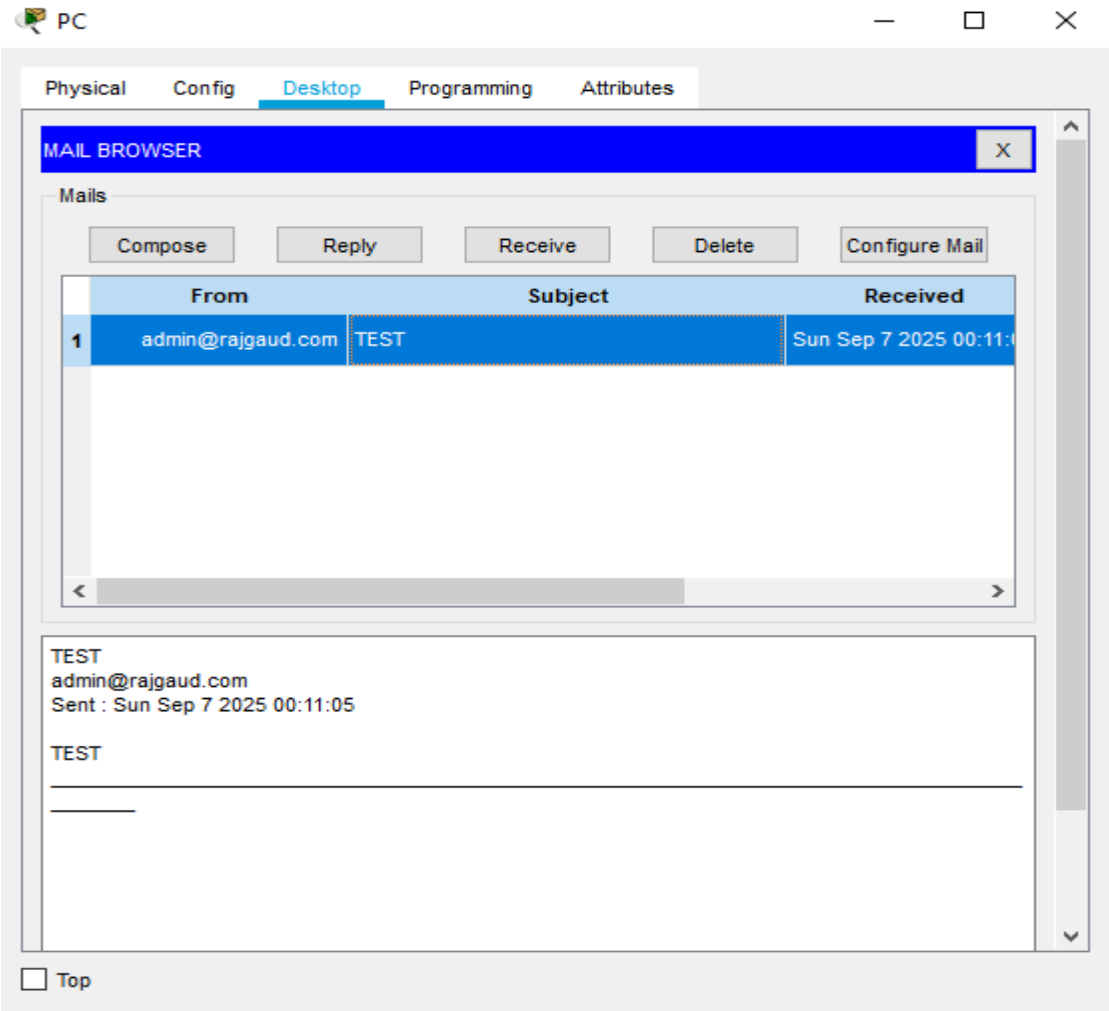
Purpose: Hosts and manages email accounts for clients on the network.

Verify:

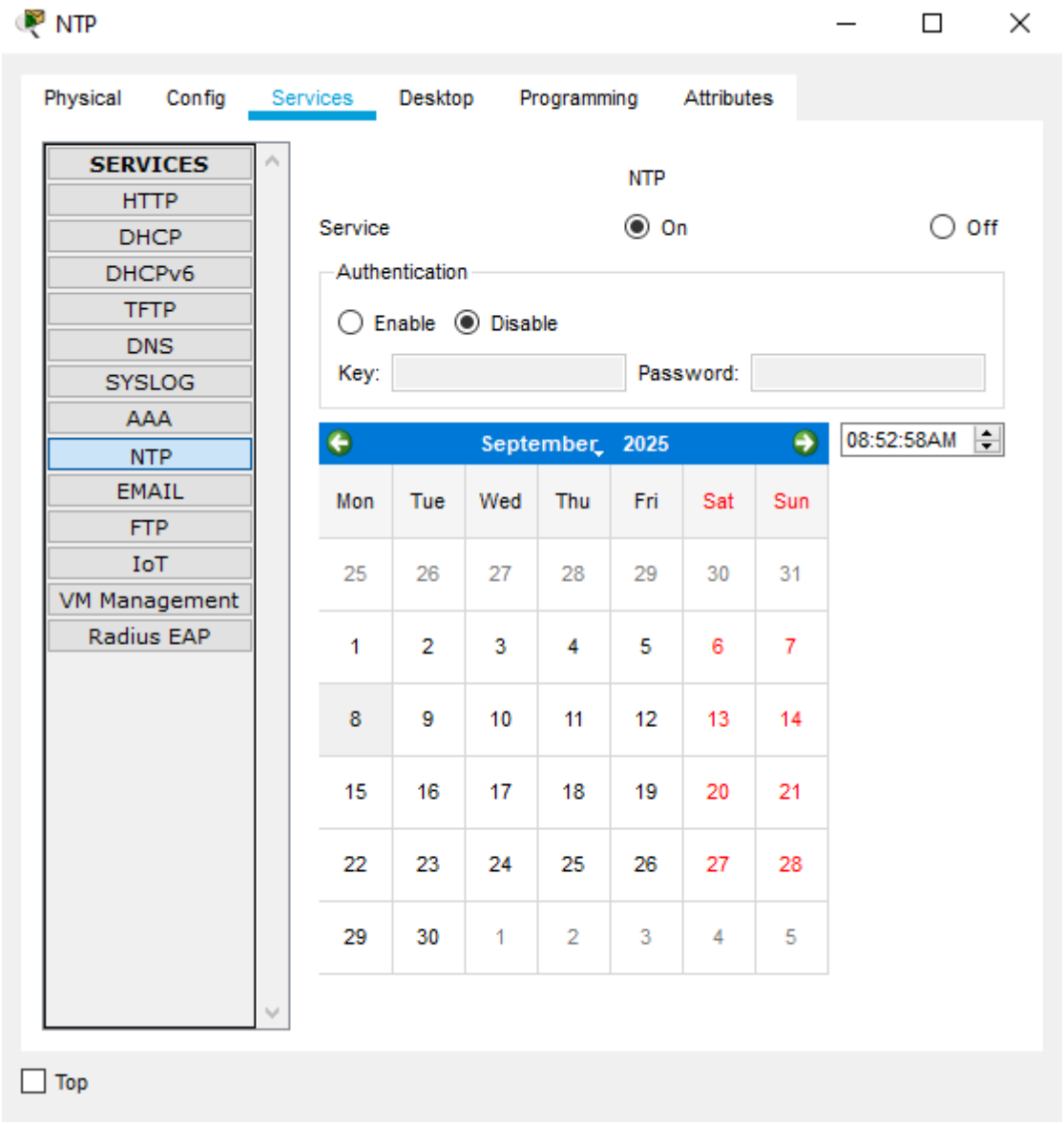
Sent from admin@rajgaud.com to contact@rajgaud.com



Email successfully received at contact@rajgaud.com



7. NTP Server (192.168.1.37)



Purpose: Synchronizes the time across all network devices, which is crucial for logging and time-sensitive operations.

Verify:

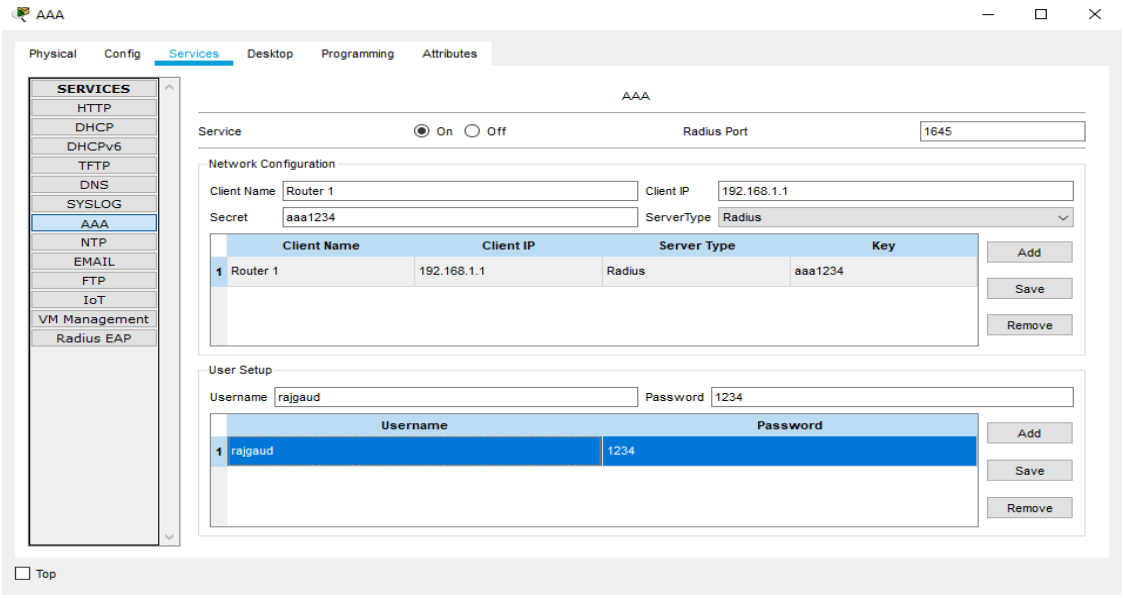
1. Configure NTP Client:

```
Router>en
Router#conf t
Router(config)#ntp server 192.168.1.37
```

2. Verify Synchronization:

```
Router#show ntp status
Router#show clock
```

8. AAA Server (192.168.1.38)

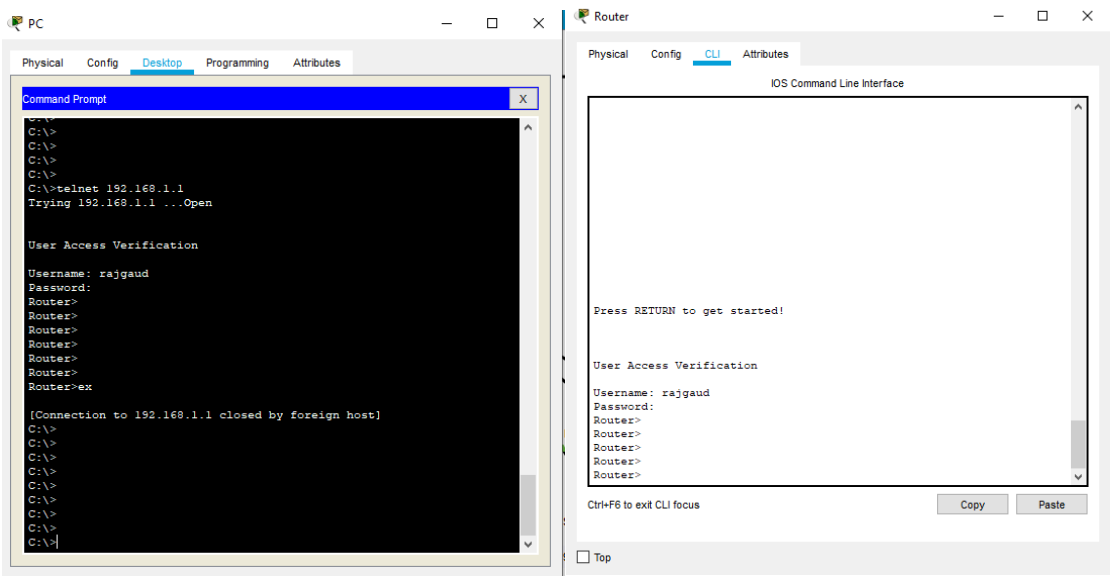


Config AAA on Router:

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#aaa new-model
Router(config)#radius-server host 192.168.1.38 key aaa1234
Router(config)#aaa authentication login default group radius local
Router(config)#line vty 0 4
Router(config-line)#login authentication default
Router(config-line)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

Purpose: Provides Authentication, Authorization, and Accounting services for secure network access.

Verify:



Conclusion

This project successfully demonstrates the integrated configuration of various server services within a single enterprise network topology. By setting up dedicated servers for DNS, HTTP, DHCP, DHCPv6, Syslog, FTP, Email, NTP, and AAA, I have built a strong and functional network environment. This setup not only proves that each service works properly on its own but also shows how they come together to support a secure, efficient, and well-managed network. The successful testing of features like dynamic IP assignment, time synchronization, and file transfers further confirms the practical use of these key networking concepts.

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