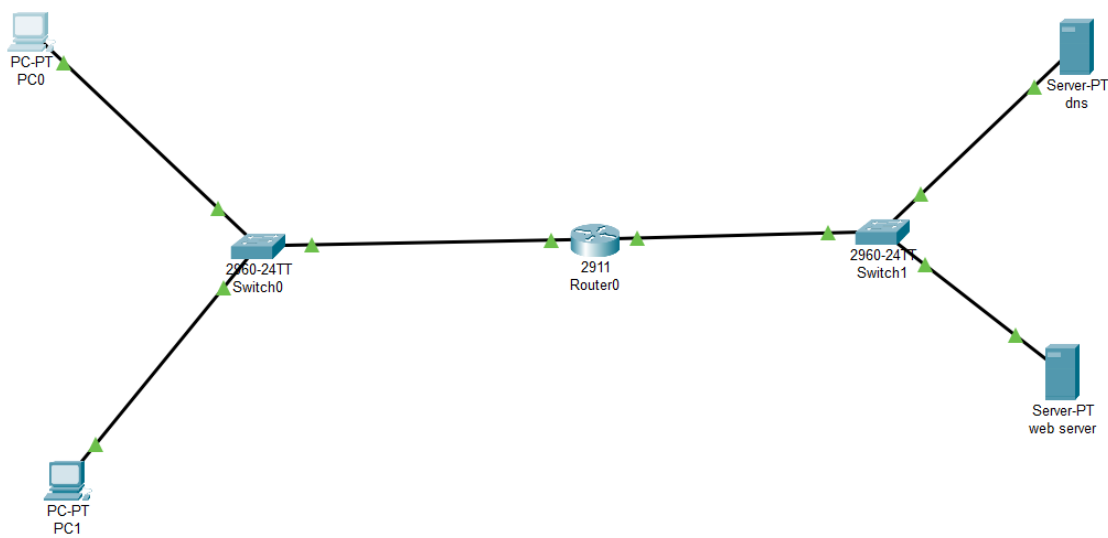


Q 1) Create the scenario using two(2) PCs, two(2) switch, and two(2) servers.

1. Configure the router
2. Configure the DNS server
3. Configure Web Server with four web pages

Ans.



Description:

In this network topology, two PCs are connected to one switch, and on the other side, two servers (a Web Server and a DNS Server) are connected to another switch. A router is placed between the two switches to enable inter-network communication, acting as a gateway between the client and server segments.

The router ensures that data packets from the PCs can reach the servers across different networks or subnets, allowing proper routing of traffic. This setup enables the PCs to access web pages hosted on the Web Server and resolve domain names via the DNS Server, even if the devices are on different networks.

PC1

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

FastEthernet0

IP Configuration

DHCP

Static

IPv4 Address

192.65.1.1

Subnet Mask

255.255.255.0

Default Gateway

192.65.1.10

DNS Server

192.65.2.1

IPv6 Configuration

Automatic

Static

IPv6 Address

/

Link Local Address

FE80::2E0:F7FF:FEB0:ED62

Default Gateway

DNS Server

802.1X

Use 802.1X Security

Authentication

MD5

Username

Password

Description:

In this step, PC1 is configured with a static IP address and DNS server address. The IP address is assigned manually according to the given IP addressing scheme, and the DNS server's IP address is also specified. This configuration enables PC1 to communicate with other devices on the network and resolve domain names through the DNS server.

This step ensures that PC1 can access services like web pages hosted on the Web Server by using domain names instead of IP addresses.

Physical

Config

Desktop

Programming

Attributes

IP Configuration

InterfaceFastEthernet0

IP Configuration

DHCP

Static

IPv4 Address

192.65.1.2

Subnet Mask

255.255.255.0

Default Gateway

192.65.1.10

DNS Server

192.65.2.1

IPv6 Configuration

Automatic

Static

IPv6 Address

Link Local Address

FE80::207:ECFF:FE60:5A18

Default Gateway

DNS Server

802.1X

Use 802.1X Security

Authentication

MD5

Username

Password

Description:

In this step, PC2 is configured with a static IP address and DNS server address. The IP address is assigned manually based on the provided IP addressing scheme, and the DNS server’s IP address is entered as well. This allows PC2 to communicate within the network and resolve domain names through the DNS server.

With this configuration, PC2 will be able to access network services such as the web pages hosted on the Web Server using domain names instead of direct IP addresses.

DNS SERVER.

dns

Physical

Config

Services

Desktop

Programming

Attributes

IP Configuration

IP Configuration

DHCP

Static

IPv4 Address

192.65.2.1

Subnet Mask

255.255.255.0

Default Gateway

192.65.2.10

DNS Server

0.0.0.0

IPv6 Configuration

Automatic

Static

IPv6 Address

/

Link Local Address

FE80::20C:CFFF:FE9D:B2C

Default Gateway

DNS Server

802.1X

Use 802.1X Security

Authentication

MD5

Username

Password

Description:

In this step, the DNS Server is configured with a static IP address, a subnet mask, and a default gateway. The IP address is assigned according to the network addressing scheme, ensuring the DNS Server can communicate within its network segment and with devices in other networks through the router.

IP Address: 192.065.2.1

Subnet Mask: 255.255.255.0

Default Gateway: 192.065.2.10

This configuration allows the DNS Server to provide domain name resolution services to the client PCs on the network. By setting the correct default gateway, the DNS Server can also communicate with devices outside its local network segment when needed.

WEB Server.

web server

Physical

Config

Services

Desktop

Programming

Attributes

IP Configuration

IP Configuration

DHCP

Static

IPv4 Address

192.65.2.2

Subnet Mask

255.255.255.0

Default Gateway

192.65.2.10

DNS Server

192.65.2.1

IPv6 Configuration

Automatic

Static

IPv6 Address

/

Link Local Address

FE80::2D0:D3FF:FE41:B73C

Default Gateway

DNS Server

802.1X

Use 802.1X Security

Authentication

MD5

Username

Password

Description:

In this step, the Web Server is configured with a static IP address, a subnet mask, and a default gateway. The IP address is assigned based on the given network addressing plan to ensure proper communication within the network and across different segments through the router.

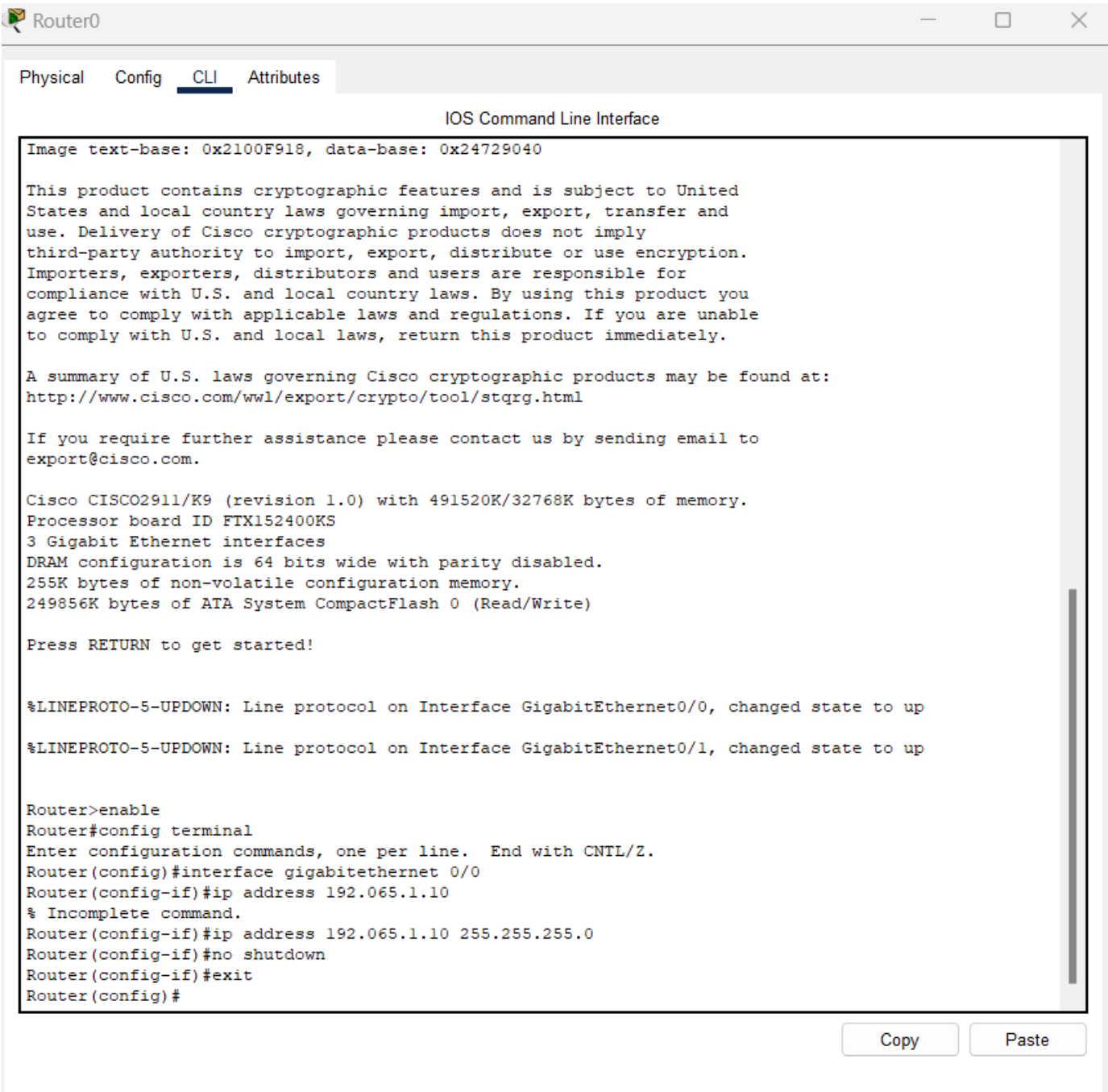
IP Address: 192.065.2.2

Subnet Mask: 255.255.255.0

Default Gateway: 192.065.2.10

With this configuration, the Web Server can host web pages and make them accessible to client PCs across the network. The default gateway setting allows the server to send and receive data beyond its local network segment by routing traffic through the connected router.

ROUTER.



Description:

In this step, the router is configured using the Command Line Interface (CLI) to enable communication between the two network segments — one for the PCs and another for the servers. IP addresses are assigned to the router’s interfaces connected to each switch, and the interfaces are activated.

After assigning the IP addresses, routing is configured to allow data packets to travel between the two networks.

The basic commands used in this configuration include:

enable

configure terminal — to enter global configuration mode

interface gigabitEthernet 0/0 — to select and configure a router interface

IP address 192.065.1.10 255.255.255.0— to assign an IP address to the interface

no shutdown — to activate the interface

Once both interfaces are configured and active, the router is ready to route traffic between the PC network and the server network, enabling services like web browsing and DNS queries.

DOMAIN NAME SYSTEM.

dns

PhysicalConfigServicesDesktopProgrammingAttributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

Radius EAP

DNS

DNS Service

On

Off

Resource Records

Name

Type

A Record

Address

Add

Save

Remove

No.	Name	Type	Detail
0	hamza	A Record	192.65.2.2

Description:

In this step, the DNS Server is configured to create a DNS record that maps the domain name hamza to the IP address of the Web Server. This allows client PCs to access the Web Server by typing http://hamza in their web browser instead of using the server’s IP address.

On the DNS Server, the following settings were configured:

Name: hamza

Address: 192.065.2.2

With this configuration, when a client device sends a DNS query for the name hamza, the DNS Server will respond with the corresponding IP address of the Web Server, enabling smooth and user-friendly access to the hosted web pages.

