

EXPERIMENT NO. 9

SEMESTER: V

DATE OF PERFORMANCE: 02nd October 2024

SUBJECT: CN Lab

DATE OF SUBMISSION: 11th October 2024

NAME OF THE STUDENT: David James Eluvathingal ROLL NO.: 22

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.

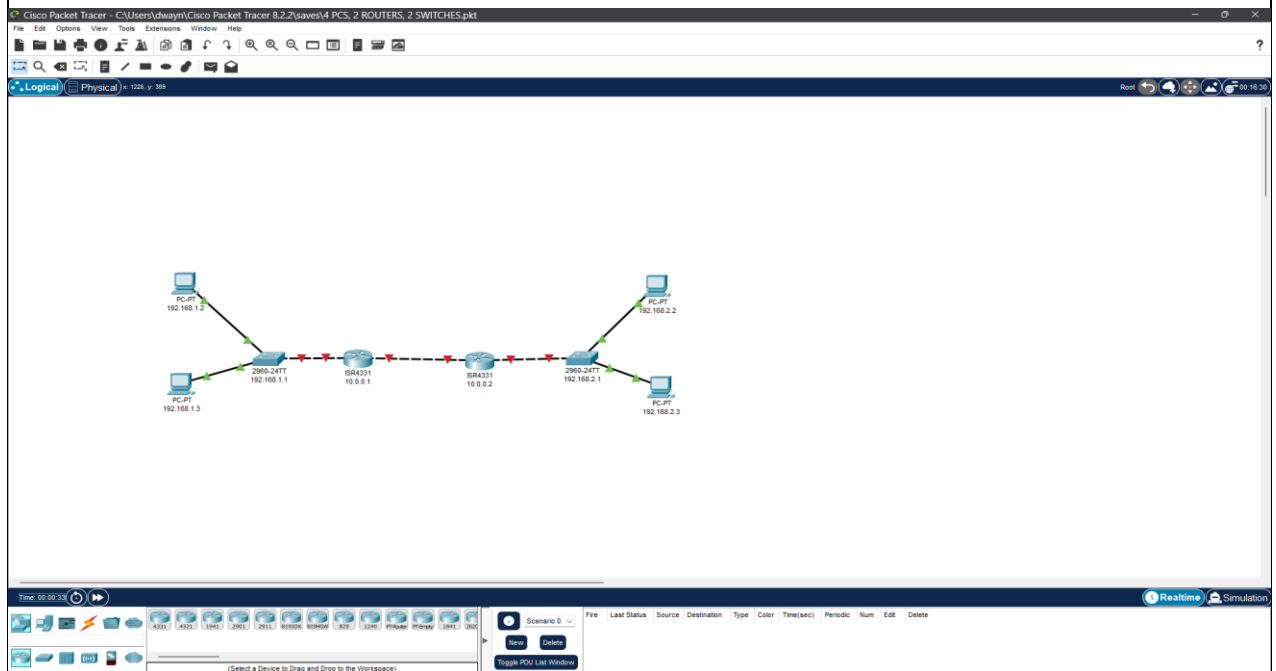
LAB EXERCISE

- 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.



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

The image displays two screenshots from the Cisco Packet Tracer 8.2.2 interface, demonstrating the setup and verification of a bus topology.

Top Screenshot: Shows the initial topology setup. Five PCs (192.168.1.1 to 192.168.1.5) are connected to a central bus line. The bus line is represented by a dashed line with a central switch (2960-24TT) and five additional switches (2960-24TT) connected to the bus line. The IP addresses for the PCs are 192.168.1.1, 192.168.1.2, 192.168.1.3, 192.168.1.4, and 192.168.1.5. The IP addresses for the switches are 192.168.1.6, 192.168.1.7, 192.168.1.8, 192.168.1.9, and 192.168.1.10.

Bottom Screenshot: Shows the same topology with a Command Prompt window open on PC 192.168.1.1. The Command Prompt displays the output of a ping command to 192.168.1.2, showing successful connectivity.

```
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:\>
```

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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 in 'Logical' view, and the simulation is running in 'Realtime' mode.

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 (PC-PT) with IP addresses 192.168.1.1 through 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 a ping command to 192.168.1.4, showing successful results with 4 packets sent, 4 received, and 0% loss.

```
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, Loss = 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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