MIT | Academy of Engineering

Lab Manual

Skill Lab – Networking (ET364)

TY BTECH

Autonomous Pattern 2019-23

Department of Electronics & Telecommunication Engineering

MIT Academy of Engineering, Alandi, Pune

Vision & Mission of MIT Academy of Engineering

&

Vision, Mission, PEOs, PO & PSO of E&TC Engg.

Vision & Mission of MIT Academy of Engineering

Vision

To develop MITAOE into a new-age learning center with an excellent ambiance for academics and research conjugated with a vibrant environment for honing the extra and curricular skills of all its stakeholders, to enable them to solve real-world problems and bring a positive change in the society.

Mission

To leave no stone unturned in our endeavor to ensure that every alumnus looks back at us and says MITAOE has not merely taught me, it has educated me.

Vision & Mission of E&TC Engineering

Vision

To develop the students towards an exemplary career in Telecommunication and its cognate disciplines, possessing a sound social awareness, sense of responsibility, and moral ethos.

Mission

- To develop the Department into a well-established education hub in the domain of Electronics & Telecommunication engineering.
- To provide students with a multi-faceted learning environment complemented by adequate engineering practice and research, preparing them to solve real-life engineering problems.
- To facilitate inclusive growth of all its student community and enabling them to be leaders of tomorrow.

Program Educational Objectives (PEOs)

The graduates of BTECH in Electronics & Telecommunication Engineering, four years after completion of their degrees, are expected:

PEO 1. To achieve a high level of technical competence in the electronics and telecommunication domain or any other associated areas, be it an Engineering Practice or Research.

PEO 2. To address real-world complex engineering problems by formulating solutions and designs that are technically sound, economically viable, practically feasible, and environmentally sustainable.

PEO 3. To aim towards career enhancement by pursuing lifelong learning and evolve as a leader in professional and personal life.

Program Outcomes (POs)

After successfully completing the BTECH program students will be able to -

PO1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2 Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3 Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4 Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5 Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO 6 The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7 Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8 Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9 Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10 Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11 Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12 Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

After successfully completing the BTECH E&TC Engg. program students will be able to –

PSO 1 Analyze and simulate diverse problems in the field of communication.

PSO 2 Design and analyze a system with applications in signal and image processing.

PSO 3 Build, test and evaluate an embedded system with real time constraints.

PSO 4 Design and implement a system towards automatic control in varied engineering problems.

MIT | Academy of Engineering AN AUTONOMOUS INSTITUTE	INDEX & CERTIFICATE	
	ACADEMIC YEAR	2021-2022
Alandi (D), Pune – 412105	SEM/TRI	VI
DEPARTMENT OF E&TC ENGG.	CLASS & BLOCK	TY

Experiment no	Title	Mapped CO	Page no	Assessment points	Remark
01	Network commands & IP address configurations.	**CO.1**			
02	Fault detection of Cable tester for of UTP-CAT5 Cross / Straight LAN cable.	**CO.1**			
03	Implementation of LAN using star topology and connectivity between two computers using cross over UTP CAT5 cable.	**CO.1**			
04	Installation and configuration of Web Server and hosting web page using HTML programming	**CO.3**			
05	Configure network topology using packet tracer.	**CO.2**			
06	Configure network using Application layer protocols (DNS, HTTP, DHCP)	**CO.3**			
07	Configuration of TELNET using packet tracer.	**CO.2**			
08	Configure network using Distance Vector Routing Protocol.	**CO.3**			
09	Configure network using Link State vector routing protocol.	**CO.3**			
10	Mini Project 1. Connection and configuration of a basic switch. 2. Configuration of basic router. 3. Setup an email server.	**CO.1** **CO.2** **CO.3**			

CERTIFICATE

This is to certify that Ms. Ashwini Chavan, Roll No-TETA11 has successfully completed the experiments for the course Digital Systems and Applications for academic year 2021-22.

Sign	Sign
Student	Course instructor

Expt. No. 1 **Date:12/01/2022**

Network commands & IP address configurations

Objective:

- Study of basic network command and Network configuration commands

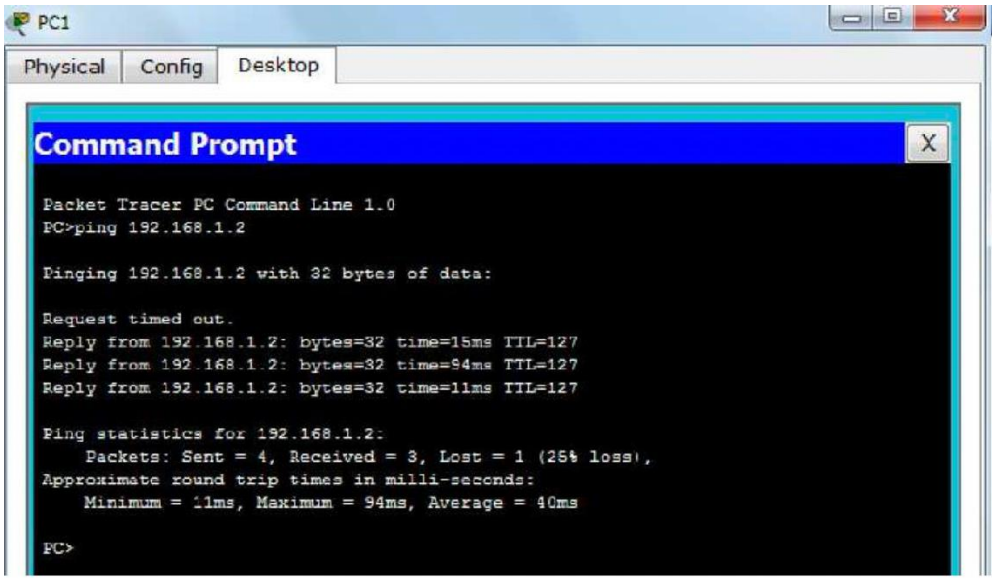
Requirements

- Command Prompt and Packet Tracer

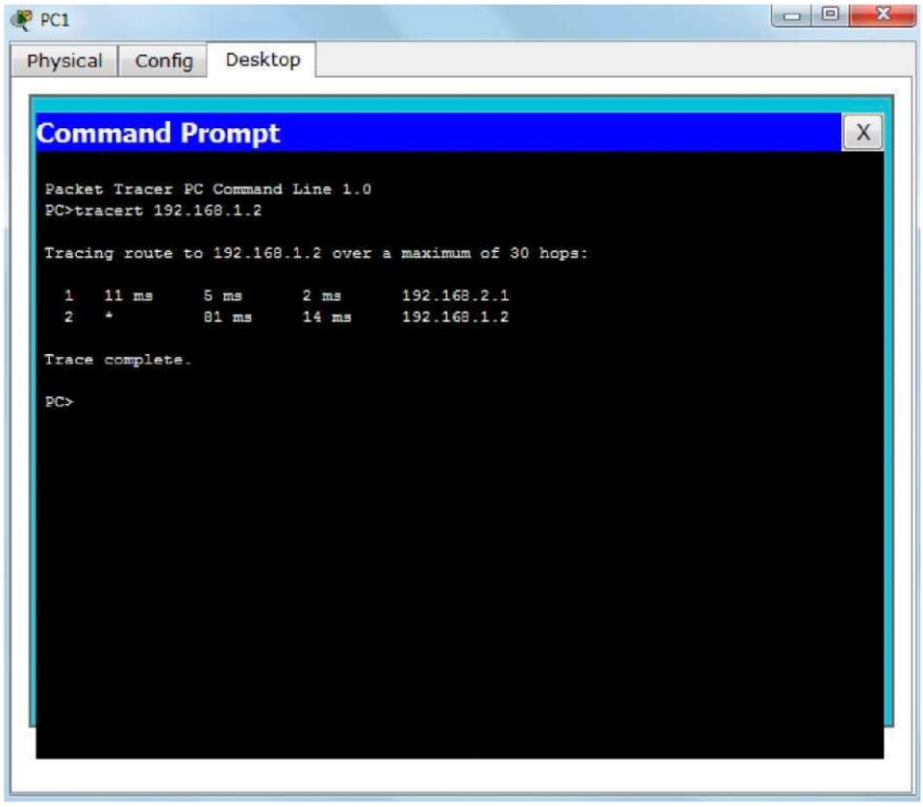
Procedure:

To do this EXPERIMENT- follows these steps:

- In this EXPERIMENT- students have to understand basic networking commands e.g., ping, tracert etc.
- All commands related to Network configuration which includes how to switch to privilege mode and normal mode and how to configure router interface and how to save this configuration to flash memory or permanent memory.
- These commands include:
- Configuring the Router commands
- General Commands to configure network
- Privileged Mode commands of a router
- Router Processes & Statistics
- IP Commands
- Other IP Commands e.g. show ip route etc.
- **Ping:**
- ping (8) sends an ICMP ECHO_REQUEST packet to the specified host. If the host responds, you get an ICMP packet back. Sound strange? Well, you can "ping" an IP address to see if a machine is alive. If there is no response, you know something is wrong.

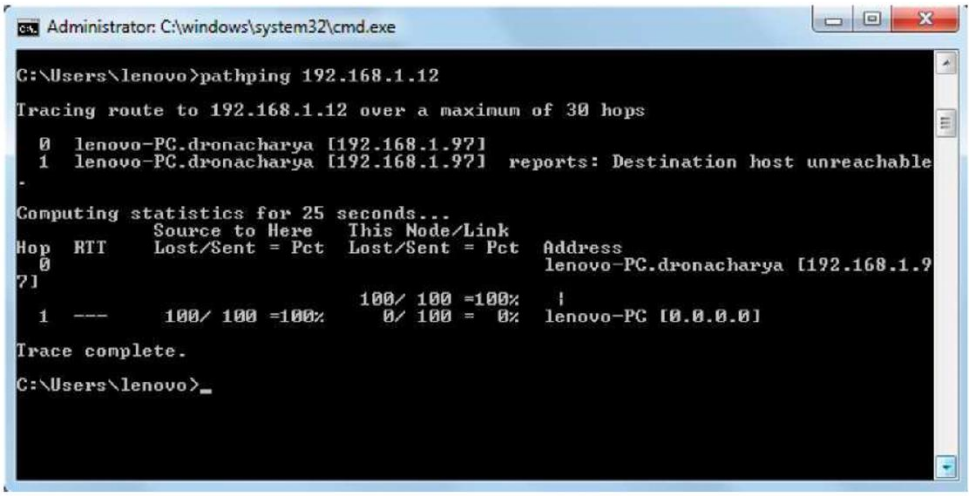


- **Traceroute:**
- Tracert is a command which can show you the path a packet of information takes from your computer to one you specify. It will list all the routers it passes through until it reaches its destination or fails to and is discarded. In addition to this, it will tell you how long each 'hop' from router to router takes.



- **nslookup:**
- Displays information from Domain Name System (DNS) name servers.
- NOTE: If you write the command as above it shows as default your pc's server name firstly.

- **pathping:**
- A better version of tracert that gives you statics about packet lost and latency.

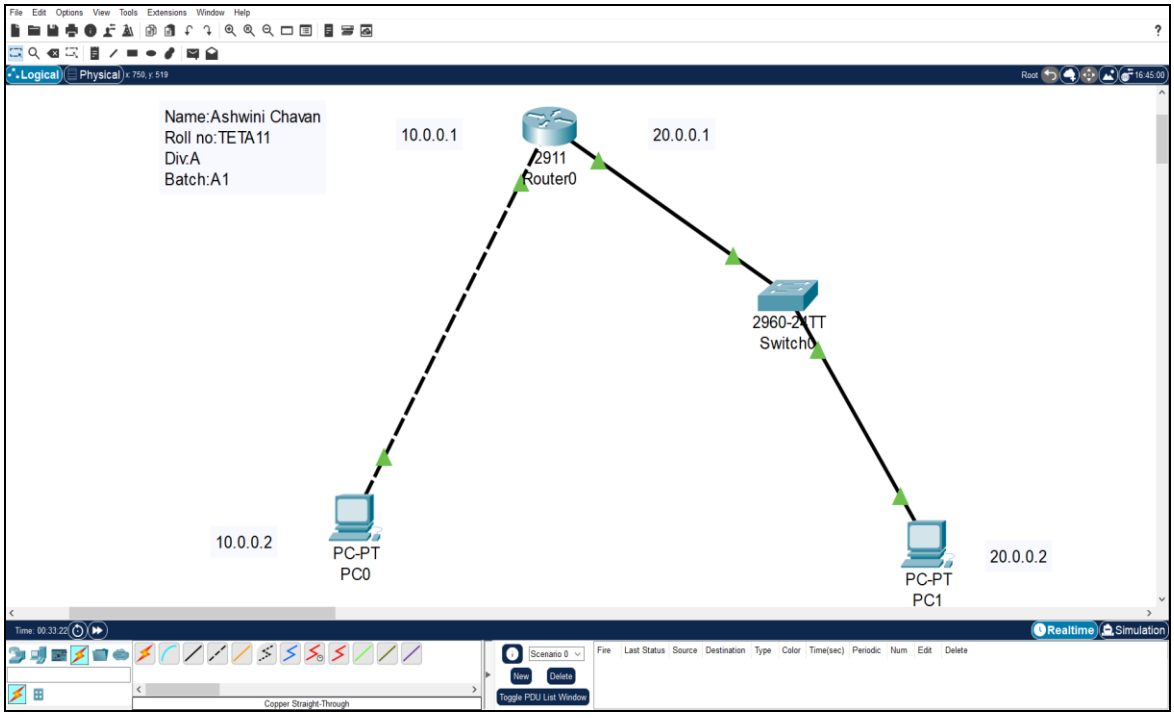


- **Getting Help**
- In any command mode, you can get a list of available commands by entering a question mark (?).
- **Router>?**
- To obtain a list of commands that begin with a particular character sequence, type in those
- characters followed immediately by the question mark (?).
- **Router#co?**
- configure connect copy
- To list keywords or arguments, enter a question mark in place of a keyword or argument.
- Include a space before the question mark.

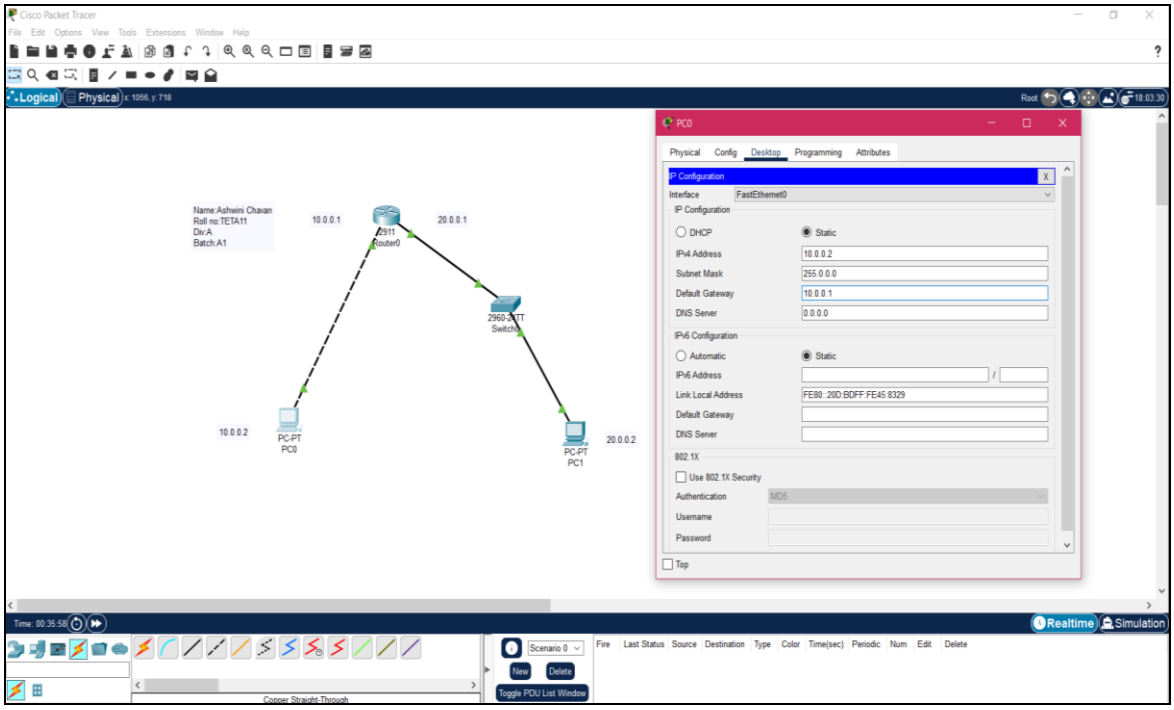
- **Router#configure ?**
- memory Configure from NV memory network Configure from a TFTP network host terminal
- Configure from the terminal
- You can also abbreviate commands and keywords by entering just enough characters to make the command unique from other commands. For example, you can abbreviate the show command to sh.
- **Configuration Files**
- Any time you make changes to the router configuration, you must save the changes to memory because if you do not they will be lost if there is a system reload or power outage. There are two types of configuration files: the running (current operating) configuration and the start-up configuration. Use the following privileged mode commands to work with configuration files.

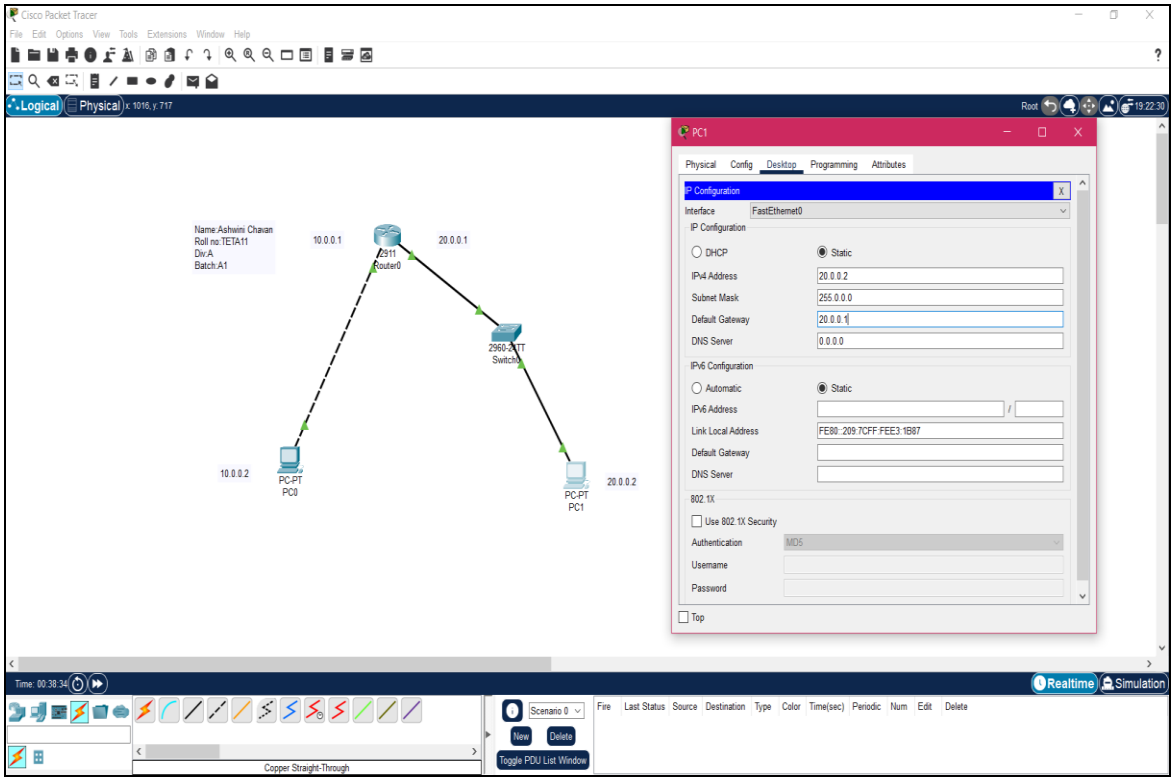
IMPLEMENTATION SNAPSHOTS:

➢ Network :

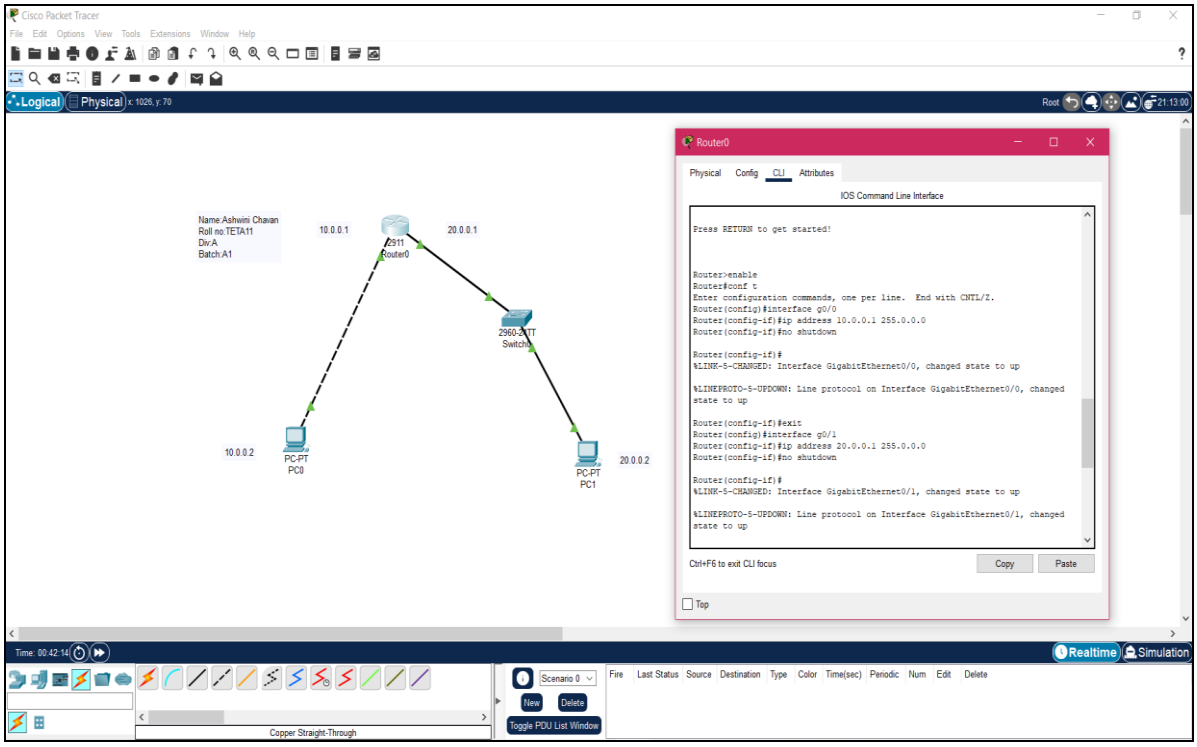


➢ Assigning the IP addresses to PCs





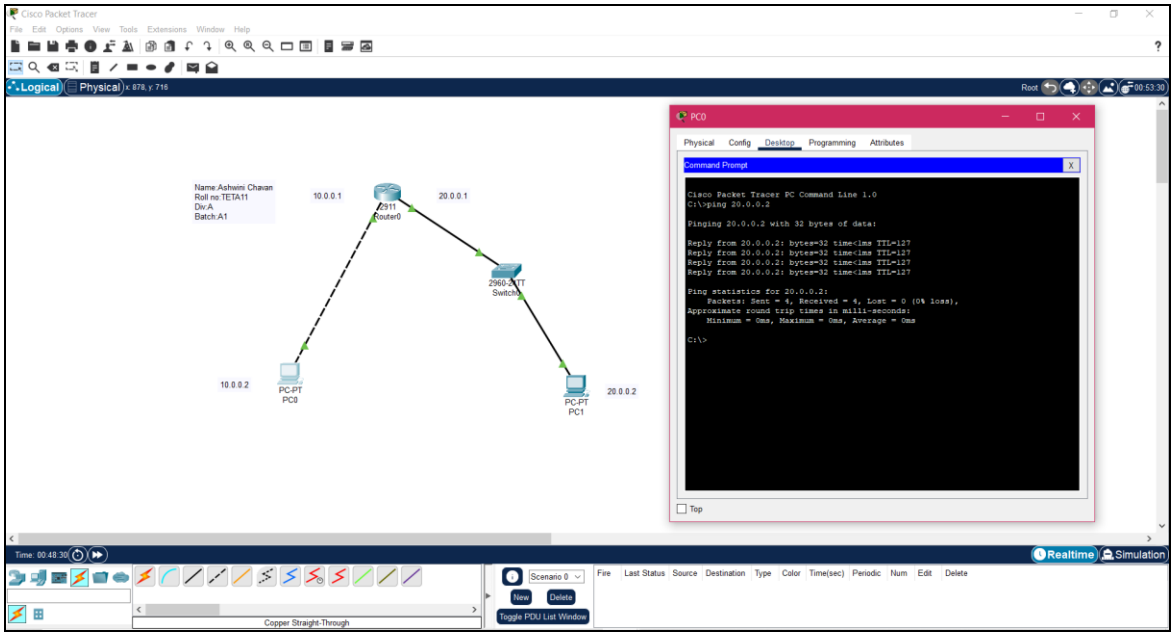
➢ Configuring the Router



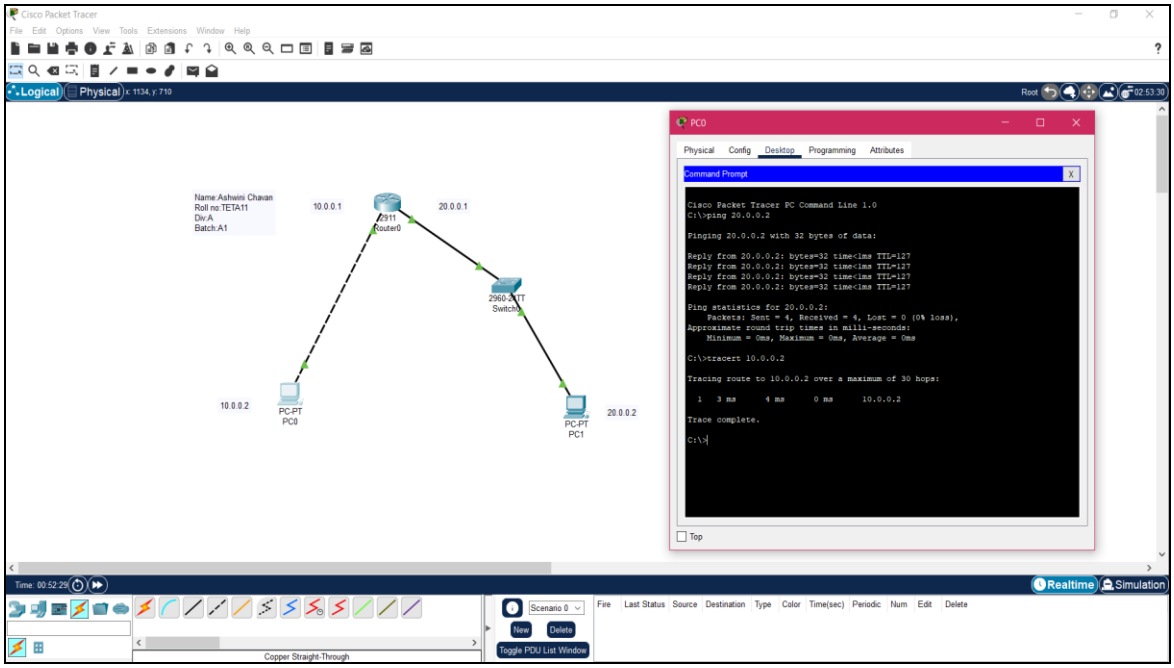
➢ IP Commands:

1. PING COMMAND

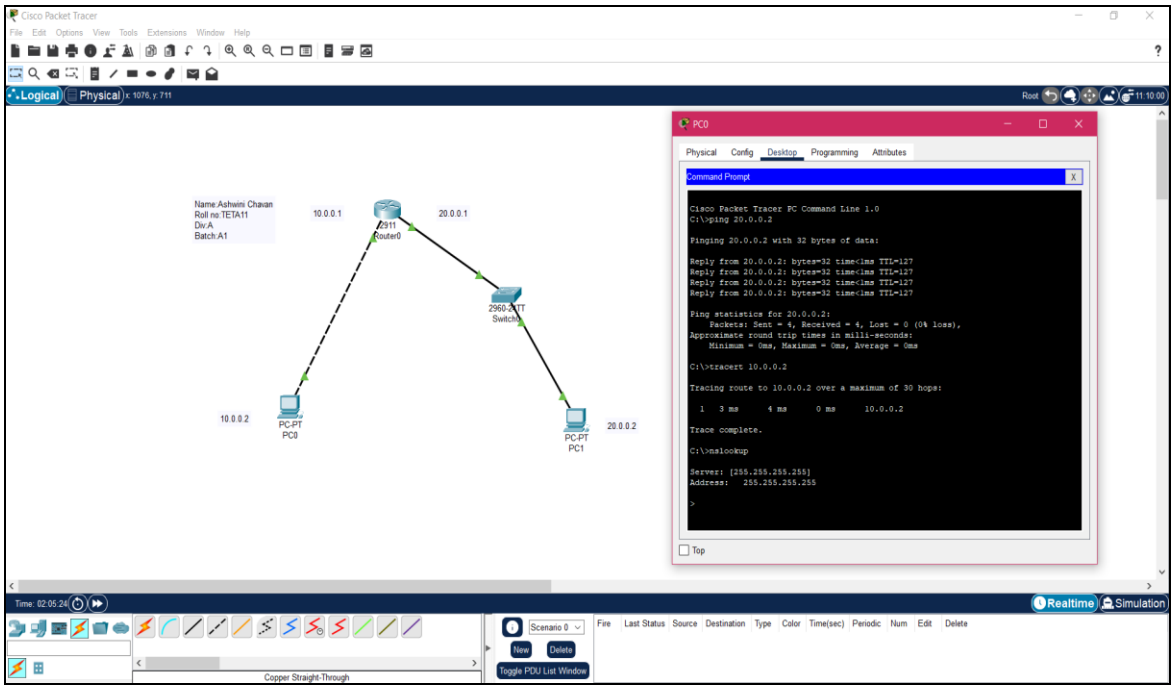
Here I am Pinging PC0 to PC1



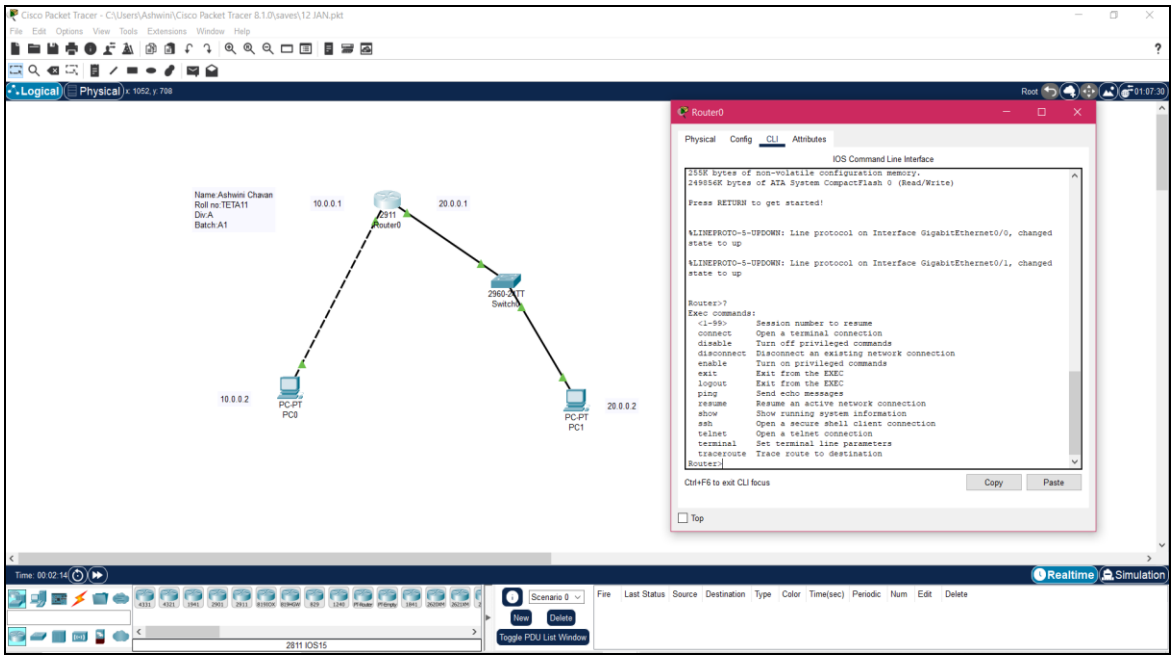
2. TRACEROUTE COMMAND



3. NSLOOKUP COMMAND



4. **ROUTER>?**



CONCLUSION:

In this experiment we learnt about the basic IP commands. We studied about Router Configuaration.Like How to Configure it and which commands to use.

We learnt to assign the IP address to the devices and pinging the devices from one to another using the Command prompt. The command output shows the number of packets sent and received, it also shows how many of them are lost.

Thus, the basics network command and Network configuration commands were studied in this experiment.

Expt. No. 2 **Date:**

Fault detection of cables using cable tester for UTP CAT 5 cross/straight LAN Cable

Objective:

- Study of different types of Network cables and practically implement the cross-wire cable and straight through cable using clamping tool.
- Fault detection of Cable tester for of UTP-CAT5 Cross / Straight LAN cable.

Requirements:

- RJ-45 connector, Clamping Tool, Twisted pair Cable, cable tester

Procedure

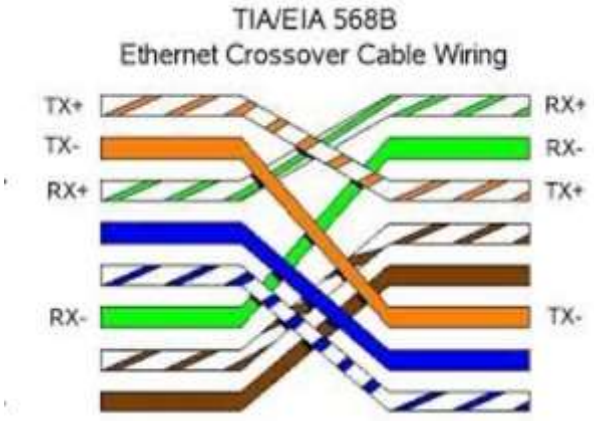
To do these practical following steps should be done:

- Start by stripping off about 2 inches of the plastic jacket off the end of the cable. Be careful at this point, as to not nick or cut into the wires, which are inside. Doing so could alter the characteristics of your cable, or even worse render is useless.
- Check the wires, one more time for nicks or cuts. If there are any, just whack the whole end off, and start over.
- Spread the wires apart but be sure to hold onto the base of the jacket with your other hand. You do not want the wires to become untwisted down inside the jacket.
- Category 5 cable must only have 1/2 of an inch of 'untwisted' wire at the end; otherwise it will be 'out of spec'. At this point, you obviously have ALOT more than 1/2 of an inch of un-twisted wire.
- You have 2 end jacks, which must be installed on your cable. If you are using a pre-made cable, with one of the ends whacked off, you only have one end to install - the crossed over end.
- Below are two diagrams, which show how you need to arrange the cables for each type of cable end. Decide at this point which end you are making and examine the associated picture below.

Diagram shows you how to prepare straight through wired connection:

Defining Ethernet LANs: Standard Names

Original IEEE	IEEE Shorthand Name	Informal Name(s)	Speed	Typical Cabling
802.3i	10BASE-T	Ethernet	10 Mbps	UTP
802.3u	100BASE-T	Fast Ethernet (Fast E)	100 Mbps	UTP
802.3z	1000BASE-X	Gigabit Ethernet (Gig E, GbE)	1000 Mbps	Fiber
802.3ab	1000BASE-T	Gigabit Ethernet (Gig E, GbE)	1000 Mbps	UTP
802.3ae	10GBASE-X	10 GbE	10 Gbps	Fiber
802.3an	10GBASE-T	10 GbE	10 Gbps	UTP
802.3ba	40GBASE-X	40GbE (40 GigE)	40 Gbps	Fiber
802.3ba	100GBASE-X	100GbE (100 GigE)	100 Gbps	Fiber



Conclusion:

UTP cables are a cheap and easy way to monitor home and SOHO LANs. However, when the monitored networks are greater in size, such as corporate networks that have large numbers of computers, professional devices that scale well are a better choice. In short, consider Network Taps if you require advanced devices capable of monitoring highspeed connections.

Expt. No. 3 **Date:**

Implementation of LAN using star topology and connectivity between two computers using cross over UTP CAT5 cable

---

Objective

- Build a small network using Windows 2003 Operating System.
- Install TCP/IP.
- Manually configure TCP/IP parameters.
- Use the IPCONFIG utility to view configured IP parameters.
- Share a folder.
- Connect to a shared folder.

Requirements

- Personal computers with Network Interface Cards connected through category5 UTP cables.
- Windows 2003 lab server 196.15.60.220.
- Windows 2003 advanced server Operating Systems installed on each computer.
- A shared folder named Sample should be created on the LABSERVER com-puter.
- Students are provided with local administrator account.

Theory

Operating System:

An operating system (OS) is software, consisting of programs and data, that runs on computers, manages computer hardware resources, and provides common services for execution of various application software. The operating system is the most important type of system software in a computer system. Without an operating system, a user cannot run an application program on their computer, unless the application program is self booting.
For hardware functions such as input and output and memory allocation, the operat- ing system acts as an intermediary between application programs and the computer hardware, although the application code is usually executed directly by the hard- ware and will frequently call the OS or be interrupted by it. Operating systems are found on almost any device that contains a computer from cellular phones and video game consoles to supercomputers and web servers. Examples of popular mod-ern operating systems are: BSD, Linux, Mac OS X, Microsoft Windows, and UNIX.

A local area network (LAN):

A local area network (LAN) is a network that connects computers and devices in a limited geographical area such as home, school, computer laboratory, office building,or closely positioned group of buildings. Each computer or device on the network is a node. Current wired LANs are most likely to be based on Ethernet technology, although new standards like ITU-T G.hn also provide a way to create a wired LAN using existing home wires (coaxial cables, phone lines and power lines).
All interconnected devices must understand the network layer (layer 3), because they are handling multiple subnets (the different colors). Those inside the library, which have only 10/100 Mbit/s Ethernet connections to the user device and a Gigabit Ethernet connection to the central router, could be called ”layer 3 switches” because they only have Ethernet interfaces and must understand IP. It would be more correctto call them access routers, where the router at the top is a distribution router that connects to the Internet and academic networks’ customer access routers.

Internet Protocol Suite:

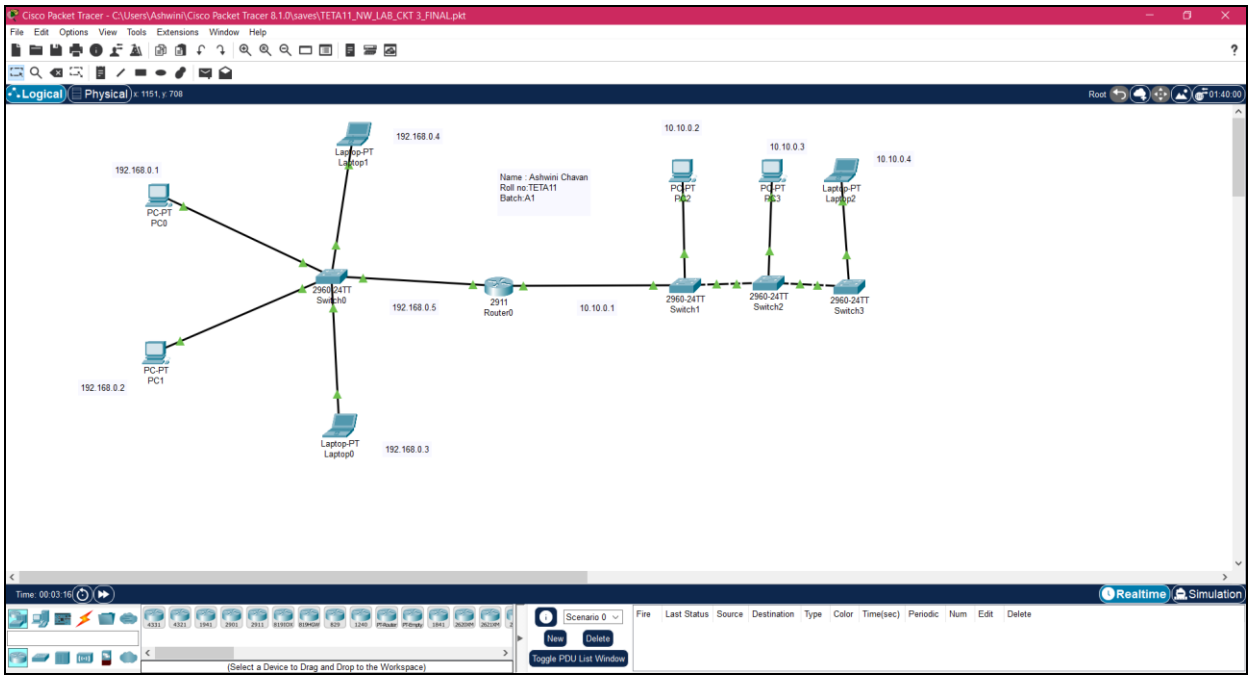
The Internet Protocol Suite is the set of communications protocols used for the In- ternet and other similar networks. It is commonly also known as TCP/IP named from two of the most important protocols in it: the Transmission Control Protocol

(TCP) and the Internet Protocol (IP), which was the first two networking protocols defined in this standard.
The Internet Protocol Suite consists of four abstraction layers. From the lowest to the highest layer, these are the Link Layer, the Internet Layer, the Transport Layer, and the Application Layer. The layers define the operational scope or reach of the protocols in each layer, reflected loosely in the layer names. Each layer hasfunctionality that solves a set of problems relevant in its scope.

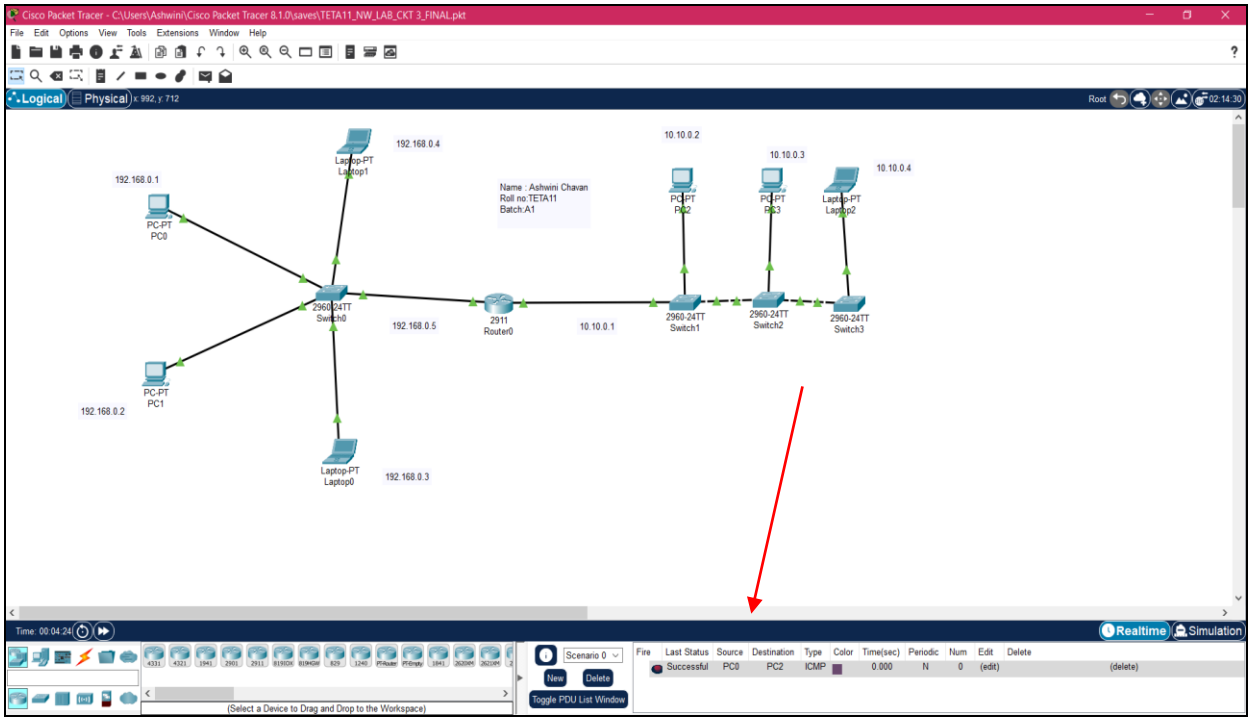
Procedure

1. Install operating system on the PC
2. Insert/Plugged a one side of cat-5 Straight-cable at the NIC port / interfaceto the computer and other side to the HUB port
3. Select network neighborhood properties
4. Select local area connection properties
5. Select Internet protocol TCP/IP properties
6. Select Static IP address
7. Configure the IP address and the Subnet mask
8. Repeat the above 5-step for others computers
9. Ping the other computer by entering the host name or IP address of othercomputer; from one computer to other computer to confirm the connectivity

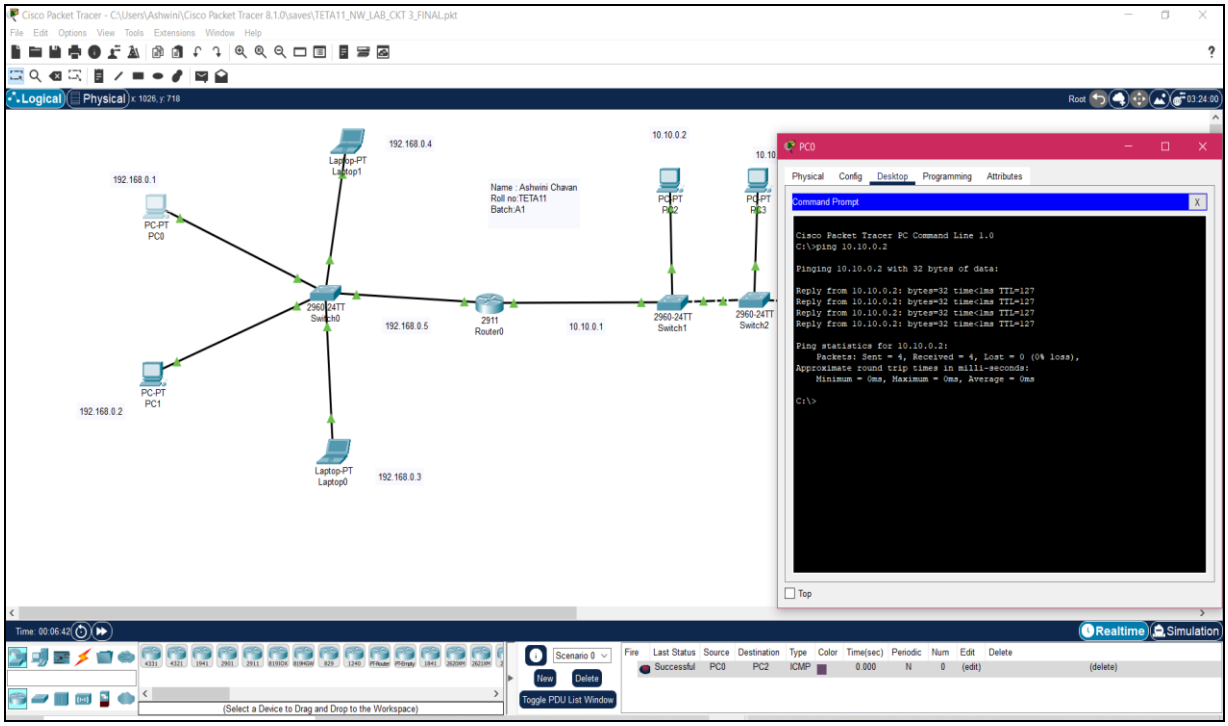
IMPLEMENTATION SNAPSHOTS



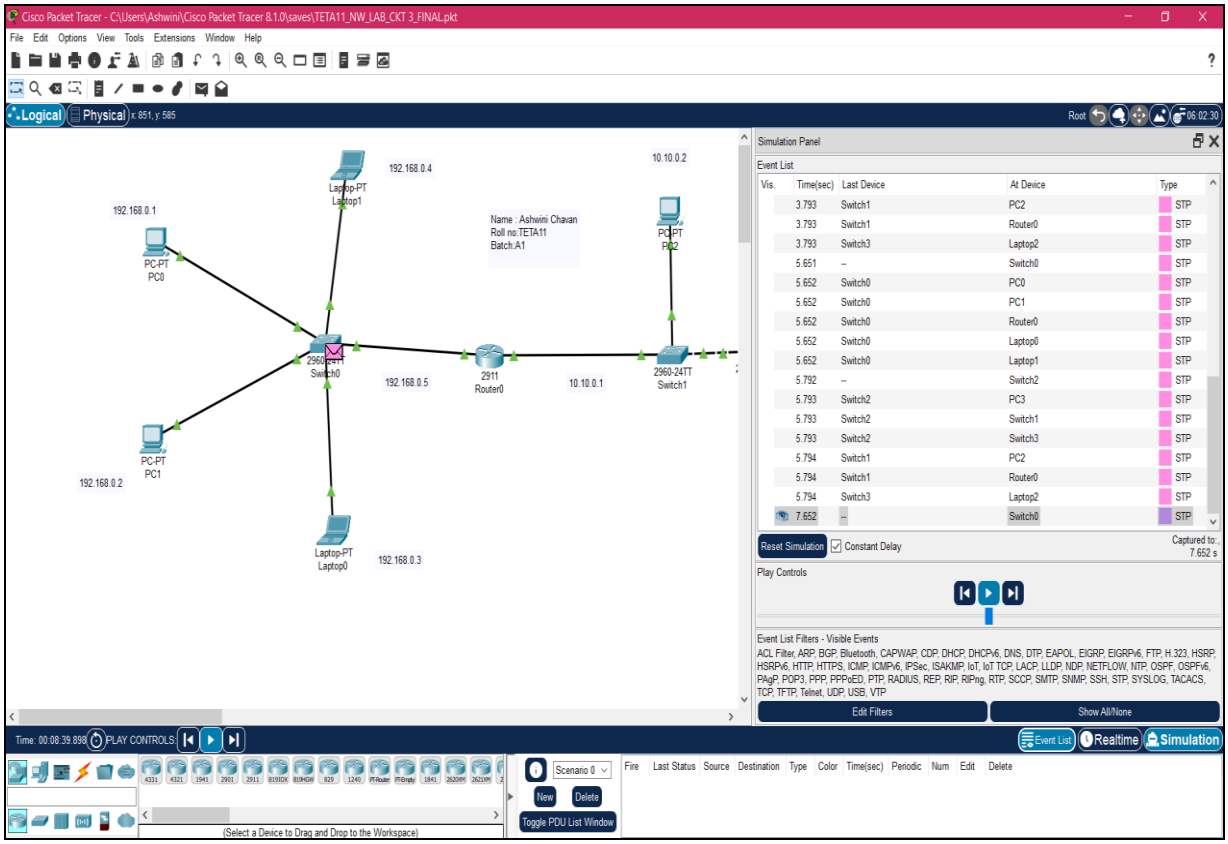
Sending message from PC0 to PC2



Ping PC0 to PC2



Simulation



Conclusions:

In this experiment we learnt to Implementation of LAN using star topology and connectivity between two computers using cross over UTP CAT5 cable A star topology is a topology for a Local Area Network (LAN) in which all nodes are individually connected to a central connection point, like a hub or a switch. A star takes more cable than e.g. a bus, but the benefit is that if a cable fails, only one node will be brought down. A Star Network Topology is best suited for smaller networks and works efficiently when there is limited number of nodes.

Expt. No. 4 **Date:**

Installation and Configuration of Web Server and hosting a page using HTML programming

Objective

- Install Microsoft Internet Information Server (IIS5) services
- Connect to a Web server
- Verifying the installed IIS5 services
- Assign multiple IP addresses to the web server

Requirements

- Computers in LAN
- Windows OS CD for IIS Installation
- Web Site Design tool (HTML, XML or Microsoft Front page, etc)

Theory

Internet Information Services (IIS):
It is a software services that support Web site creation, configuration, and man- agement, along with other Internet functions. Internet Information Services include Network News Transfer Protocol (NNTP), File Transfer Protocol (FTP), and Sim- ple Mail Transfer Protocol (SMTP).

Simple Mail Transfer Protocol (SMTP):
IT is a member of the TCP/IP suite of protocols that governs the exchange of electronic mail between message transfer agents.

File Transfer Protocol (FTP):
A member of the TCP/IP suite of protocols, used to copy files between two com- puters on the Internet. Both computers must support their respective FTP roles:

one must be an FTP client and the other an FTP server.

Network News Transfer Protocol (NNTP):
A member of the TCP/IP suite of protocols used to distribute network news mes- sages to NNTP servers and clients (newsreaders) on the Internet. NNTP is designed so that news articles are stored on a server in a central database, thus enabling a user to select specific items to read.

Procedure

1. Install Windows-OS
2. Install graphics driver file after installation of Win-OS to improve resolution
3. Install Internet Information Service (IIS)
4. Install Microsoft office, Microsoft Front page
5. Design Web site or Web page in Microsoft Front page or HTML
6. Save the Site on the location (Like C: drive or E: drive, etc)
7. Open Internet Information Service and create virtual directory and load the web page or web site on the document option and go with the furthersetting
8. Access the site through another PC by typing ”http:/IP Address File name or site name”

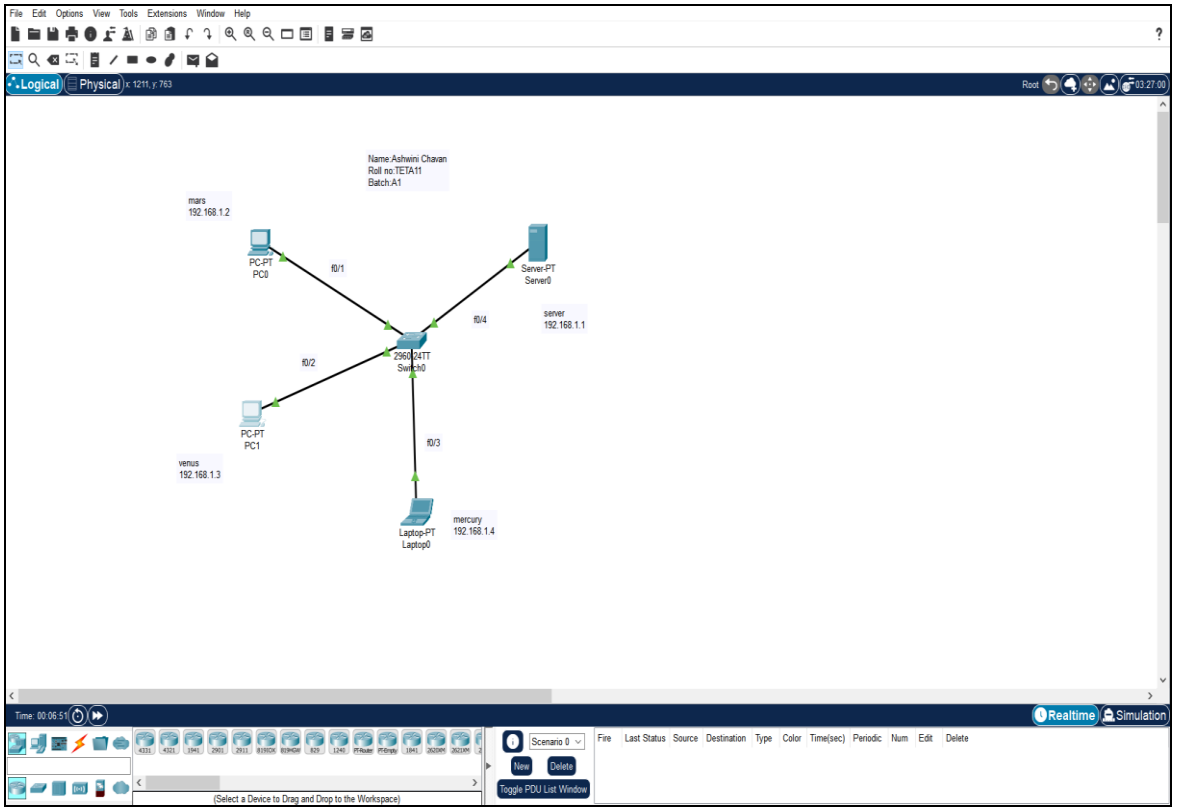
Installing IIS

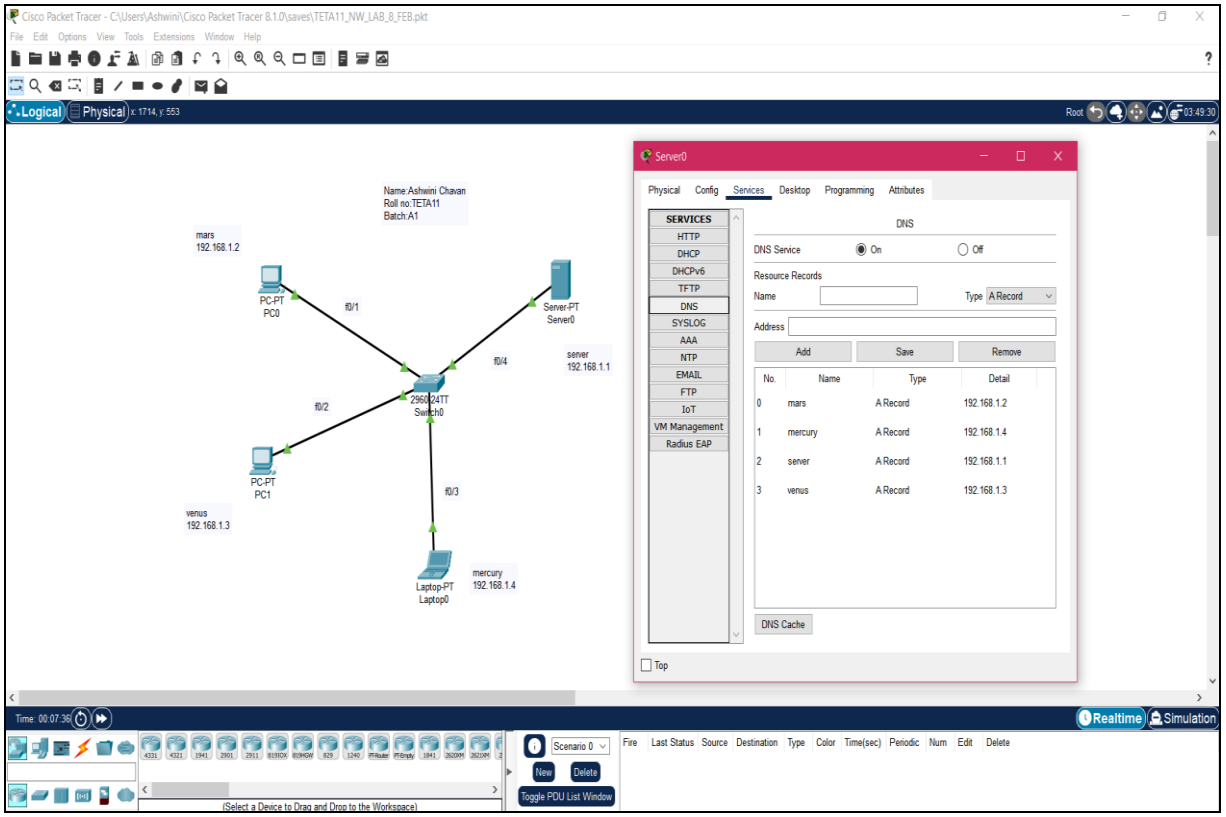
1. To install IIS, add optional windows components, or remove optional components
2. Click Start, click Control Panel, and click Add or Remove Program
3. Click Add, Remove Windows Components. The Windows Components Wizard appears
4. IIS requires that you install certain software on the computer prior to installation. Review the IIS Software Checklist below before installing IIS.

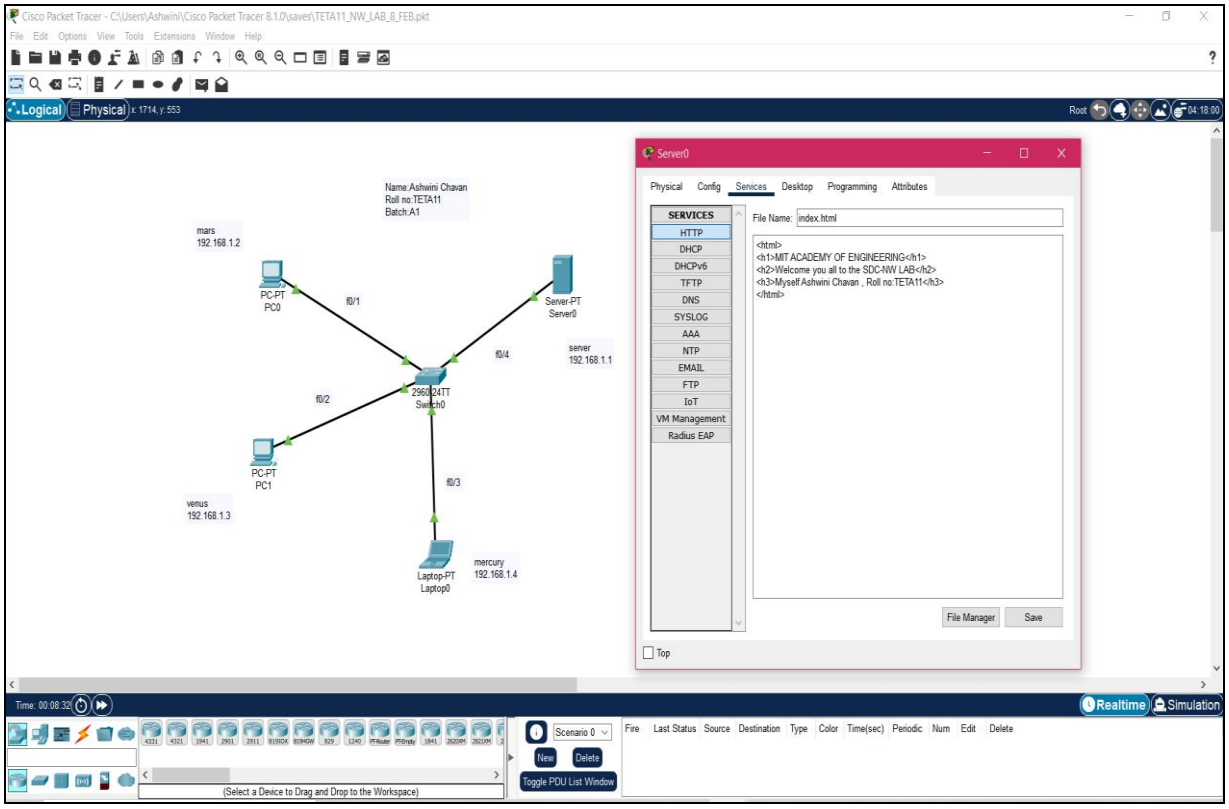
5. IIS Software Checklist
6. Before you install IIS, you need to install the Windows TCPIP Protocol

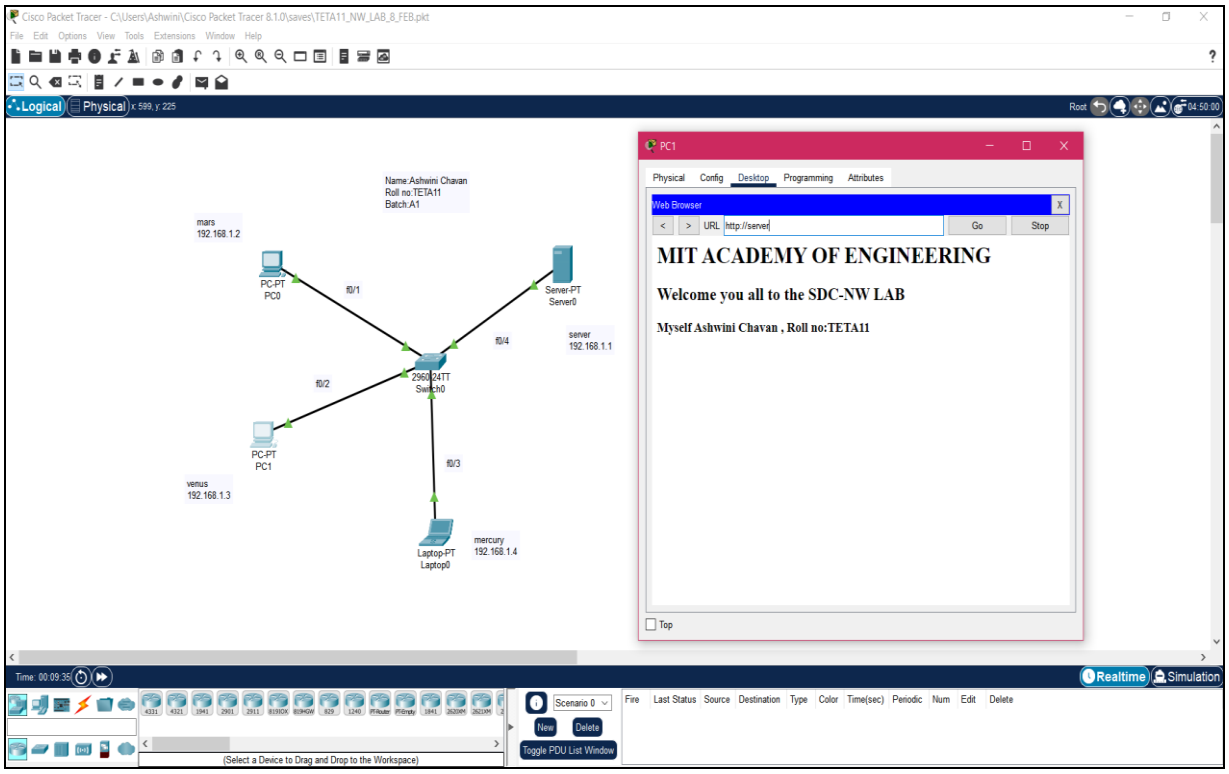
The following optional components are recommended:
During installation, IIS installs optional components like Common Files, Documentation, and the Internet Information Services snap-in. You can choose not to install the optional components; however, deselecting specific components can decrease IIS functionality or disable IIS services. If you are unfamiliar with the optional components and how they affect IIS, install IIS with the default settings. After you install IIS, you can view Installing IIS Optional Components in the IIS online documentation for more information.

IMPLEMENTATION SNAPSHOTS




Name:Ashwini Chavan
Roll no:TETA11
Batch:A1
mars
192.168.1.2
PC-PT
PC0
f0/1
Server-PT
Server0
server
192.168.1.1
f0/4
2960-24TT
Switch0
f0/2
PC-PT
PC1
f0/3
venus
192.168.1.3
Laptop-PT
Laptop0
mercury
192.168.1.4
Server0
Physical
Config
Services
Desktop
Programming
Attributes
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 mars A Record 192.168.1.2
1 mercury A Record 192.168.1.4
2 server A Record 192.168.1.1
3 venus A Record 192.168.1.3
DNS Cache
Top
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
(Select a Device to Drag and Drop to the Workspace)


Name:Ashwini Chavan
Roll no:TETA11
Batch:A1
mars
192.168.1.2
PC-PT
PC0
f0/1
Server-PT
Server0
server
192.168.1.1
f0/4
2960-24TT
Switch0
f0/2
PC-PT
PC1
f0/3
venus
192.168.1.3
Laptop-PT
Laptop0
mercury
192.168.1.4
Server0
Physical
Config
Services
Desktop
Programming
Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
File Name: index.html
<html>
<h1>MIT ACADEMY OF ENGINEERING</h1>
<h2>Welcome you all to the SDC-NW LAB</h2>
<h3>Myself Ashwini Chavan , Roll no:TETA11</h3>
</html>
File Manager
Save
Top
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
(Select a Device to Drag and Drop to the Workspace)



Conclusions

In this experiment we learnt about the Installation and Configuration of Web Server and hosting a page using HTML programming. We have used DNS for HTTP service configuration in packet tracer. In HTTP service we have edited the HTML page as shown in above figure and then we accessed it from any of web browser in the network.

Expt. No. 5 **Date:**

Configure network topology using packet tracer

Objective

- Configure network topology using packet tracer

Requirements

- Command Prompt and Packet Tracer.

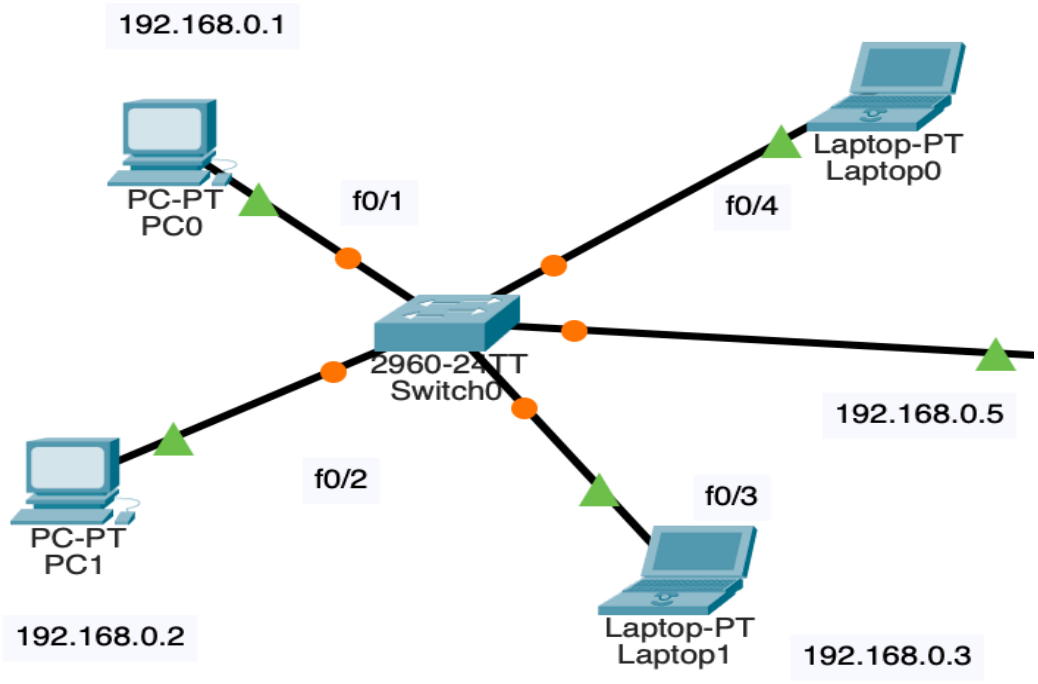
Theory:

Layers associated while configuring LAN

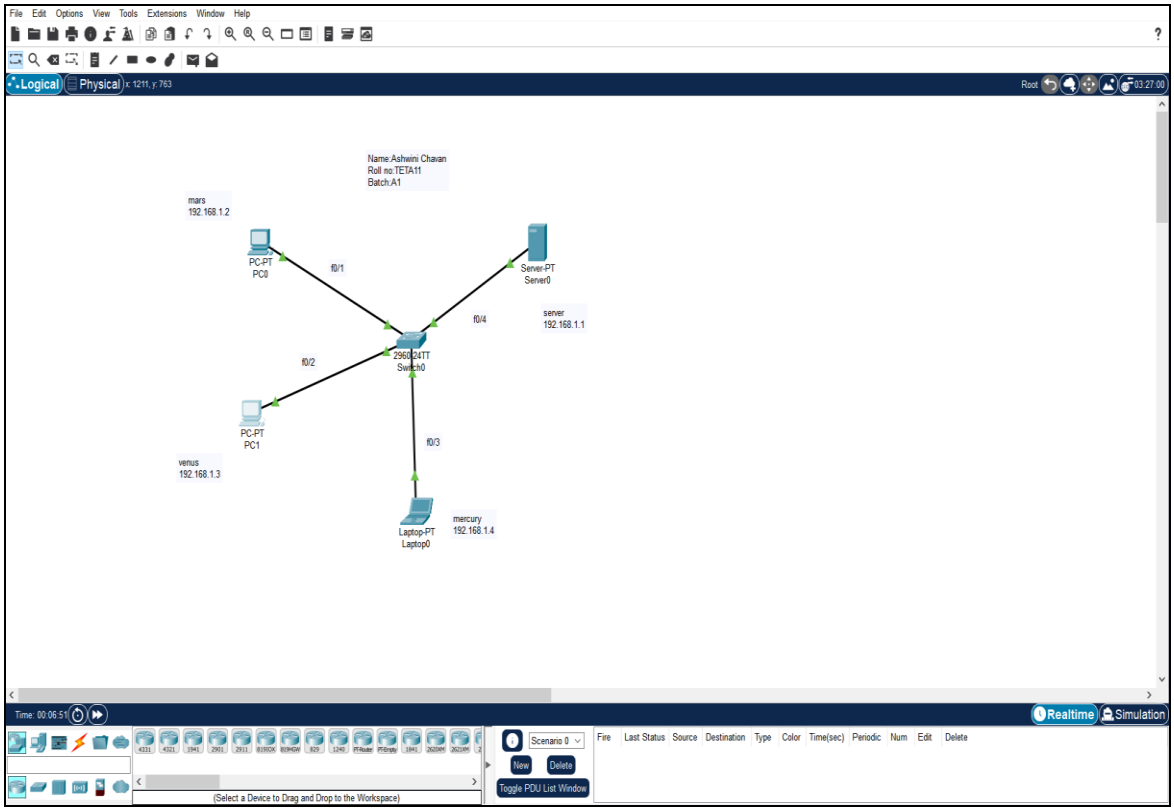
- **Physical Layer**:
- Defines physical characteristics of medium used to transfer data between devices E.g., voltage levels, maximum transmission distance, physical connectors, cable specifications
- Bits converted into electrical or radio signals
- **Data Link Layer**:
- Provides node- node connectivity and data transfer (PC-sw;sw-sw; sw-router; router-router)
- Defines how data is formatted for transmission over a physical medium
- Detects and corrects physical layer errors
- Layer 2 address- MAC address is involved

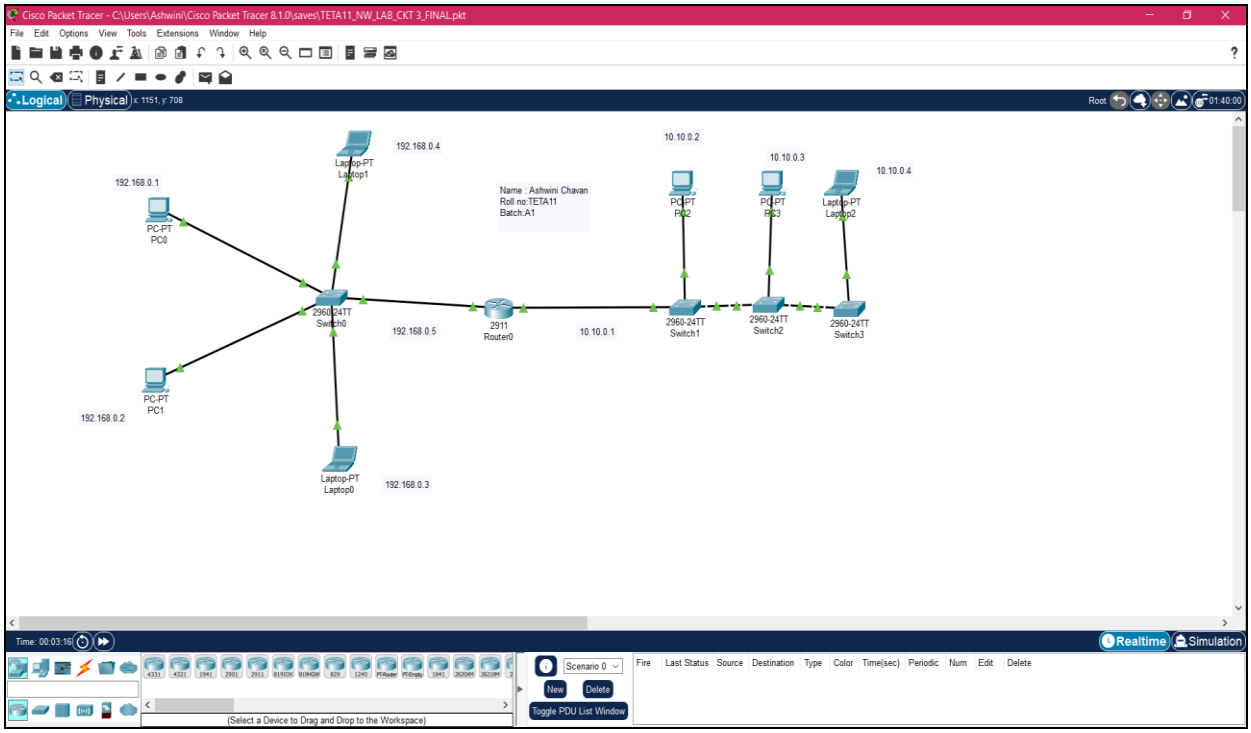
Ethernet Frame Format:

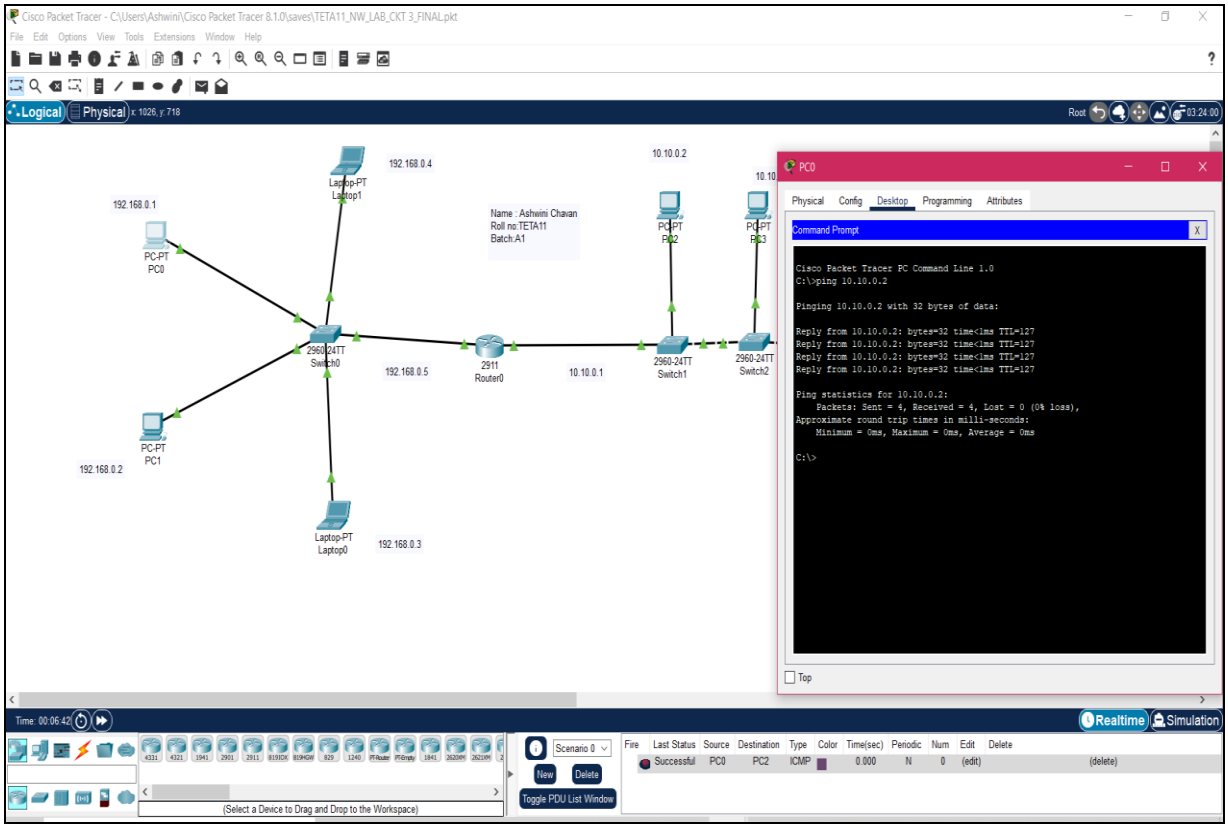
7 byte	1 byte	6 byte	6 byte	2 byte	46 to 1500 byte	4 byte
Preamble	Start Frame Delimiter	Destination Address	Source Address	Length	Data	Frame Check Sequence (CRC)



IMPLEMENTATION SNAPSHOPTS:




Cisco Packet Tracer - C:\Users\Ashwini\Cisco Packet Tracer 8.1.0\saves\TETA11_NW_LAB_CKT 3_FINAL.pkt
Logical
Physical
Root
192.168.0.4
10.10.0.2
10.10.0.3
10.10.0.4
192.168.0.1
Name : Ashwini Chavan
Roll no:TETA11
Batch:A1
PC-PT PC0
Laptop-PT Laptop1
PC-PT PC2
PC-PT PC3
Laptop-PT Laptop2
2960-24TT Switch0
2911 Router0
2960-24TT Switch1
2960-24TT Switch2
2960-24TT Switch3
192.168.0.5
10.10.0.1
PC-PT PC1
192.168.0.2
Laptop-PT Laptop0
192.168.0.3
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
(Select a Device to Drag and Drop to the Workspace)
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete


Cisco Packet Tracer - C:\Users\Ashwini\Cisco Packet Tracer 8.1.0\saves\TETA11_NW_LAB_CKT 3_FINAL.pkt
Logical
Physical
Root
192.168.0.4
10.10.0.2
192.168.0.1
Name : Ashwini Chavan
Roll no:TETA11
Batch:A1
PC0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.10.0.2
Pinging 10.10.0.2 with 32 bytes of data:
Reply from 10.10.0.2: bytes=32 time<1ms TTL=127
Reply from 10.10.0.2: bytes=32 time<1ms TTL=127
Reply from 10.10.0.2: bytes=32 time<1ms TTL=127
Reply from 10.10.0.2: bytes=32 time<1ms TTL=127
Ping statistics for 10.10.0.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>
Top
PC-PT PC0
Laptop-PT Laptop1
PC-PT PC2
PC-PT PC3
2960-24TT Switch0
2911 Router0
2960-24TT Switch1
2960-24TT Switch2
192.168.0.5
10.10.0.1
PC-PT PC1
192.168.0.2
Laptop-PT Laptop0
192.168.0.3
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
(Select a Device to Drag and Drop to the Workspace)
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
Successful
PC0
PC2
ICMP
0.000
N
0
(edit)
(delete)

Conclusion

In this experiment we learnt to Configure network topology using packet tracer. Your network's configuration, or topology, will affect its function and performance, so selecting the right topology for your organization is crucial. By choosing the topology best suited for your organization, its resources, and its needs, you can reduce operational costs, improve performance, and optimize resource allocation. Using diagrams to understand your organization's logical and physical network topologies will enable you to visualize how your network's devices connect, helping you troubleshoot network slowdowns and connectivity issues quickly.

Expt. No. 6 **Date :**

Configure network using Application layer protocols (DNS, HTTP, DHCP)

Objective

- Determine the local host address.
- Ping to a host using his NetBIOS name.
- Configure IP address using DHCP server.
- Configure DNS service on CCNA Packet Tracer server.
- Use Domain Name Service to resolve host names into IP addresses.
- Interact with an server using HTTP protocol .

Requirements

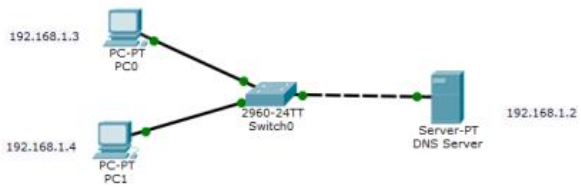
- Personal computers with Network Interface Cards connected through category 5 UTP cables.
- CCNA Packet Tracer
- Windows 2000 Network Operating System installed in each computer.
- TCP/IP protocol installed in each computer.
- Each computer should have an IP address 196.15.60.x where x is the computers number.
- Students are provided with local administrator account.
-
- The lab server server2000 (196.15.60.220) is configured as DNS server for the domain name nwlab.edu with plenty of records.
- Email server installed on Server2000 (196.1560.220).

Part A: Configure the DHCP service.

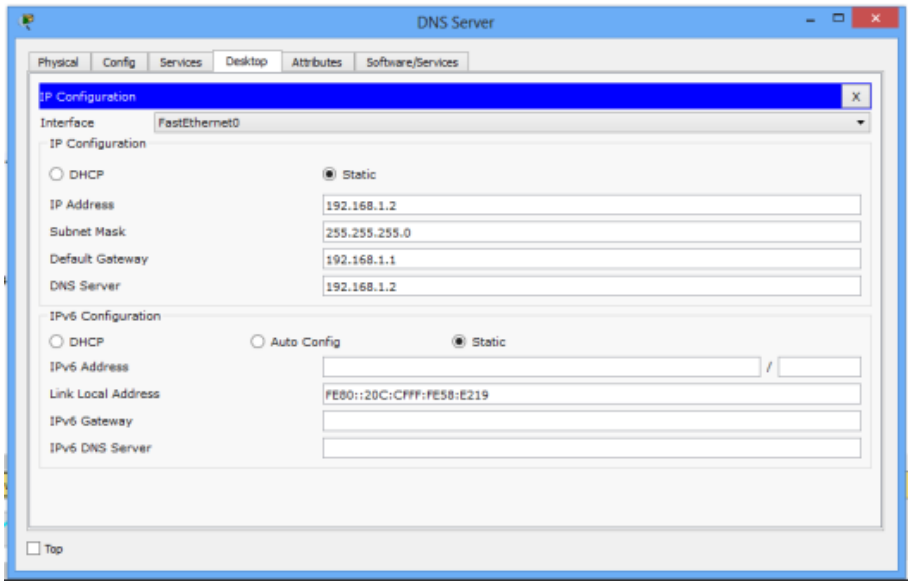
- From the customer workstation, use a console cable and terminal emulation software to connect to the console of the customer Cisco1841 ISR.
- Log in to the console of the Cisco 1841 ISR and enter global configuration mode.
- Before creating a DHCP pool, configure the addresses that are excluded. The range is from 192.168.1.1 to 192.168.1.49.
- CustomerRouter(config)#ip dhcp excluded-address 192.168.1.1 192.168.1.
- Create a DHCP pool called pool1.
- CustomerRouter(config)#ip dhcp pool pool1
- Define the network address range for the DHCP pool.
- CustomerRouter(dhcp-config)#network 192.168.1.0 255.255.255.0
- Define the DNS server as 192.168.1.10.
- CustomerRouter(dhcp-config)#dns-server 192.168.1.10
- Define the default gateway as 192.168.1.1.
- CustomerRouter(dhcp-config)#default-router 192.168.1.1
- Add an exclusion range of 192.168.1.1 to 192.168.1.49 to the DHCP pool.
- CustomerRouter(dhcp-config)#exit
- CustomerRouter(config)#ip dhcp excluded-address 192.168.1.1 192.168.1.49
- Exit the terminal.

Configure a DNS server in Packet Tracer.

1.Build the network topology.

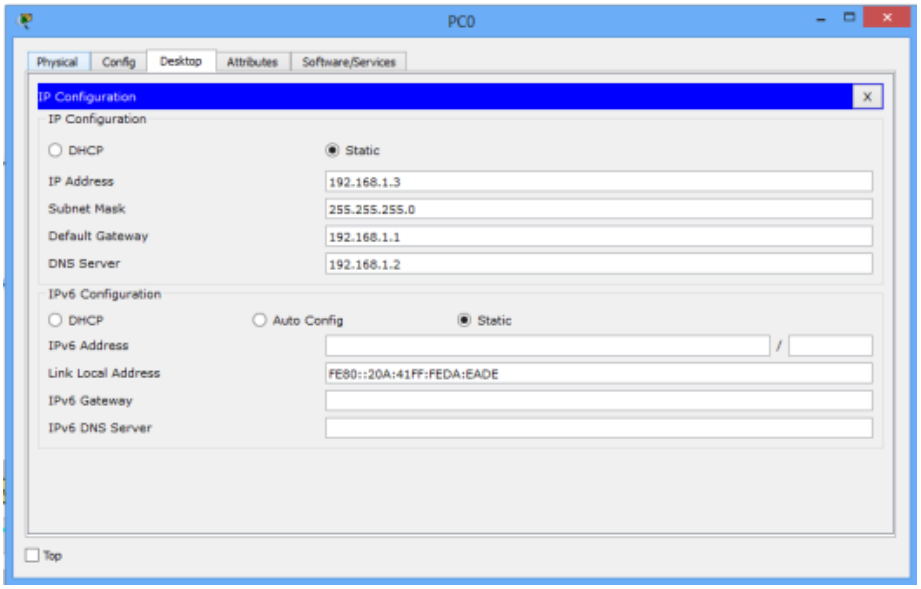


- 2. Configure static IP addresses on the PCs and the server.
- **Server**
- **IP address**: 192.168.1.2 **Subnet mask**: 255.255.255.0 **Default gateway:** 192.168.1.1 **DNS Server**: 192.168.1.2



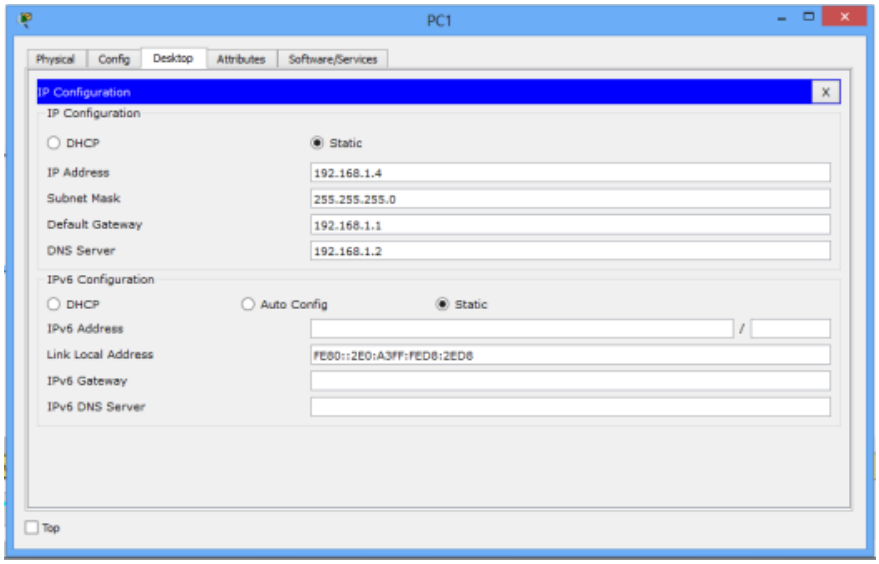
PC0

IP add: 192.168.1.3 **Subnet mask:** 255.255.255.0 **Default gateway:** 192.168.1.1 **DNS server:** 192.168.1.2



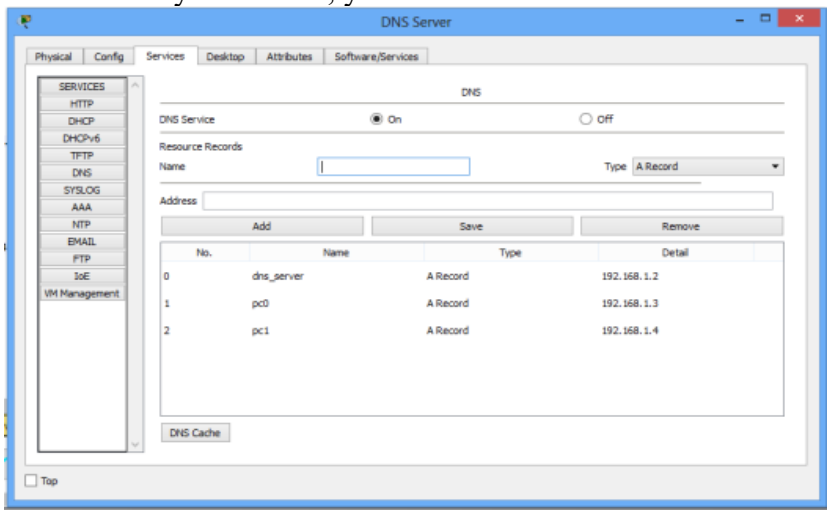
PC1

IP address: 192.168.1.4 Subnet mask: 255.255.255.0 Default gateway: 192.168.1.1 DNS Server: 192.168.1.2



3.Configure DNS service on the generic server.

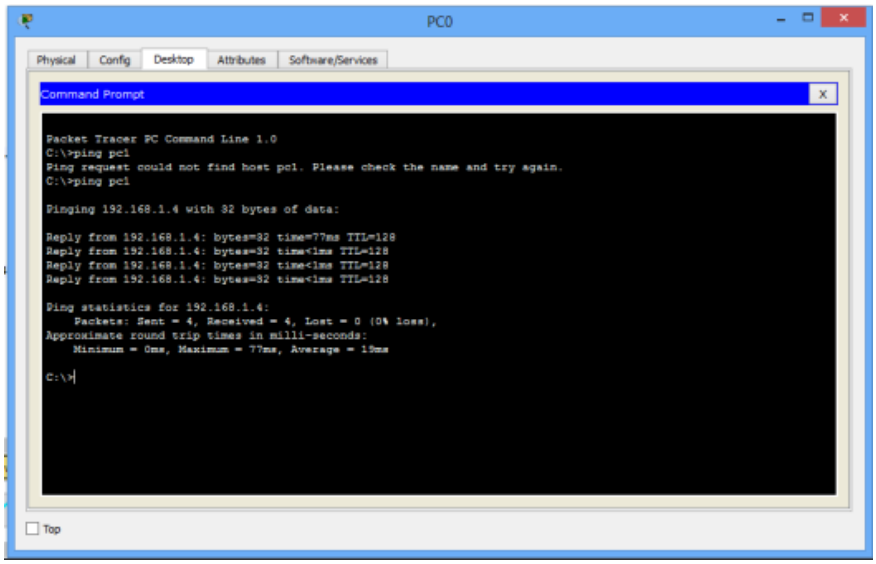
- To do this, click on the server, then Click on Services tab.
- Click on DNS server from the menu.
- First turn ON the DNS service, then define names of the hosts and their corresponding IP addresses.
- For example, to specify the DNS entry for PC0: In the name and address fields, type:
- Name: PC0 Address: 192.168.1.3
- Click on add then save. Repeat this for the PC1 and the server.
- Once you're done, your DNS entries will look like this:



Finally,

4. Test domain name – IP resolution. Ping the hosts from one another using their names instead of their IP addresses. If the DNS service is turned on and all IP configurations are okay, then ping should work.

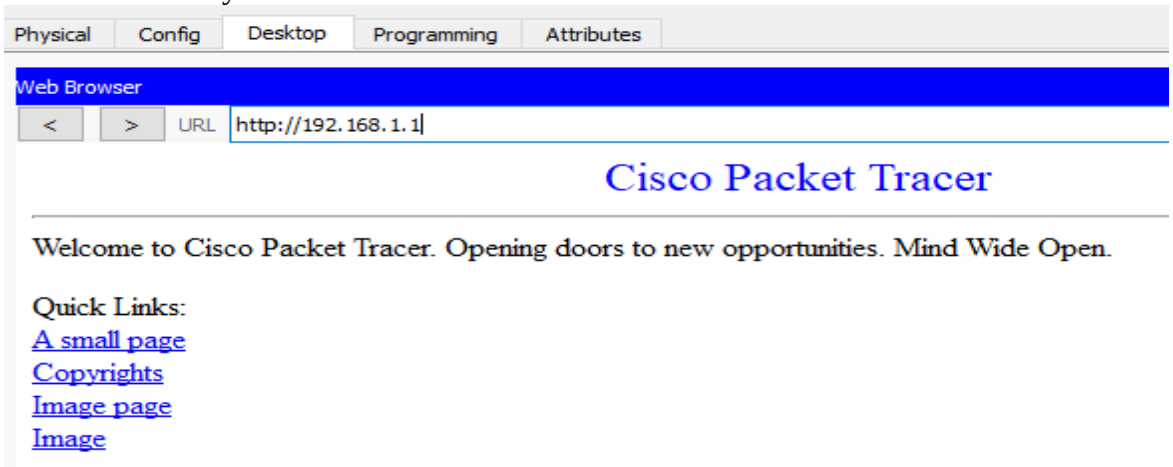
- For example, ping PC1 from PC0. Ping should be successful.



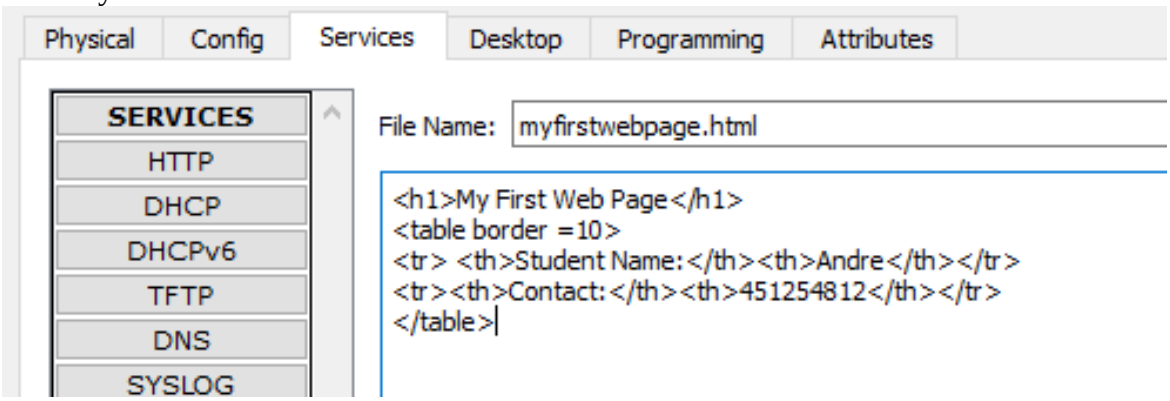
Configure a HTTP server in Packet Tracer

For this go to :

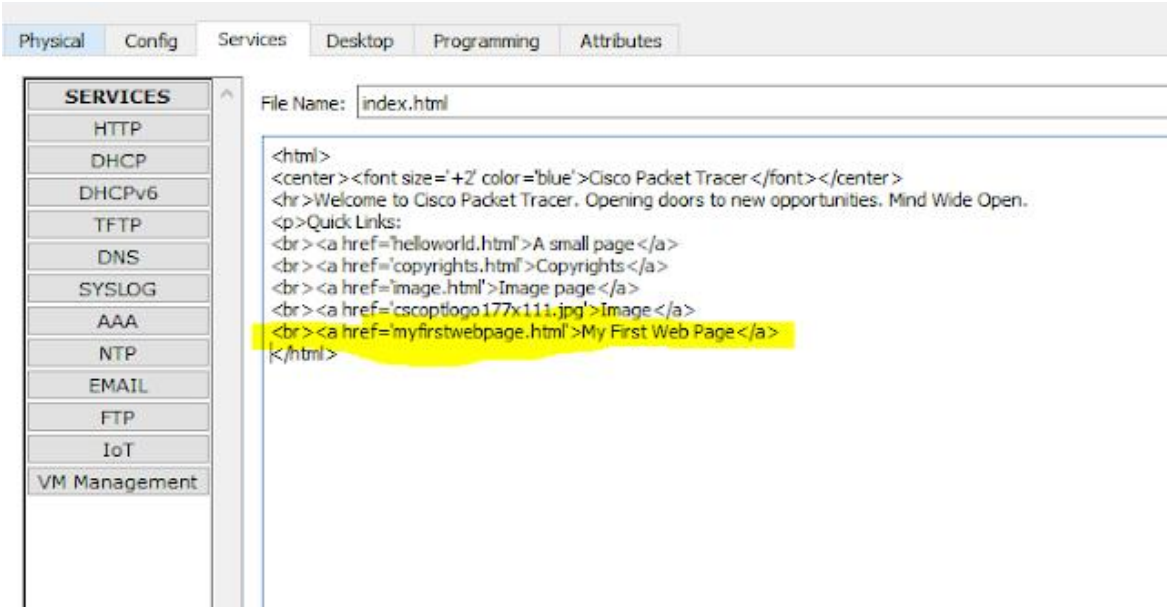
- server >services>Http>select both services as on mode.
- Now we can search webpage from any connected PC. This will so you only existing HTTP file when you put Server IP.
- Go to any PC>Desktop>Web Browser>put server IP(192.168.1.1)> click Enter.
- It will so you below result.



- If you want to create your own webpage then it is very simple. Just follow path
- Go to on server>services>HTTP>new file>just write you html code whatsoever you want as I coded here.

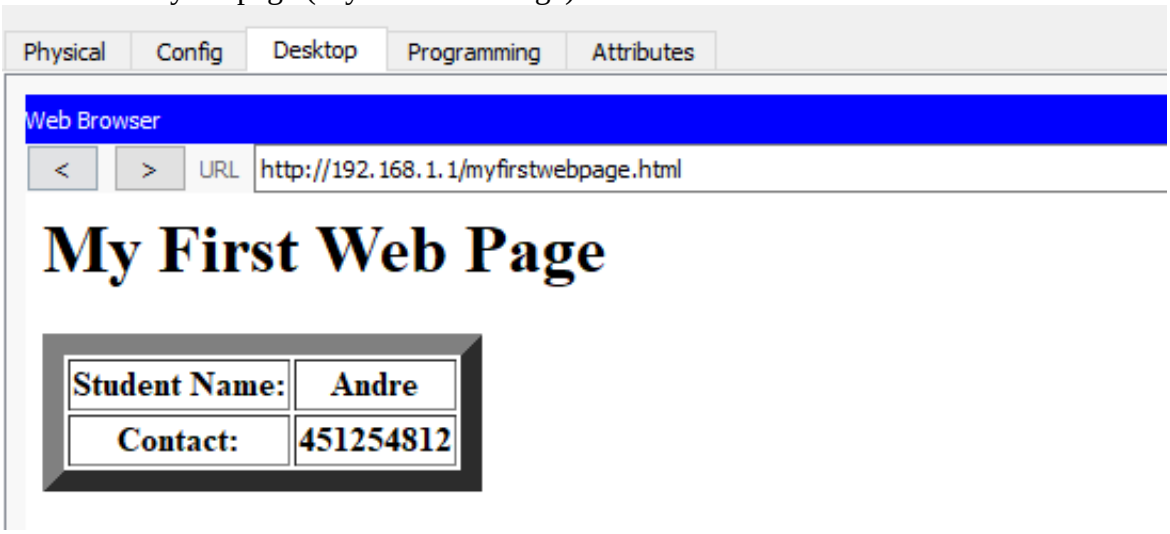


- Then click on save button.
- You may not find you file when search from PC. For it select path Go to server>Services>HTTP>index.html>edit>write it as below.

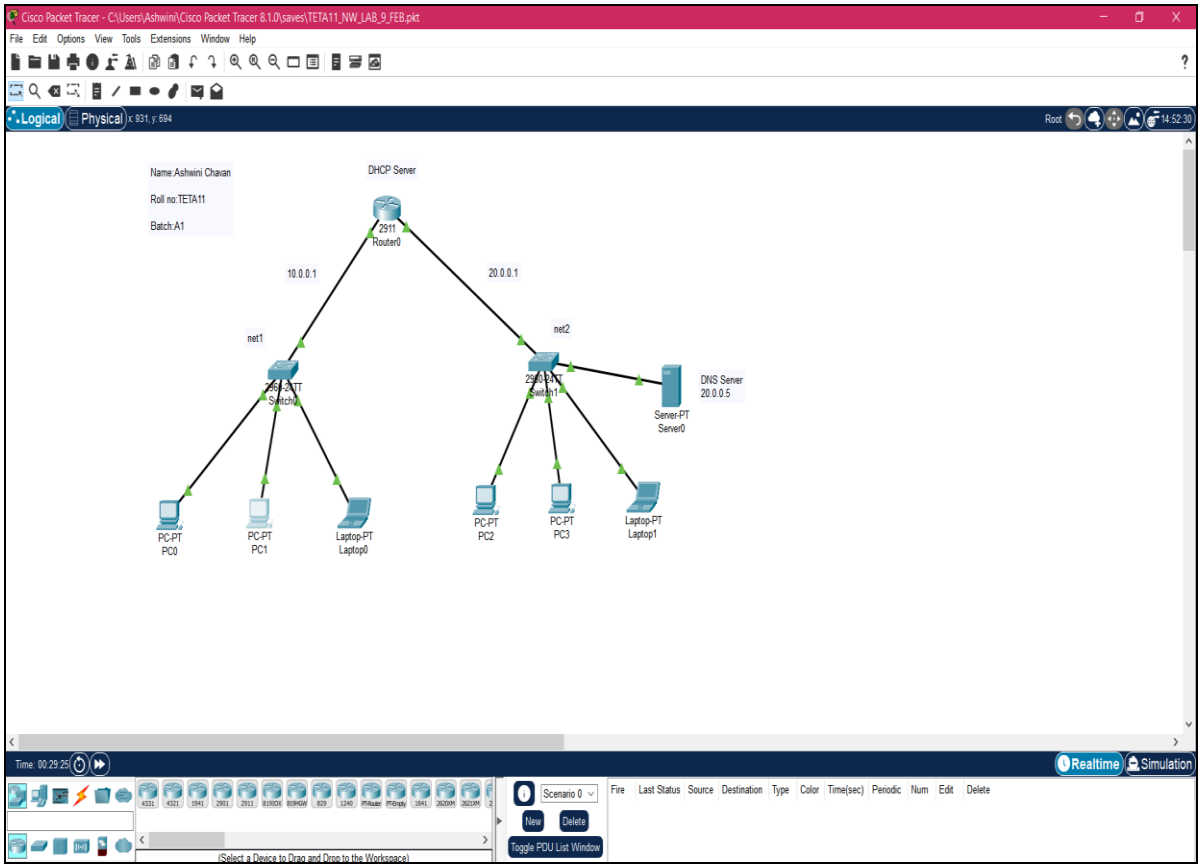


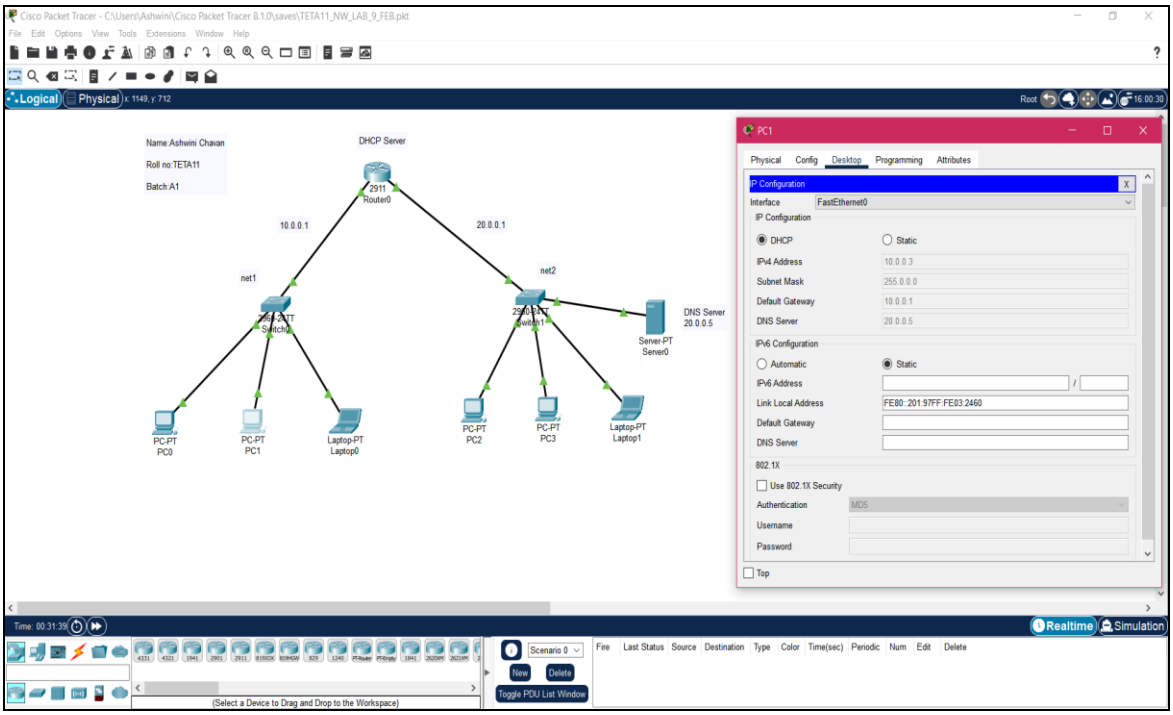
We can find now our created web page.

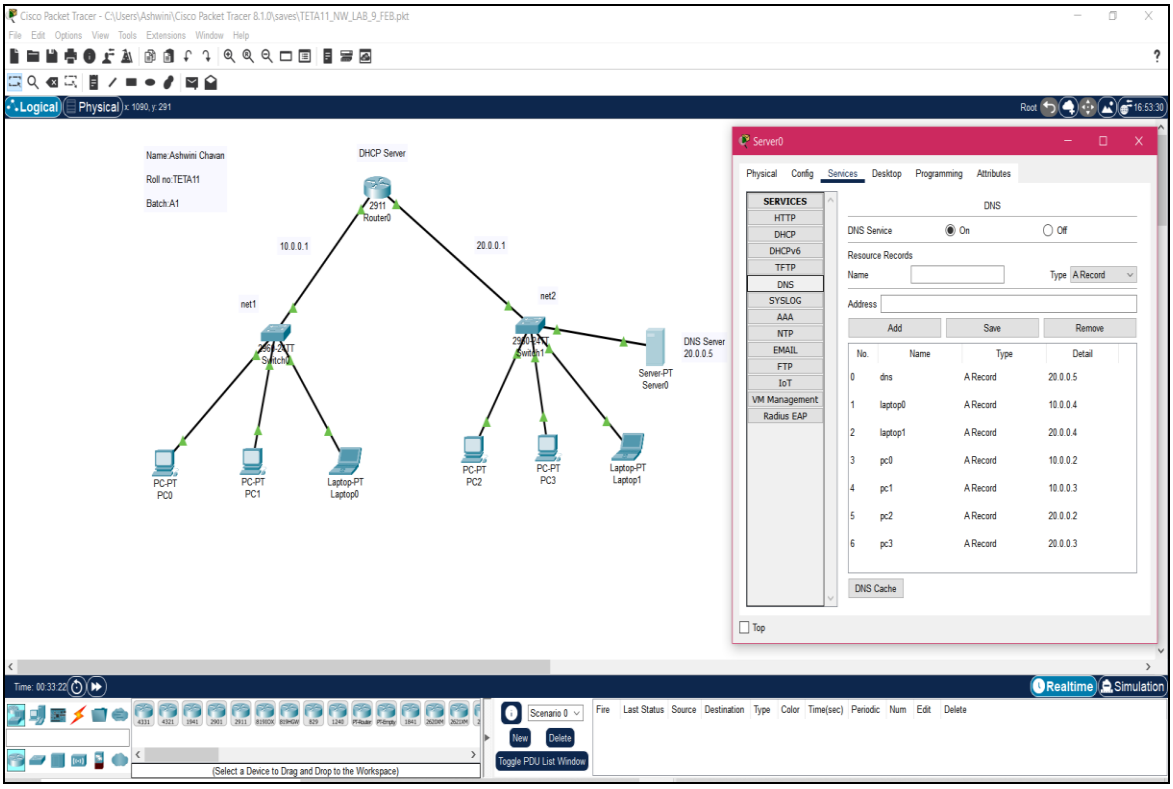
Just click on your page (My First Web Page)

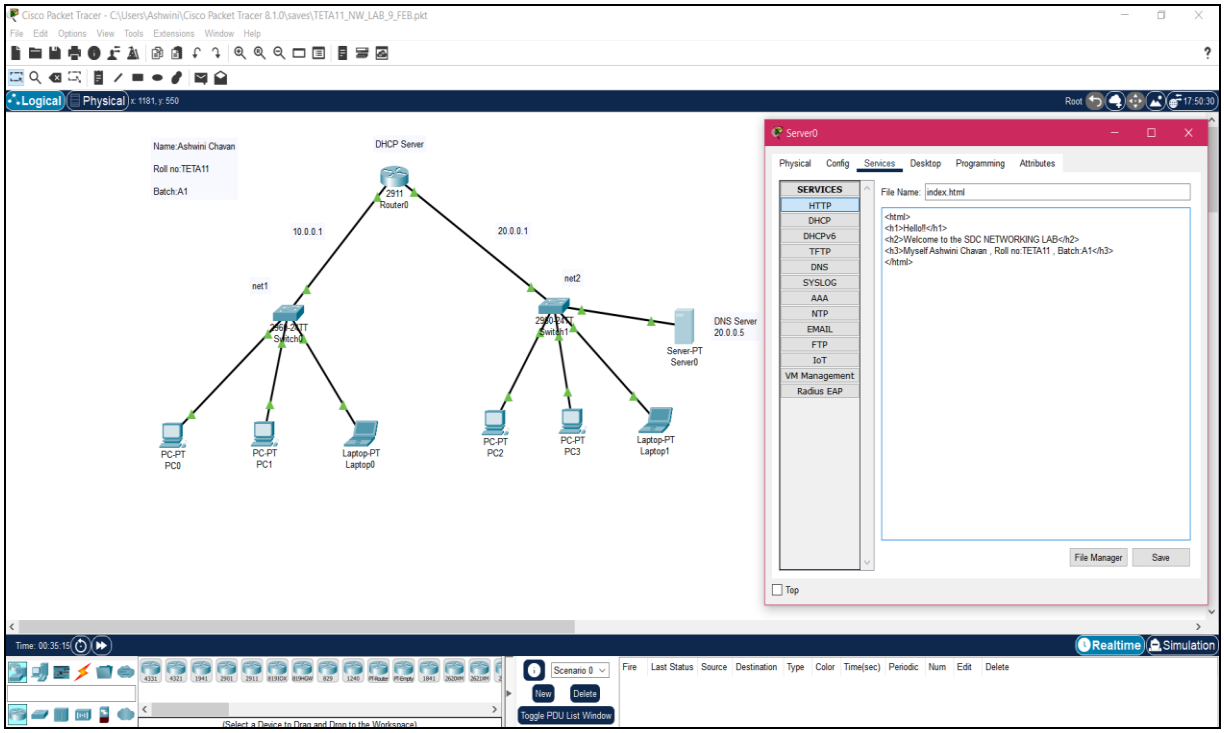


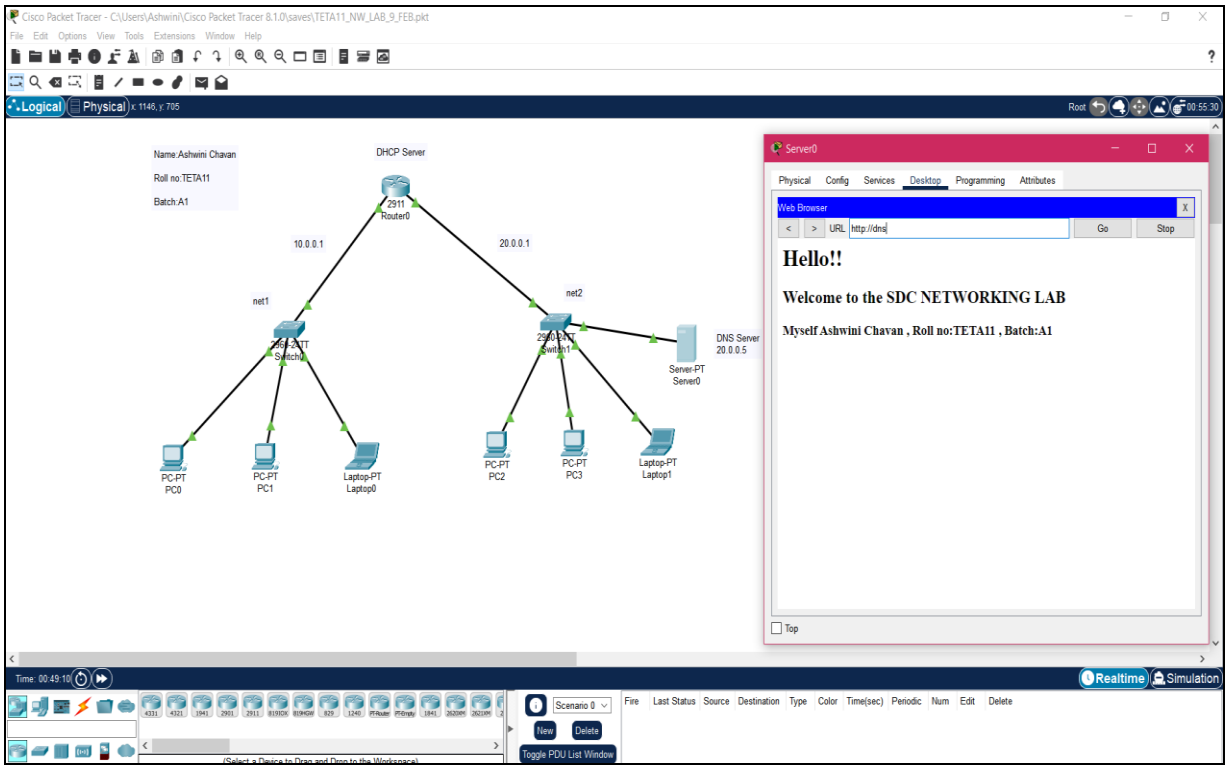
IMPLEMENTATION SNAPSHOTS

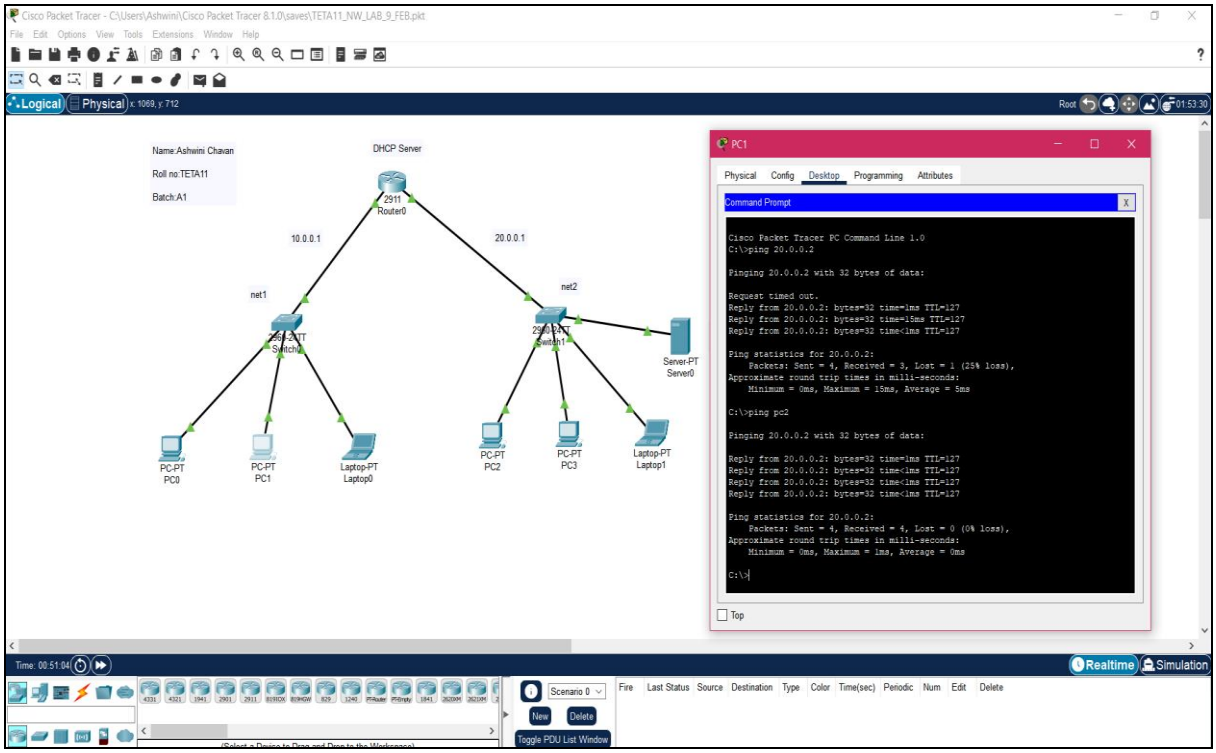



Name:Ashwini Chavan
Roll no:TETA11
Batch:A1
DHCP Server
2911 Router0
10.0.0.1
20.0.0.1
net1
net2
2960-24TT Switch0
2960-24TT Switch1
Server-PT Server0
DNS Server 20.0.0.5
PC-PT PC0
PC-PT PC1
Laptop-PT Laptop0
PC-PT PC2
PC-PT PC3
Laptop-PT Laptop1
PC1
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
DHCP
Static
IPv4 Address
10.0.0.3
Subnet Mask
255.0.0.0
Default Gateway
10.0.0.1
DNS Server
20.0.0.5
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::201:97FF:FE03:2460
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top
Logical
Physical
Root
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
(Select a Device to Drag and Drop to the Workspace)


Name:Ashwini Chavan
Roll no:TETA11
Batch:A1
DHCP Server
2911 Router0
10.0.0.1
20.0.0.1
net1
net2
2960-24TT Switch0
2960-24TT Switch1
Server-PT Server0
DNS Server 20.0.0.5
PC-PT PC0
PC-PT PC1
Laptop-PT Laptop0
PC-PT PC2
PC-PT PC3
Laptop-PT Laptop1
Server0
Physical
Config
Services
Desktop
Programming
Attributes
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 dns A Record 20.0.0.5
1 laptop0 A Record 10.0.0.4
2 laptop1 A Record 20.0.0.4
3 pc0 A Record 10.0.0.2
4 pc1 A Record 10.0.0.3
5 pc2 A Record 20.0.0.2
6 pc3 A Record 20.0.0.3
DNS Cache
Top
Logical
Physical
Root
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
(Select a Device to Drag and Drop to the Workspace)


Name:Ashwini Chavan
Roll no:TETA11
Batch:A1
DHCP Server
2911 Router0
10.0.0.1
20.0.0.1
net1
net2
2960-24TT Switch0
2960-24TT Switch1
DNS Server 20.0.0.5
Server-PT Server0
PC-PT PC0
PC-PT PC1
Laptop-PT Laptop0
PC-PT PC2
PC-PT PC3
Laptop-PT Laptop1
Server0
Physical
Config
Services
Desktop
Programming
Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
File Name: index.html
<html>
<h1>Hello!!</h1>
<h2>Welcome to the SDC NETWORKING LAB</h2>
<h3>Myself Ashwini Chavan , Roll no:TETA11 , Batch:A1</h3>
</html>
File Manager
Save
Top
Realtime
Simulation


Name:Ashwini Chavan
Roll no:TETA11
Batch:A1
DHCP Server
2911 Router0
10.0.0.1
20.0.0.1
net1
net2
2960-24TT Switch0
2960-24TT Switch1
DNS Server 20.0.0.5
Server-PT Server0
PC-PT PC0
PC-PT PC1
Laptop-PT Laptop0
PC-PT PC2
PC-PT PC3
Laptop-PT Laptop1
Server0
Physical
Config
Services
Desktop
Programming
Attributes
Web Browser
URL http://dns
Go
Stop
Hello!!
Welcome to the SDC NETWORKING LAB
Myself Ashwini Chavan , Roll no:TETA11 , Batch:A1
Top
Realtime
Simulation



Conclusion:

In this experiment we learnt to Configure network using Application layer protocols (DNS, HTTP, DHCP). Dynamic Host Configuration Protocol (DHCP) is a client/server protocol that automatically provides an Internet Protocol (IP) host with its IP address and other related configuration information such as the subnet mask and default gateway.

Expt. No. 7 **Date:**

Configuration of Telnet using packet tracer

Objective

- Telnet Configuration and Installation
- Study different Telnet commands.
- Study communication between telnet client and server.

Requirements

- Personal computers with Network Interface Cards connected through category5 UTP cables.
- Windows 2000 Network Operating System installed in each computer.
- TCP/IP protocol installed in each computer.
- Students are provided with local administrator account.
- Mailboxes should be created on the Email server.

I. Introduction to Telnet

Telnet is a network protocol used on the Internet or local area networks to provide a bidirectional interactive text-oriented communication facility using a virtual terminal connection. User data is interspersed in-band with Telnet control information in an 8-bit byte oriented data connection over the Transmission Control Protocol (TCP). Telnet is a client-server protocol, based on a reliable connection-oriented transport. Typically, this protocol is used to establish a connection to Transmission Control Protocol (TCP) port number 23, where a Telnet server application (telnetd) is listening. Telnet, however, predates TCP/IP and was originally run over Network Control Program (NCP) protocols.

When Telnet was initially developed in 1969, most users of networked computers

were in the computer departments of academic institutions, or at large private and government research facilities. In this environment, security was not nearly as mucha concern as it became after the bandwidth explosion of the 1990s. The rise in the number of people with access to the Internet, and by extension the number of people attempting to hack other people's servers, made encrypted alternatives necessary. Experts in computer security, such as SANS Institute, recommend that the use of Telnet for remote logins should be discontinued under all normal circumstances, for the following reasons: Telnet, by default, does not encrypt any data sent over the connection (including passwords), and so it is often practical to eavesdrop on the communications and use the password later for malicious purposes; anybody who has access to a router, switch, hub or gateway located on the network betweenthe two hosts where Telnet is being used can intercept the packets passing by and obtain login, password and whatever else is typed with a packet analyzer. Most implementations of Telnet have no authentication that would ensure communica- tion is carried out between the two desired hosts and not intercepted in the middle.Several vulnerabilities have been discovered over the years in commonly used Telnet daemons. These security-related shortcomings have seen the usage of the Telnet protocol drop rapidly[citation needed], especially on the public Internet, in favor ofthe Secure Shell (SSH) protocol, first released in 1995. SSH provides much of the functionality of telnet, with the addition of strong encryption to prevent sensitive data such as passwords from being intercepted, and public key authentication, to ensure that the remote computer is actually who it claims to be. As has happened with other early Internet protocols, extensions to the Telnet protocol provide Trans- port Layer Security (TLS) security and Simple Authentication and Security Layer (SASL) authentication that address the above issues. However, most Telnet im- plementations do not support these extensions; and there has been relatively little interest in implementing these as SSH is adequate for most purposes. It is of note that there are a large number of industrial and scientific devices which have only Telnet available as a communication option. Some are built with only a standard RS-232 port and use a serial server hardware appliance to provide the translation between the TCP/Telnet data and the RS-232 serial data. In such cases, SSH is not an option unless the interface appliance can be configured for SSH.

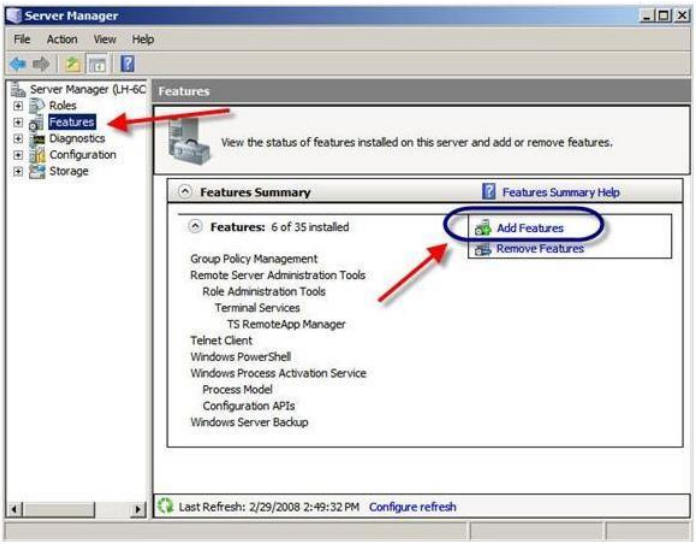
II. Installation and Configuration of Telnet Serices

While the telnet client and server application has been around, well, forever, it is still very useful and, if you are like me, you may use it every day for a variety of network configuration tasks.There are a number of reasons to configure a Windows

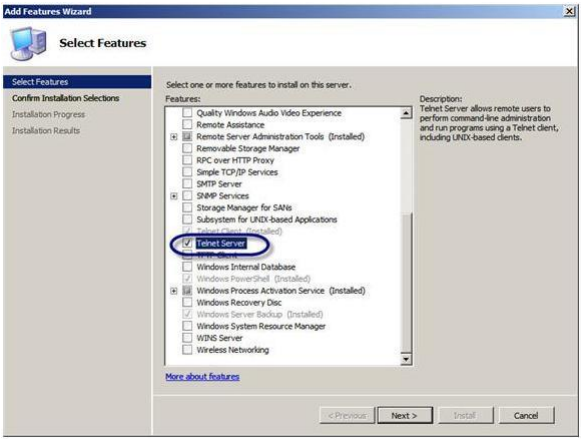
2000 Server as a Telnet server. Here is my list of them:

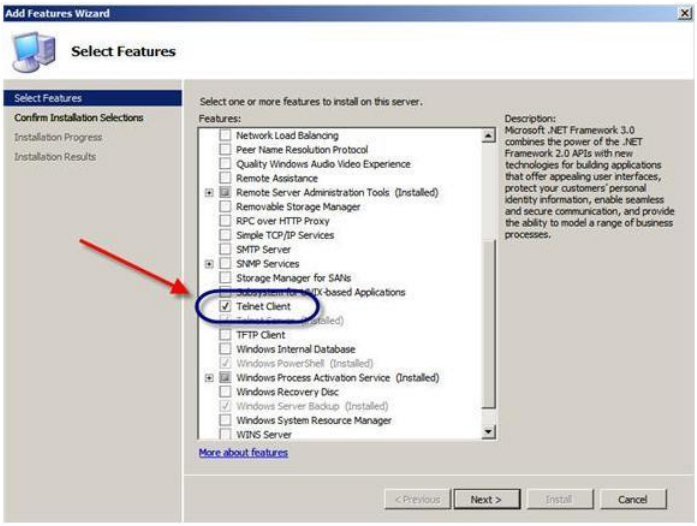
- To be able to configure and troubleshoot all your network devices whether they are Cisco routers, Linux servers, or Windows 2008 Servers, from a quick and simple command line that is the telnet application.
- To test connectivity to and from the server using a simple & reliable protocol

To install the Windows 2008 Server Telnet server, you need to add a new Windows Feature. To do this open up Server Manager and click on the Features section on the left. Next, click on Add Features on the right, like this:



On the Select Features window, scroll down to the Telnet Server option and click its checkbox to select it. Now, click Next, then Install.
This begins the installation of the Telnet Server. After a few minutes, you will get a message that the installation is complete. While, at this point, you could test your new Telnet Server from any computer that has the telnet application (like Windows XP or 2003) however, lets use a Windows Server with the telnet client to connect to your Windows Server that we just installed the Telnet server on. So, unlike in most previous Windows operating systems, we need to install the telnet client in Windows Server. To do this, we need to go into the same Server Manager application, to Features, then to Add Feature. This time, we will choose to install the Telnet Client, as shown below.

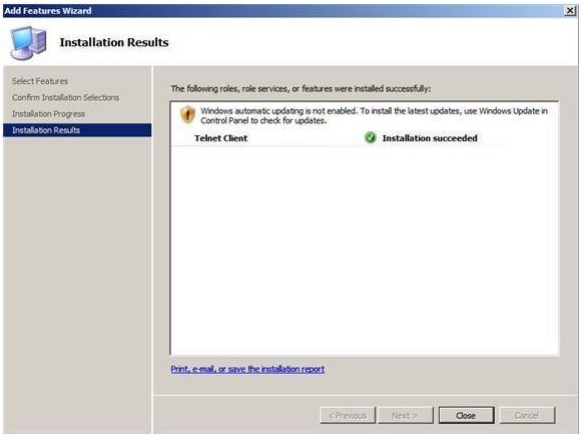


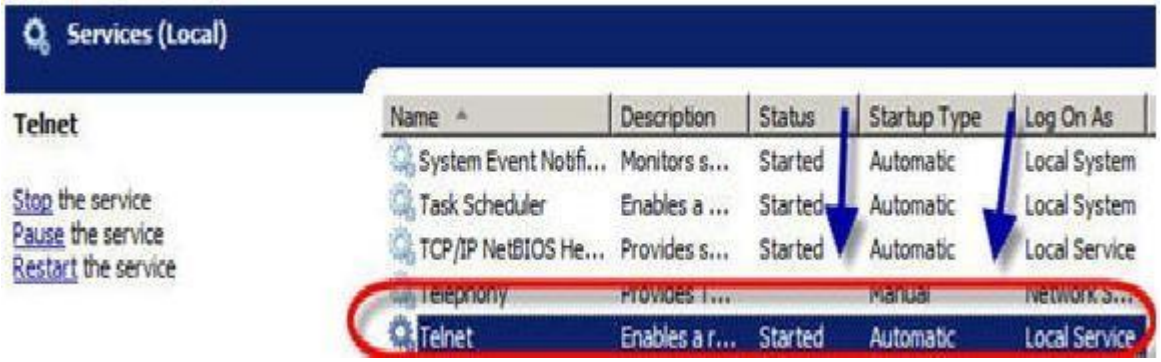


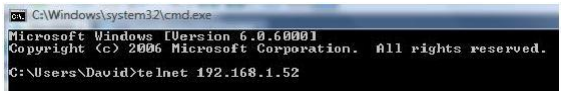
After clicking Next, then Install, my telnet client was installed very quickly, as you see in Figure, below.

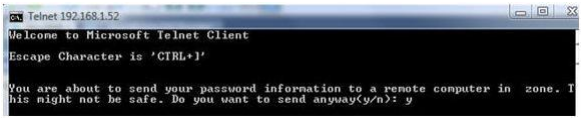
Unlike many other features, just because the telnet server feature is installed, doesnt mean that it is working. To actually use the telnet server, you need to, minimally,
1) start the service and 2) allow access. To start the service, go into the ServicesMMC either through the Start menu or by running services.msc. Change the telnet service to start automatically and then go ahead and Start the service.

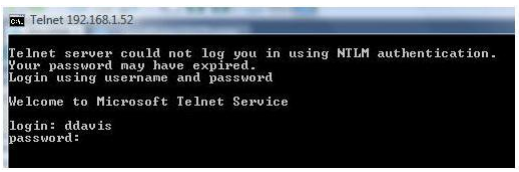
To test connection, go to Start Command Prompt. At the Windows command prompt, telnet to new Telnet Server and check the ability to successfully connect, as a non-administrative user as you can see below in Figure.


Add Features Wizard
Installation Results
Select Features
Confirm Installation Selections
Installation Progress
Installation Results
The following roles, role services, or features were installed successfully:
Windows automatic updating is not enabled. To install the latest updates, use Windows Update in Control Panel to check for updates.
Telnet Client
Installation succeeded
Print, e-mail, or save the installation report
< Previous
Next >
Close
Cancel


Services (Local)
Telnet
Stop the service
Pause the service
Restart the service
Name
Description
Status
Startup Type
Log On As
System Event Notifi...
Monitors s...
Started
Automatic
Local System
Task Scheduler
Enables a ...
Started
Automatic
Local System
TCP/IP NetBIOS He...
Provides s...
Started
Automatic
Local Service
Telephony
Provides T...
Manual
Network S...
Telnet
Enables a r...
Started
Automatic
Local Service


C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.0.6000]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.
C:\Users\David>telnet 192.168.1.52

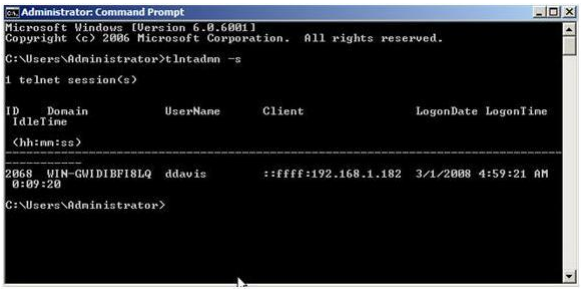

Telnet 192.168.1.52
Welcome to Microsoft Telnet Client
Escape Character is 'CTRL+]'
You are about to send your password information to a remote computer in zone. T
his might not be safe. Do you want to send anyway(y/n)? y


Telnet 192.168.1.52
Telnet server could not log you in using NTLM authentication.
Your password may have expired.
Login using username and password
Welcome to Microsoft Telnet Service
login: ddavis
password:

The two important things of note that can be learnt from the above Figures are;

- Per the warning message above in Figures, Telnet is an insecure protocol. All traffic sent (including your username & password) are send in clear-text across the network. That means that your username & password could be seen by someone who is decoding packets on your network. This is a security risk even on a secure internal LAN.
- However from Figure, Windows Telnet supports NTLM authentication. You can force the telnet server to only allow NTLM authentication and this would make your telnet server much more secure.

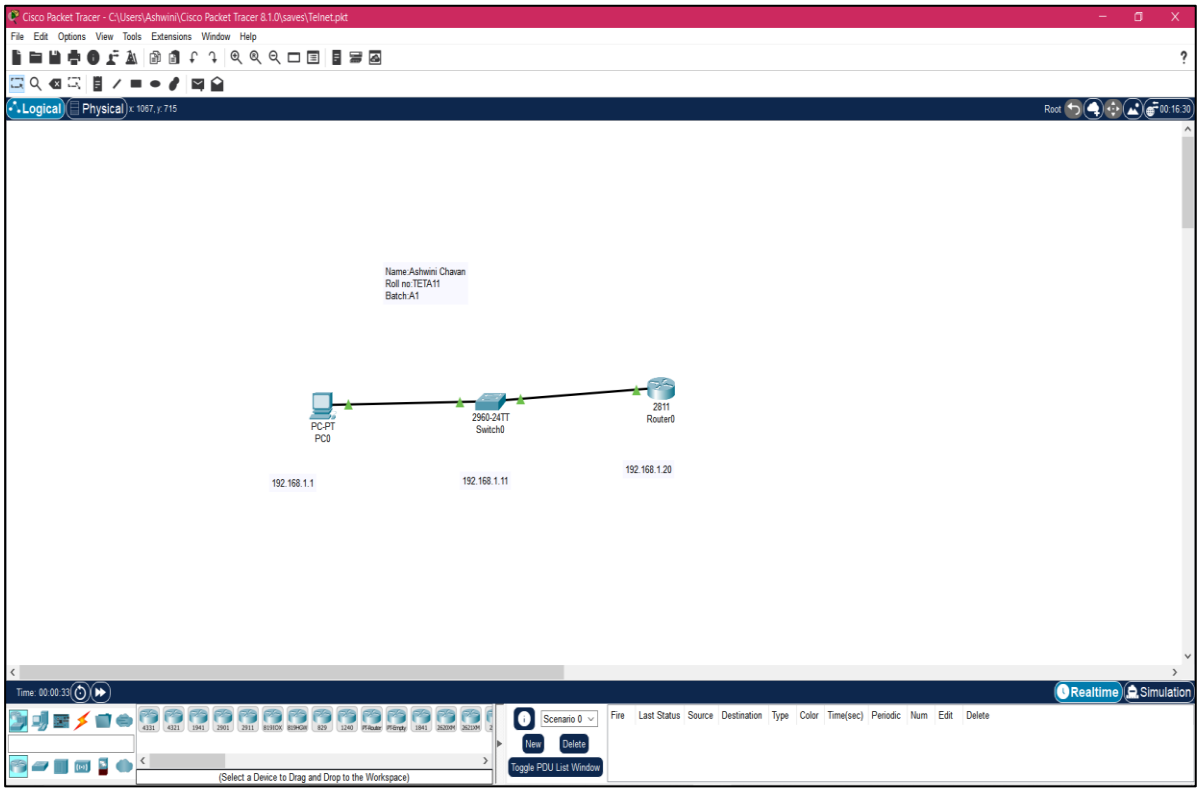
Additionally, after reading the official Microsoft telnet operations guide below, we can learn how to customize the configuration for telnet and do things such as change the port number used, idle time, max # of simultaneous users, and more.To see whois connected to your telnet server, following command can be used:

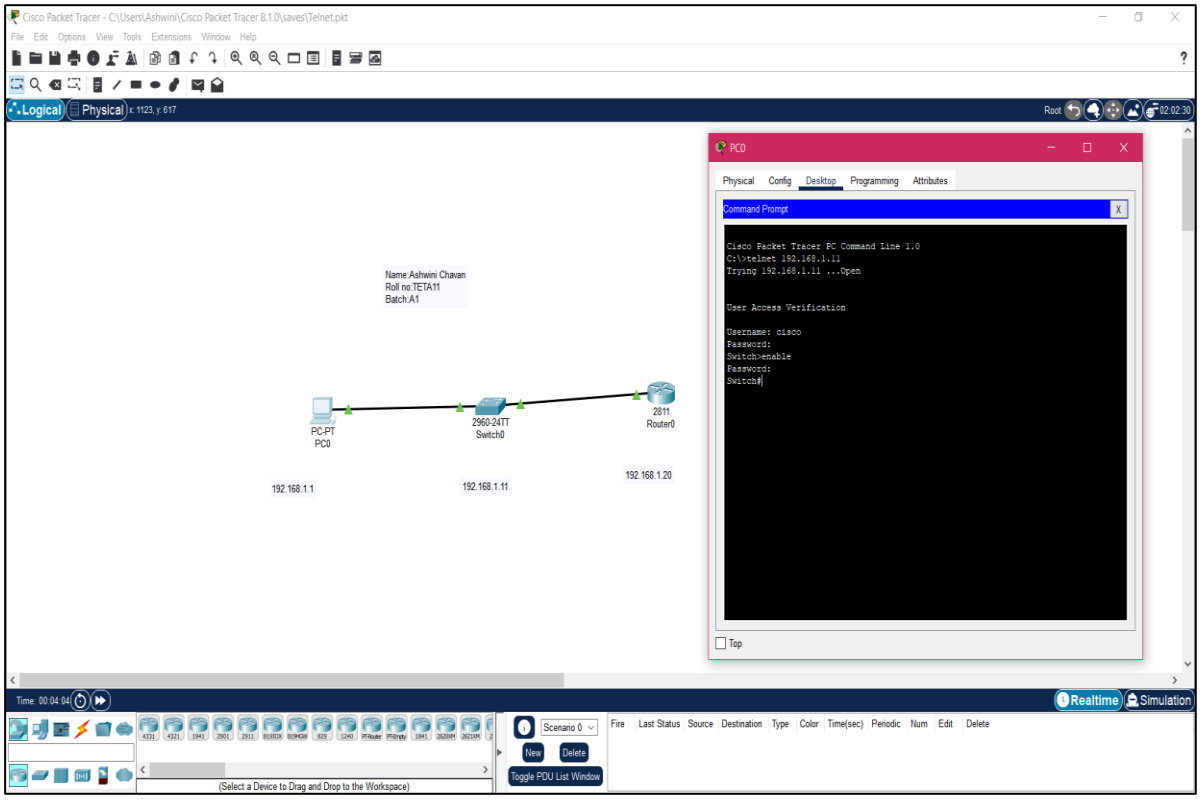


Also, other functions can be done with the tlntadmn command like send messagesto users (below, in Figure) and disconnect users.

There are a lot of benefits to adding a Telnet Server to your Windows Server system. We learned that there is more to using the telnet server than just installing the feature. The telnet server has to be started and user authentication has to be con- figured before the telnet server can be used. The telnet server can be used for many different types of command line administration, monitoring, and troubleshooting of your Windows Server.

IMPLEMENTATION SNAPSHOTS:





Conclusion

In this Experiment we learnt the of Telnet using packet tracer. The Telnet protocol enables you to set up TCP/IP connections to a host. Telnet allows a person at one site to establish a TCP connection to a login server at another site and then passes the keystrokes from one device to the other. Telnet can accept either an IP address or a domain name as the remote device address

Expt. No. 8 **Date:**

Configure network using Distance Vector Routing Protocol

Objective

- To configure network using Distance Vector Routing Protocol

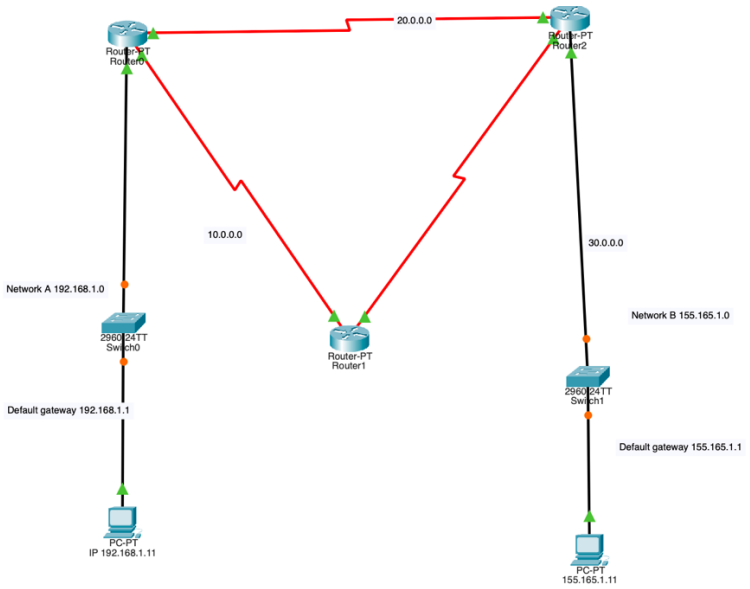
Requirements

- CCNA Packet Tracer

Theory

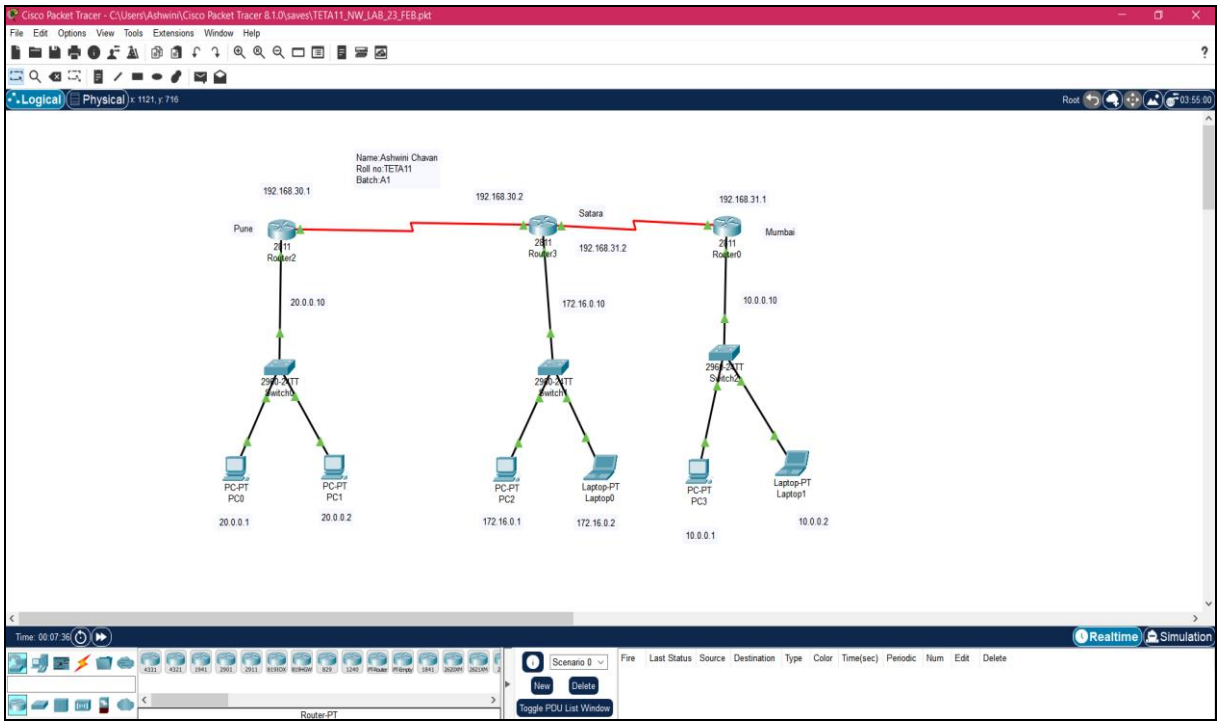
Distance Vector Routing Protocol

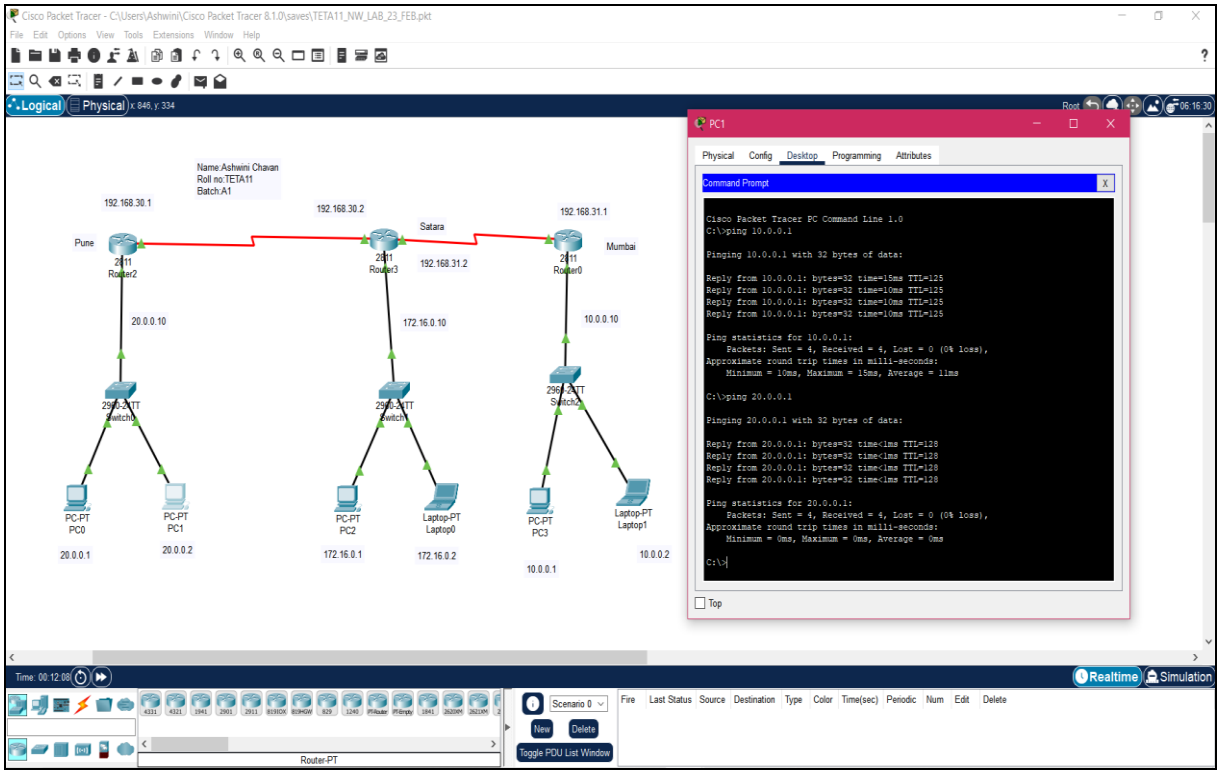
- A distance-vector routing protocol in data networks determines the best route for data packets based on distance
- Measure the distance by the number of routers a packet has to pass, one router counts as one hop
- Some distance-vector protocols also take into account network latency and other factors that influence traffic on a given route
- Each router maintains a Distance Vector table containing the distance between itself and ALL possible destination nodes. Distances, based on a chosen metric, are computed using information from the neighbours' distance vectors
- A router transmits its distance vector to each of its neighbours in a routing packet
- Each router receives and saves the most recently received distance vector from each of its neighbours
- A router recalculates its distance vector when:
- It receives a distance vector from a neighbour containing different information than before.
- It discovers that a link to a neighbour has gone down
- The DV calculation is based on minimizing the cost to each destination

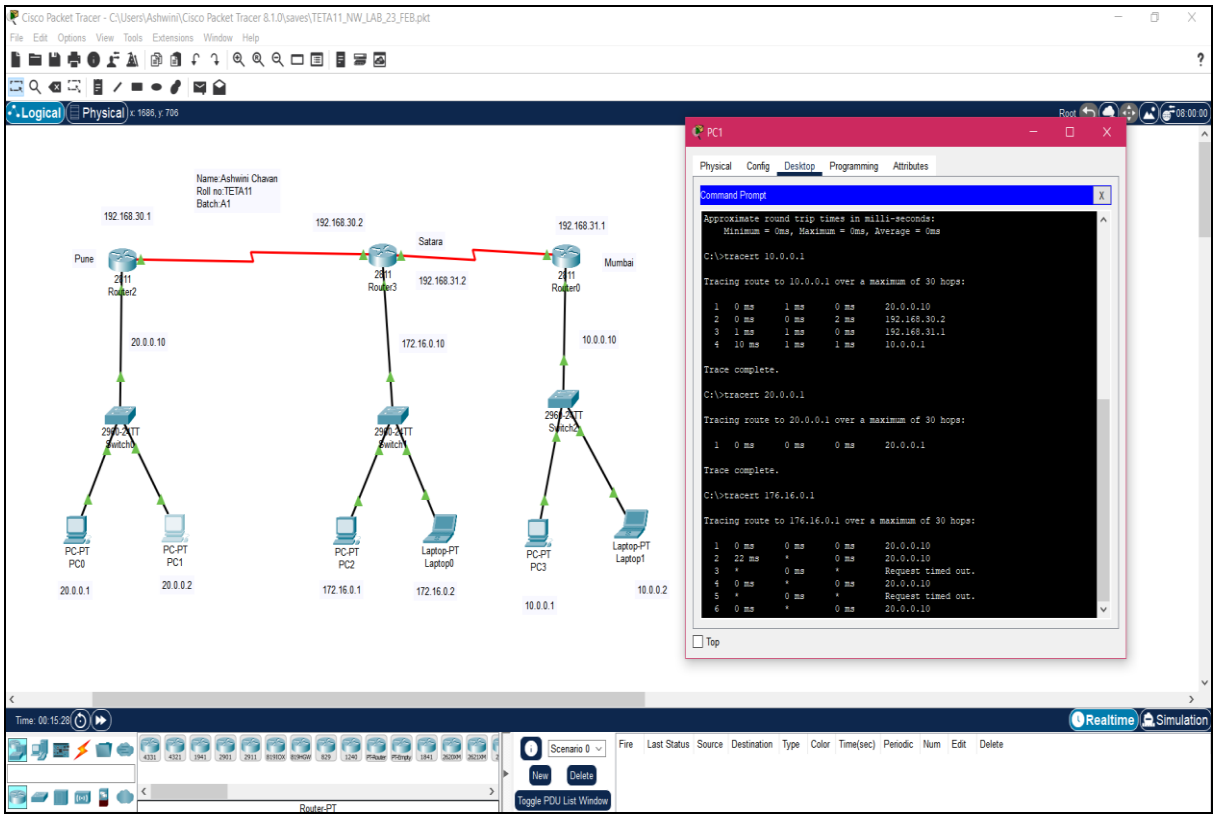


Paste your work and configuration here with name, batch and roll no.

IMPLEMENTATION SNAPSHOTS:




Cisco Packet Tracer - C:\Users\Ashwini\Cisco Packet Tracer 8.1.0\saves\TETA11_NW_LAB_23_FEB.pkt
Logical
Physical
Name:Ashwini Chavan
Roll no:TETA11
Batch:A1
Pune
Satara
Mumbai
192.168.30.1
192.168.30.2
192.168.31.1
192.168.31.2
20.0.0.10
172.16.0.10
10.0.0.10
PC-PT PC0
PC-PT PC1
PC-PT PC2
Laptop-PT Laptop0
PC-PT PC3
Laptop-PT Laptop1
20.0.0.1
20.0.0.2
172.16.0.1
172.16.0.2
10.0.0.1
10.0.0.2
PC1
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.1
Pinging 10.0.0.1 with 32 bytes of data:
Reply from 10.0.0.1: bytes=32 time=15ms TTL=125
Reply from 10.0.0.1: bytes=32 time=10ms TTL=125
Reply from 10.0.0.1: bytes=32 time=10ms TTL=125
Reply from 10.0.0.1: bytes=32 time=10ms TTL=125
Ping statistics for 10.0.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 10ms, Maximum = 15ms, Average = 11ms
C:\>ping 20.0.0.1
Pinging 20.0.0.1 with 32 bytes of data:
Reply from 20.0.0.1: bytes=32 time<1ms TTL=128
Reply from 20.0.0.1: bytes=32 time<1ms TTL=128
Reply from 20.0.0.1: bytes=32 time<1ms TTL=128
Reply from 20.0.0.1: bytes=32 time<1ms TTL=128
Ping statistics for 20.0.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>
Top
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
Router-PT


Cisco Packet Tracer - C:\Users\Ashwini\Cisco Packet Tracer 8.1.0\saves\TETA11_NW_LAB_23_FEB.pkt
Logical
Physical
Name:Ashwini Chavan
Roll no:TETA11
Batch:A1
Pune
Satara
Mumbai
192.168.30.1
192.168.30.2
192.168.31.1
192.168.31.2
20.0.0.10
172.16.0.10
10.0.0.10
PC-PT PC0
PC-PT PC1
PC-PT PC2
Laptop-PT Laptop0
PC-PT PC3
Laptop-PT Laptop1
20.0.0.1
20.0.0.2
172.16.0.1
172.16.0.2
10.0.0.1
10.0.0.2
PC1
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>tracert 10.0.0.1
Tracing route to 10.0.0.1 over a maximum of 30 hops:
1 0 ms 1 ms 0 ms 20.0.0.10
2 0 ms 0 ms 2 ms 192.168.30.2
3 1 ms 1 ms 0 ms 192.168.31.1
4 10 ms 1 ms 1 ms 10.0.0.1
Trace complete.
C:\>tracert 20.0.0.1
Tracing route to 20.0.0.1 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 20.0.0.1
Trace complete.
C:\>tracert 176.16.0.1
Tracing route to 176.16.0.1 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 20.0.0.10
2 22 ms * 0 ms 20.0.0.10
3 * 0 ms * Request timed out.
4 0 ms * 0 ms 20.0.0.10
5 * 0 ms * Request timed out.
6 0 ms * 0 ms 20.0.0.10
Top
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
Router-PT

CONCLUSION:

In this experiment we learnt to configure a network using Distance Vector Routing Protocol.

In distance vector routing the routing share, the information of the entire autonomous system and the information is shared only with neighbours.

On the other hand, in link state the routers share the knowledge only about their neighbours and the information is shared with all router.

Expt. No. 9 **Date:**

Configure network using Linked State vector Routing Protocol

Objective

- To configure network using Linked State vector Routing Protocol

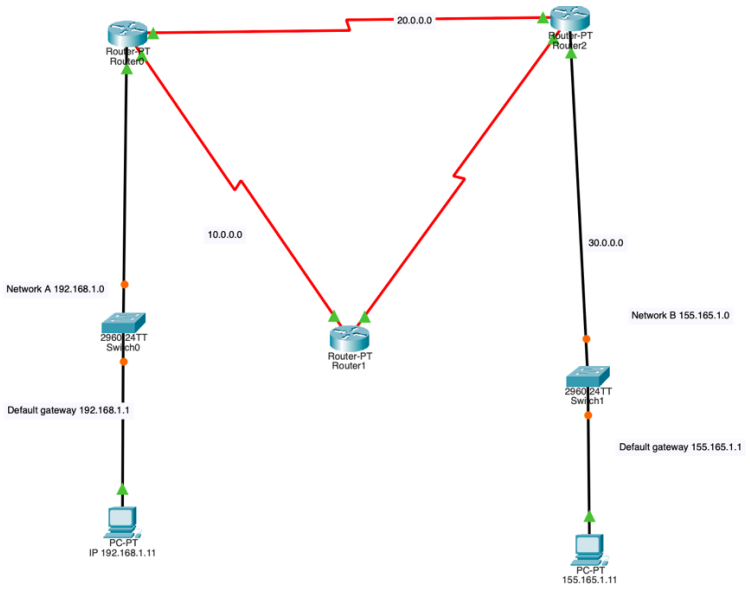
Requirements

- CCNA Packet Tracer

Theory:

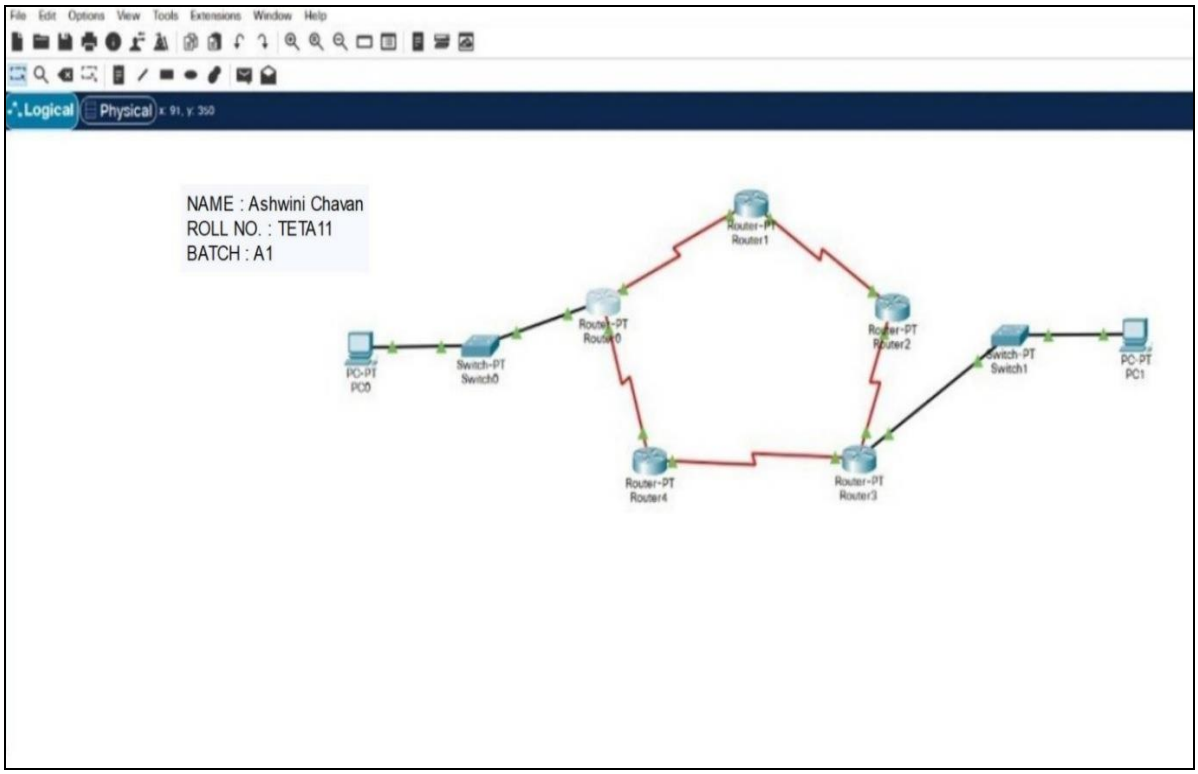
Distance Vector Routing Protocol

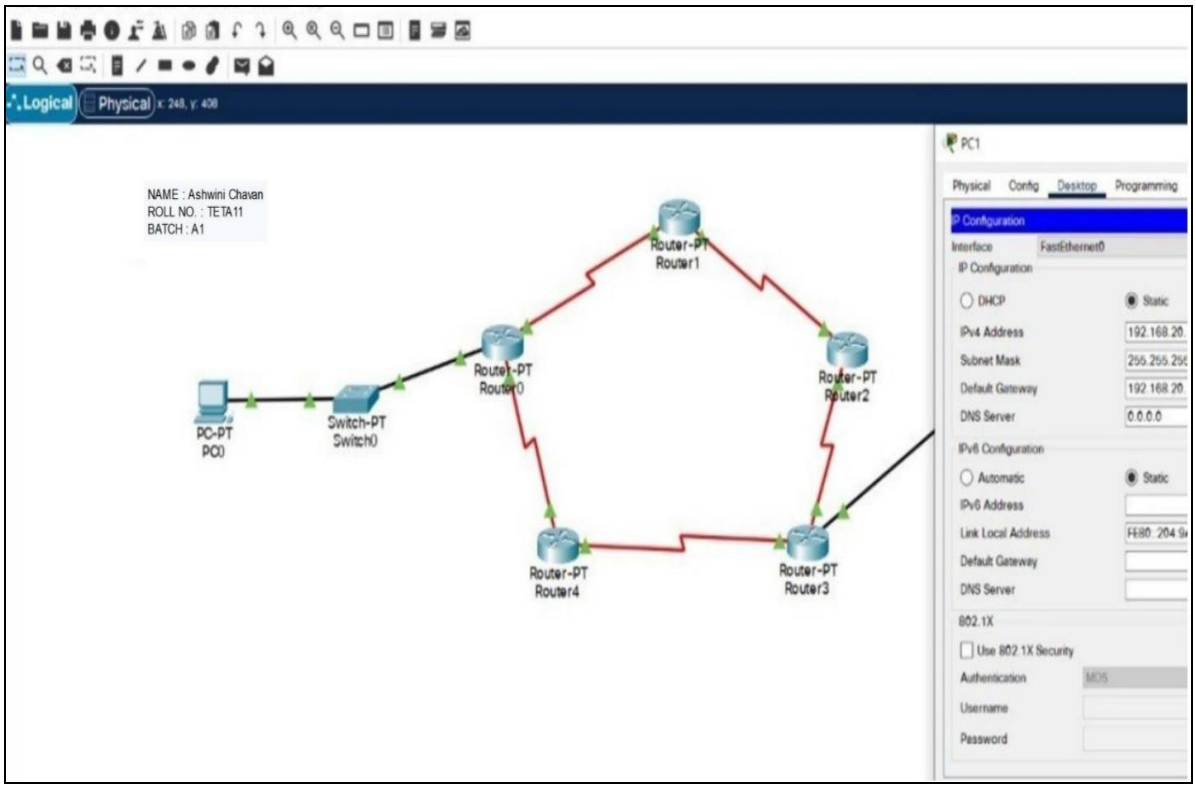
- A distance-vector routing protocol in data networks determines the best route for data packets based on distance
- Measure the distance by the number of routers a packet has to pass, one router counts as one hop
- Some distance-vector protocols also take into account network latency and other factors that influence traffic on a given route
- Each router maintains a Distance Vector table containing the distance between itself and ALL possible destination nodes. Distances, based on a chosen metric, are computed using information from the neighbours' distance vectors
- A router transmits its distance vector to each of its neighbours in a routing packet
- Each router receives and saves the most recently received distance vector from each of its neighbours
- A router recalculates its distance vector when:
- It receives a distance vector from a neighbour containing different information than before.
- It discovers that a link to a neighbour has gone down
- The DV calculation is based on minimizing the cost to each destination

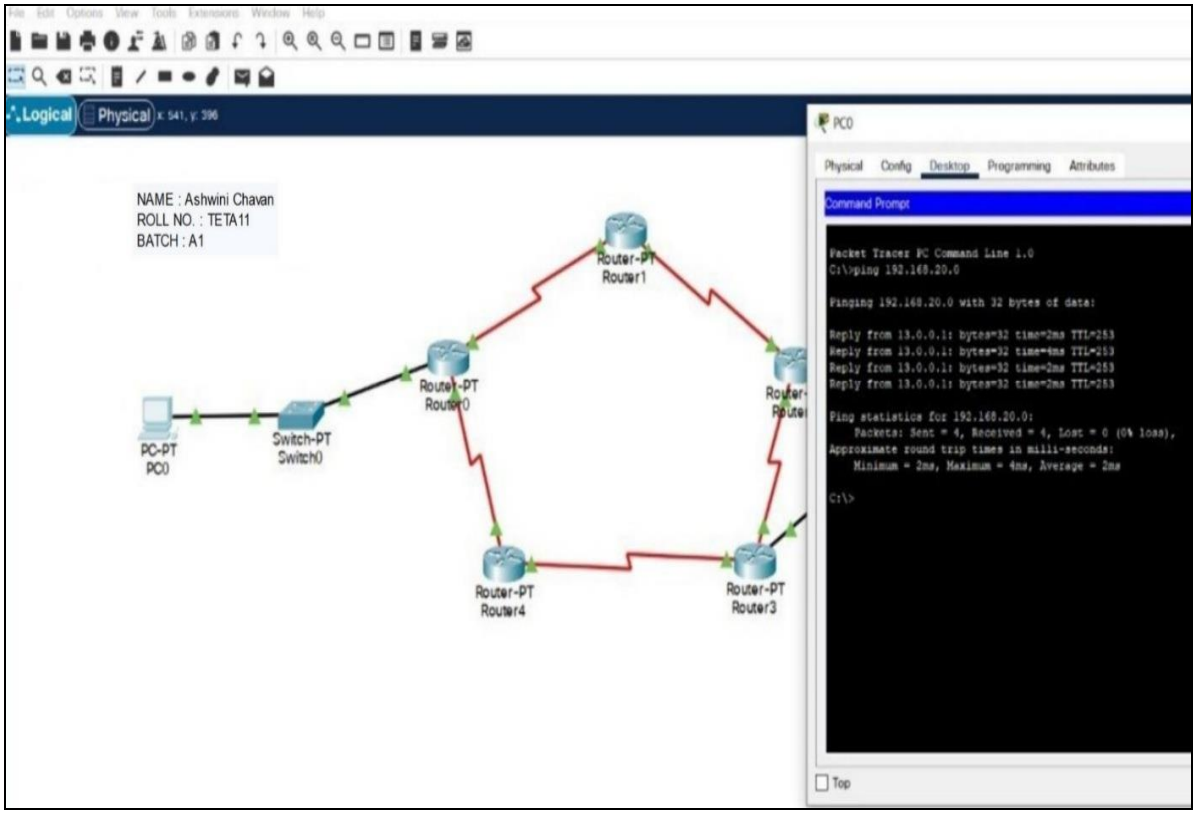


Paste your work and configuration here with name, batch and roll no.

IMPLEMENTATION SNAPSHOTS:




Logical
Physical
NAME : Ashwini Chavan
ROLL NO. : TETA11
BATCH : A1
Router-PT
Router1
Router-PT
Router0
Router-PT
Router2
PC-PT
PC0
Switch-PT
Switch0
Router-PT
Router4
Router-PT
Router3
PC1
Physical
Config
Desktop
Programming
IP Configuration
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
Subnet Mask
Default Gateway
DNS Server
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
Username
Password


Logical
Physical
NAME : Ashwini Chavan
ROLL NO. : TETA11
BATCH : A1
Router-PT
Router1
Router-PT
Router0
PC-PT
PC0
Switch-PT
Switch0
Router-PT
Router4
Router-PT
Router3
PC0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.20.0
Pinging 192.168.20.0 with 32 bytes of data:
Reply from 13.0.0.1: bytes=32 time=2ms TTL=253
Reply from 13.0.0.1: bytes=32 time=4ms TTL=253
Reply from 13.0.0.1: bytes=32 time=2ms TTL=253
Reply from 13.0.0.1: bytes=32 time=2ms TTL=253
Ping statistics for 192.168.20.0:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 2ms, Maximum = 4ms, Average = 2ms
C:\>
Top

Conclusion:

In this experiment we learnt to configure the network using linked state vector routing protocol. Link State Packet (LSP) is a packet of information generated by a network router in a link state routing protocol that lists the router's neighbors. Link state packet can also be further defined as special datagrams that determine the names of and the cost or distance to any neighboring routers and associated networks.