

EXPERIMENT NO. 9

SEMESTER: V

DATE OF PERFORMANCE: 02nd October 2024

SUBJECT: CN Lab

DATE OF SUBMISSION: 11th October 2024

NAME OF THE STUDENT: Dwayne George Nixon ROLL NO.: 21

AIM	To build a simple network topology and configure it for static routing protocol using cisco packet tracer.
LEARNING OBJECTIVE	The student will use static routing for a network using CISCO packet tracer.
LEARNING OUTCOME	The student will configure the topology for static routing protocol using cisco packet tracer.
COURSE OUTCOME	CSL502.6: Design and Build a network topology using packet tracer.
PROGRAM OUTCOME	PO1,PO5,PO9,PO10,PSO1,PSO2,PSO3
BLOOM'S TAXONOMY LEVEL	Create
THEORY	<p>Cisco Packet Tracer is a cross-platform visual simulation tool designed by Cisco Systems that allows users to create network topologies and imitate modern computer networks. The software allows users to simulate the configuration of Cisco routers and switches using a simulated command line interface. Packet Tracer makes use of a drag and drop user interface, allowing users to add and remove simulated network devices as they see fit. The software is mainly focused towards Certified Cisco Network Associate Academy students as an educational tool for helping them learn fundamental CCNA concepts.</p> <p>Features of Cisco Packet Tracer</p> <ul style="list-style-type: none">· Cisco Packet Tracer supports a multi-user system that allows many users to connect various topologies across a computer network. Instructors can also build exercises for students to perform using Packet Tracer.· Supports feature expansion via additional programmes that use an API to improve Cisco Packet Tracer's capabilities in areas including curriculum and assessment delivery, gaming, accessibility, and interacting with real-world equipment.· The Enhanced Physical Mode transports you to a virtual lab where you can simulate cabling devices on a rack. Refresh key skills such as device placement (Rack & Stack), on-device power switching, device port-to-port cabling (including cable selection and management), troubleshooting, and more.

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- It can be downloaded for free through a Netacad account.
- It enables its users to simulate the configuration relating to the Cisco routers and can be accessed anywhere anytime.
- The Network Controller allows you a centralised dashboard to see the network's state, instantly discover and diagnose issues, and push configuration changes to all managed devices at once, whether you use its Web GUI or its APIs. You may also use real-world programmes on your computer to access the Network Controller and run your own infrastructure automation scripts.
- It can be accessed through unlimited devices.
- Provides an interactive and self-paced environment.

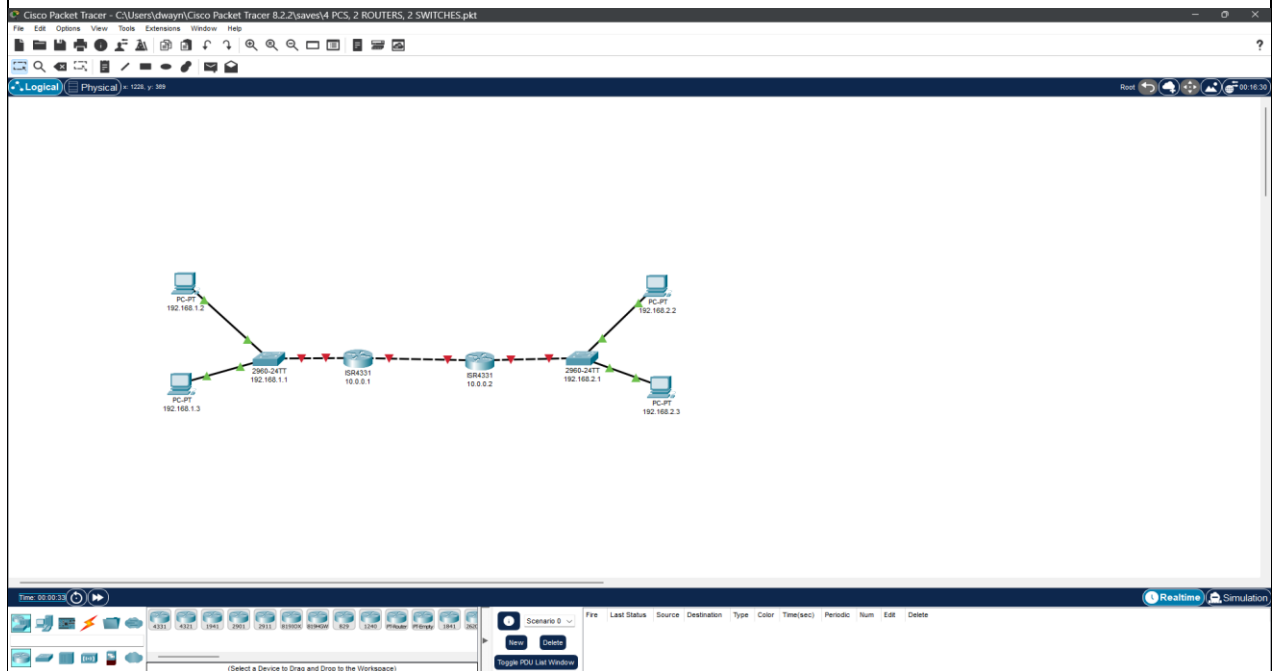
LAB EXERCISE

- Build a network scenario having 4PCs, 2 switches and 2 routers and provide static routing.
- Build topology -Bus with 5 PCs and transfer packets between two PCs using CISCO packet tracer.
- Build topology - Mesh with 5 PCs and transfer packets between two PCs using CISCO packet tracer.
- Build topology - Ring with 5 PCs and transfer packets between two PCs using CISCO packet tracer.

Append all snapshots here.

Output:

Build a network scenario having 4PCs, 2 switches and 2 routers and provide static routing.



Build topology -Bus with 5 PCs and transfer packets between two PCs using CISCO packet tracer.

The first screenshot shows a Cisco Packet Tracer workspace with a bus topology. Five PCs (192.168.1.1 to 192.168.1.5) are connected to a central bus line. Below the bus line, five 2960-24TT switches are connected to the bus at various points. The interface shows the Logical view and a toolbar with various icons.

The second screenshot shows the same topology with a Command Prompt window open on PC 192.168.1.1. The Command Prompt displays the following output:

```
C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=1ms TTL=128
Reply from 192.168.1.2: bytes=32 time=1ms TTL=128
Reply from 192.168.1.2: bytes=32 time=1ms TTL=128
Reply from 192.168.1.2: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milliseconds:
        Minimum = 0ms, Maximum = 1ms, Average = 2ms
C:\>
```

Build topology - Mesh with 5 PCs and transfer packets between two PCs using CISCO packet tracer.

The first screenshot shows a Cisco Packet Tracer workspace with a mesh topology. Five PCs are connected to five 2960-24TT switches in a fully meshed configuration. The PCs have IP addresses 192.168.1.1, 192.168.1.2, 192.168.1.3, 192.168.1.4, and 192.168.1.5. The switches are labeled 192.168.1.1 through 192.168.1.5. The interface is set to 'Logical' and 'Physical' views are visible.

The second screenshot shows the same topology with a Command Prompt window open on PC 192.168.1.3. The command prompt displays the output of a ping command to 192.168.1.1:

```
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=1ms TTL=128
Reply from 192.168.1.1: bytes=32 time=1ms TTL=128
Reply from 192.168.1.1: bytes=32 time=1ms TTL=128
Reply from 192.168.1.1: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

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Build topology - Ring with 5 PCs and transfer packets between two PCs using CISCO packet tracer.

The image displays two screenshots of the Cisco Packet Tracer interface. The top screenshot shows a network topology with five routers (2960-24TT) connected in a ring configuration. Each router is connected to a PC (192.168.1.1 to 192.168.1.5). The bottom screenshot shows the same topology with a command prompt window open on the router at 192.168.1.5. The command prompt displays the output of the 'ping' command, showing successful communication between the two PCs.

Top Screenshot: Network Topology

The network topology consists of five routers (2960-24TT) connected in a ring configuration. Each router is connected to a PC (192.168.1.1 to 192.168.1.5). The routers are labeled with their IP addresses: 192.168.1.1, 192.168.1.2, 192.168.1.3, 192.168.1.4, and 192.168.1.5.

Bottom Screenshot: Command Prompt

The command prompt window shows the output of the 'ping' command, indicating successful communication between the two PCs.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.4

Pinging 192.168.1.4 with 32 bytes of data:
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

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REFERENCES	<ul style="list-style-type: none">• B.A. Forouzan, “Data Communications and Networking”, TMH,Fourth Edition.• https://www.tutorialspoint.com/what-is-cisco-packet-tracer• Help video for static routing:https://www.youtube.com/watch?v=lmnptnqn-WI• Help video for Bus Topology:https://www.youtube.com/watch?v=A7kOCHdfYtw• Help video for Mesh Topology:https://www.youtube.com/watch?v=cXZedUwvP-A• Help video for Ring Topology:https://www.youtube.com/watch?v=8vPexT-70vA
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