Key features

1. Router:

connects different networks such as LAN to the internet or to other LANs

2. Dynamic Host Configuration Protocol (DHCP):

automatically assigns IP addresses and other network settings to devices on a network

3. Domain Name System (DNS):

this resolves domain name into IP addresses so that devices can locate and communicate with websites and services on the internet or internal networks.

4. Access Control List (ACLs):

this controls what traffic is allowed or denied on a network by matching specific conditions, helping to enforce security and traffic control.

Devices and Configurations

Key Devices

. Router:

Routes data and manage traffic between different networks

. Switches:

Connects devices within the same network

. Servers:

Serve DHCP, DNS and Web application services

. Endpoint Devices:

PCs and laptop

. Configuration Steps

1. Setup the Topology:

- Arrange and connect router, switches and end devices.

2. Configure Devices:

- Assign static IP addresses to DHCP,DNS and web servers, also create gateway for each interface.

3. Configure DHCP Servers:

- Define DHCP pools and scopes for each subnet.
- Bind interfaces to their respective pools.
- Enable DHCP server to assign IP addresses to end devices.

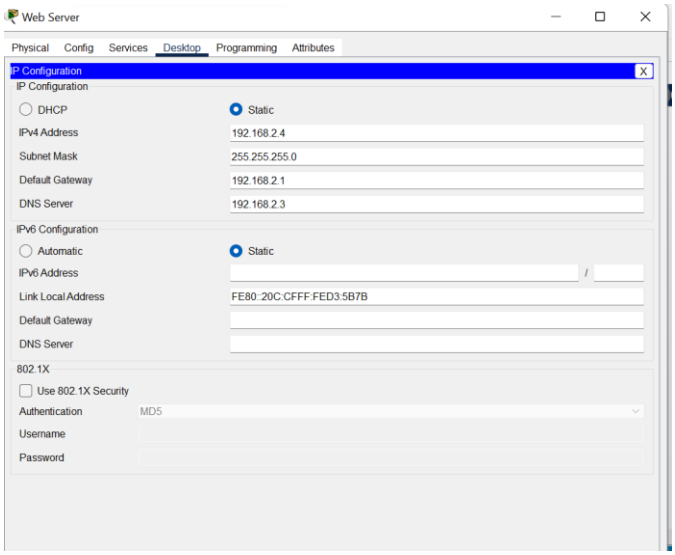
4. Apply ACLs:

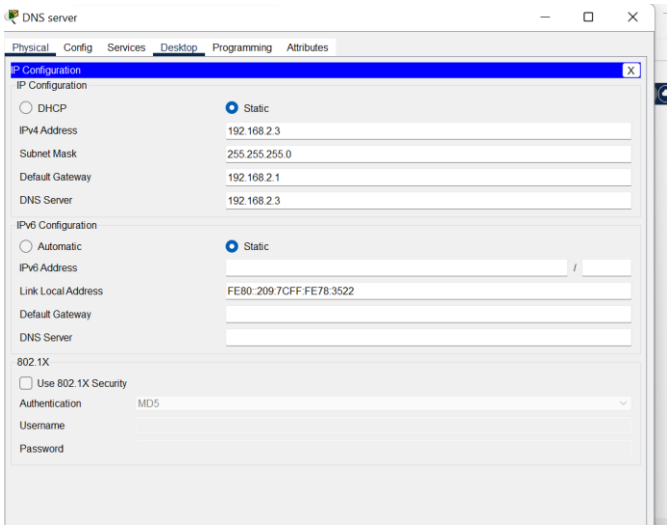
- Define access rules to permit/deny traffic as required
- Apply rules to the appropriate interfaces.

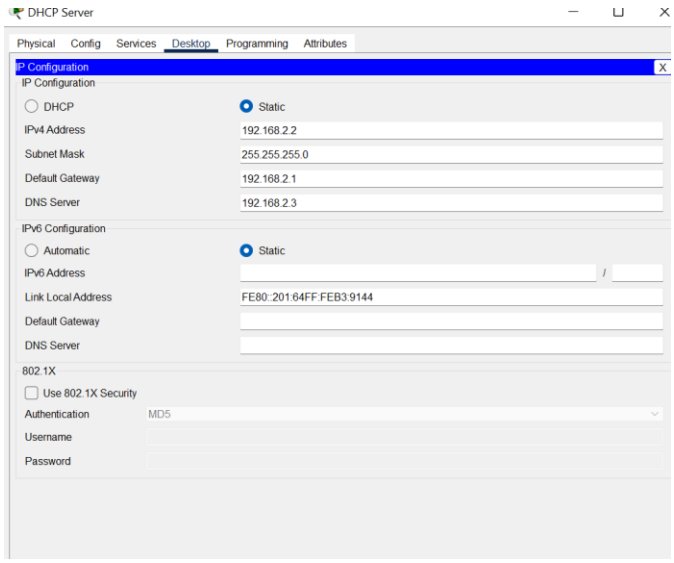
5. Test Connectivity:

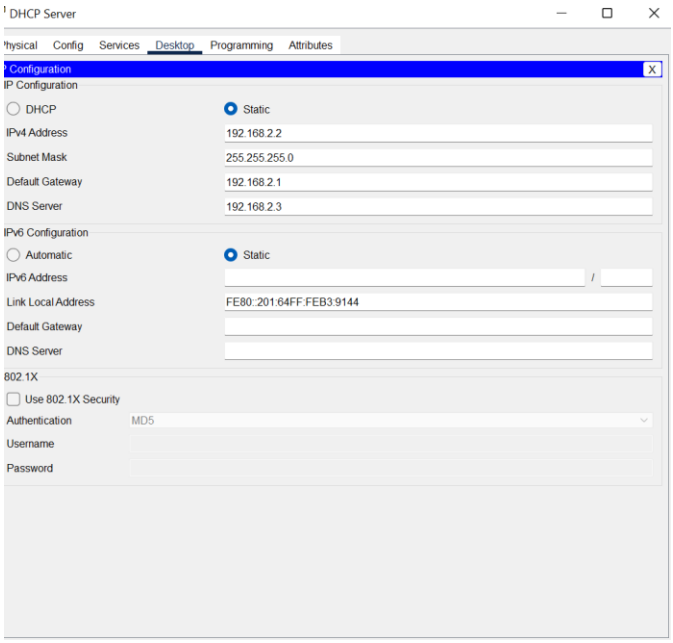
- Test in web browser:

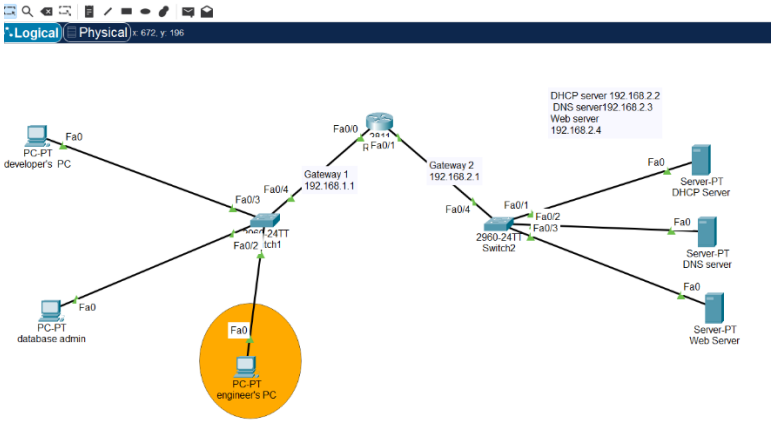
Device	Action	Result
Laptop0	Visit http:192.168.2.4	Allowed
Other PCs	Visit http:192.168.2.4	Blocked

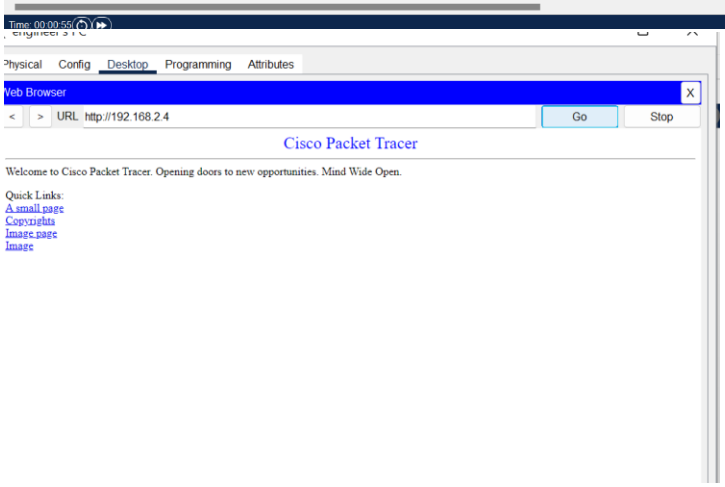

Web Server
Physical Config Services Desktop Programming Attributes
IP Configuration
IP Configuration
DHCP
Static
IPv4 Address 192.168.2.4
Subnet Mask 255.255.255.0
Default Gateway 192.168.2.1
DNS Server 192.168.2.3
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address FE80::20C:CFFF:FED3:5B7B
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication MD5
Username
Password

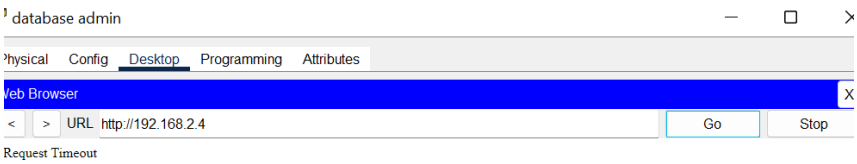

DNS server
Physical Config Services Desktop Programming Attributes
IP Configuration
IP Configuration
DHCP
Static
IPv4 Address 192.168.2.3
Subnet Mask 255.255.255.0
Default Gateway 192.168.2.1
DNS Server 192.168.2.3
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address FE80::209:7CFF:FE78:3522
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication MD5
Username
Password


DHCP Server
Physical Config Services Desktop Programming Attributes
IP Configuration
IP Configuration
DHCP
Static
IPv4 Address 192.168.2.2
Subnet Mask 255.255.255.0
Default Gateway 192.168.2.1
DNS Server 192.168.2.3
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address FE80::201:64FF:FEB3:9144
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication MD5
Username
Password


DHCP Server
Physical Config Services Desktop Programming Attributes
Configuration
IP Configuration
DHCP
Static
IPv4 Address 192.168.2.2
Subnet Mask 255.255.255.0
Default Gateway 192.168.2.1
DNS Server 192.168.2.3
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address FE80::201:64FF:FEB3:9144
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication MD5
Username
Password


Logical
Physical
DHCP server 192.168.2.2
DNS server192.168.2.3
Web server
192.168.2.4
PC-PT developer's PC
Fa0
Fa0/0
Fa0/1
Gateway 1
192.168.1.1
Gateway 2
192.168.2.1
Fa0/3
Fa0/4
Fa0/2
Fa0/1
2960-24TT
Switch2
Server-PT DHCP Server
Server-PT DNS server
Server-PT Web Server
PC-PT database admin
PC-PT engineer's PC


Physical Config Desktop Programming Attributes
Web Browser
URL http://192.168.2.4
Go
Stop
Cisco Packet Tracer
Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.
Quick Links:
A small page
Copyrights
Image page
Image


database admin
hysical
Config
Desktop
Programming
Attributes
eb Browser
<
>
URL
http://192.168.2.4
Go
Stop
Request Timeout