



Computer Engineering Department
Engineering Department

Academic Year: 2021-2022

Class: S.Y.B.Tech Sem.: 4 Course: CCN

Name	Pratik Pujari		
UID no.	2020300054	Class:	Comps C Batch
Experiment No.	10		

AIM:	To understand how Cisco Packet Tracer works
THEORY:	<p>What is Cisco Packet Tracer?</p> <p>Cisco Packet Tracer is Cisco's simulation software. It can be used to create complicated network typologies, as well as to test and simulate abstract networking concepts. It acts as a playground for you to explore networking and the experience is very close to what you see in computer networks.</p> <p>They also provide their service in languages such as Russian, German, Spanish and French. Packet Tracer enables students to create complicated and huge networks, which is frequently impossible with physical hardware due to cost considerations. Packet Tracer is available for Linux, Windows, MacOS, Android, and iOS.</p> <p>Packet Tracer allows users to drag and drop routers, switches, and other network devices to create simulated network topologies. If you have a Netacad account, you can download it for free.</p> <p>Who Uses Cisco Packet Tracer?</p> <p>This is primarily intended to train candidates for the CCNA certification, which professionals widely utilise. It is mostly used by Networking Curious & Aficionados, CCNA, CCNA Security and CCNP Students along with Engineers, Educators, & Trainers.</p> <p>Before implementing any protocol, engineers like to test it on Cisco Packet Tracer. In addition, engineers who want to deploy any modification in the production network prefer to utilise Cisco Packet Tracer to test the changes first and then deploy if everything works as planned.</p>



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Features of Cisco Packet Tracer

- 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.
- It can be downloaded for free through a Netacad account.

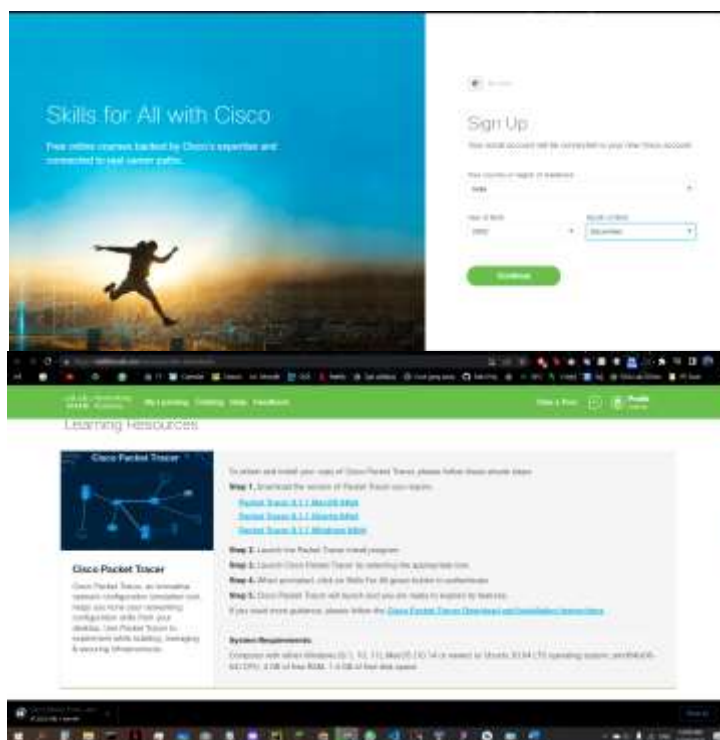
How to Install Cisco Packet Tracker?

1) Visit the following link and click on See Courses

<https://www.netacad.com/courses/packet-tracer>

2) Now a prompt will appear, click on skills for all

3) Now, click on getting started with Cisco, login and download the software according to your machine

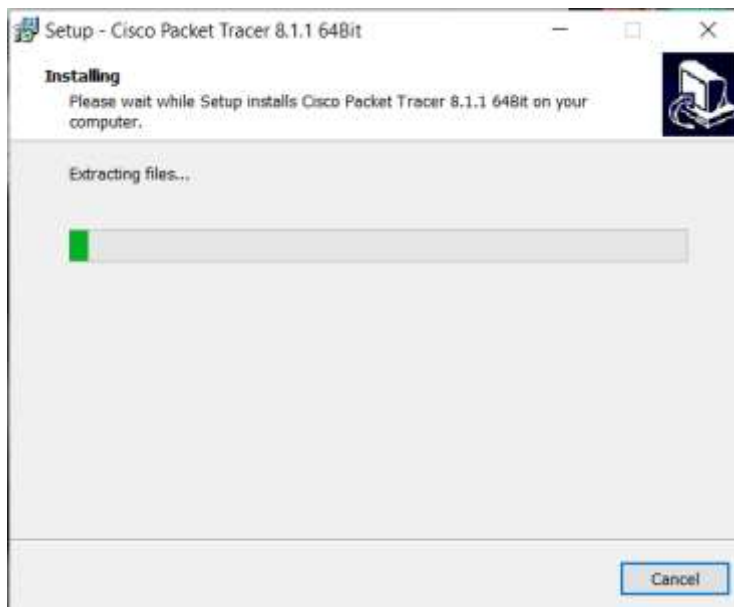




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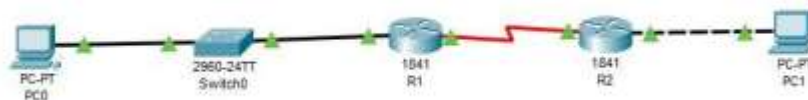
Topology

Given:

192.168.1.32/27 192.168.1.64/27 192.168.1.96/27



Performed



Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	Fa0/0	192.168.1.33	255.255.255.224	N/A
	S0/0/0	192.168.1.65	255.255.255.224	N/A
R2	Fa0/0	192.168.1.97	255.255.255.224	N/A
	S0/0/0	192.168.1.94	255.255.255.224	N/A
PC1	NIC	192.168.1.62	255.255.255.224	192.168.1.33
PC2	NIC	192.168.1.126	255.255.255.224	192.168.1.97



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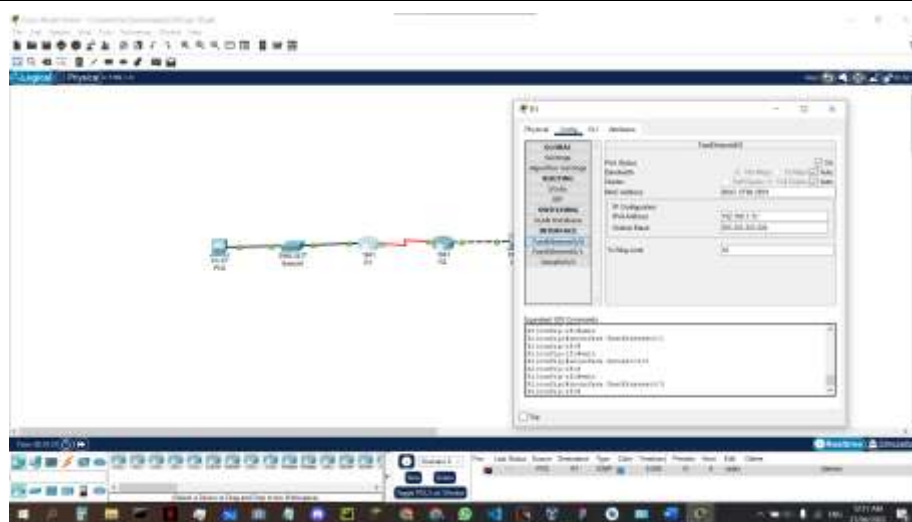
EXPERIMENT	
CONFIGURING OUTPUT:	<p><u>Subnet the Address Space.</u></p> <p>Step 1: Examine the network requirements. Performed: You have been given the 192.168.1.0/24 address space to use in your network design. The network consists of the following segments:</p> <ul style="list-style-type: none">• The network connected to router R1 will require enough IP addresses to support 15 hosts.• The network connected to router R2 will require enough IP addresses to support 30 hosts.• The link between router R1 and router R2 will require IP addresses at each end of the link. <p>Step 2: Consider the following questions when creating your network design. How many subnets are needed for this network? ->3 What is the subnet mask for this network in dotted decimal format? ->255.255.255.224 What is the subnet mask for the network in slash format? ->27 How many usable hosts are there per subnet? ->30</p> <p>Step 3: Assign subnetwork addresses to the Topology Diagram. 1. Assign subnet 1 to the network attached to R1. 2. Assign subnet 2 to the link between R1 and R2. 3. Assign subnet 3 to the network attached to R2.</p> <p><u>Determine Interface Addresses.</u></p> <p>Step 1: Assign appropriate addresses to the device interfaces. 1. Assign the first valid host address in subnet 1 to the LAN interface on R1.</p>



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2. Assign the last valid host address in subnet 1 to PC1. 3. Assign the first valid host address in subnet 2 to the WAN interface on R1. 4. Assign the last valid host address in subnet 2 to the WAN interface on R2. 5. Assign the first valid host address in subnet 3 to the LAN interface of R2. 6. Assign the last valid host address in subnet 3 to PC2. Step 2: Document the addresses to be used in the table provide under the Topology Diagram.

Configure the Serial and Fast Ethernet Addresses.

Step 1: Configure the router interfaces. Configure the interfaces on the R1 and R2 routers with the IP addresses from your network design. Please note, to complete the activity in Packet Tracer you will be using the Config Tab. When you have finished, be sure to save the running configuration to the NVRAM of the router.

Step 2: Configure the PC interfaces. Configure the Ethernet interfaces of PC1 and PC2 with the IP addresses and default gateways from your network design.

Verify the Configurations.



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Answer the following questions to verify that the network is operating as expected.

From the host attached to R1, is it possible to ping the default gateway? ->Yes

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.99

Pinging 192.168.1.99 with 32 bytes of data:

Reply from 192.168.1.99: bytes=32 time=1ms TTL=255
Reply from 192.168.1.99: bytes=32 time=1ms TTL=255
Reply from 192.168.1.99: bytes=32 time=1ms TTL=255
Reply from 192.168.1.99: bytes=32 time=1ms TTL=255

Ping statistics for 192.168.1.99:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 1ms

C:\>
```

From the host attached to R2, is it possible to ping the default gateway? ->Yes

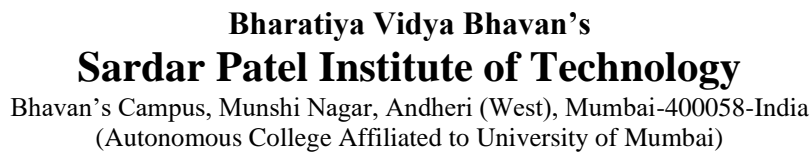
```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.99

Pinging 192.168.1.99 with 32 bytes of data:

Reply from 192.168.1.99: bytes=32 time=1ms TTL=255
Reply from 192.168.1.99: bytes=32 time=1ms TTL=255
Reply from 192.168.1.99: bytes=32 time=1ms TTL=255
Reply from 192.168.1.99: bytes=32 time=1ms TTL=255

Ping statistics for 192.168.1.99:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 1ms

C:\>
```



```

C:\Users\user>cdmcc

CDMCC 1841 (20161010 8:07) CDMCC 1841000: 1841000 bytes of memory.
Processor brand ID: P220472100
MIPS processor: part number 0, max 49
2 FastForward/IDEI 100.0, 100.0%
1. Compressed serial (x86/x64) network (x86/x64)
1841000 bytes of memory.
64000 bytes of ATA CompactFlash (Geeb/Write)
Class 100 Software, 1841 Software (C1841-ADMINISTRATOR/USER-00, Version 12.4.10/11, RELEASE
SOFTWARE (v1))
Technical Support: http://www.dell.com/technicalsupport
Copyright (c) 1800-2017 by Class Systems, Inc.
Compiled Wed 10-24-17 04:02 by pt_team

Press RETURN to get started)

CDMCC 1841-0-1841000: Line protocol on Interface FastEthernet0/0, changed state to up
CDMCC 1841-0-1841000: Interface Serial0/0/0, changed state to up
CDMCC 1841-0-1841000: Line protocol on Interface Serial0/0/0, changed state to up
warning

Peer Across Verification

Password:

CDMCC 1841-0-1841000:

Type escape sequence to abort.
Sending 8, 100-byte I/O. Echo to 1841-0-1841000, timeout is 2 seconds:
1841-0-1841000
Success rate is 100 percent (8/8), round-trip min/avg/max = 2/3/8 ms

CDMCC 1841-0-1841000:
  
```



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	<p><u>Reflection</u></p> <p>Are there any devices on the network that cannot ping each other?</p> <p>->Yes, PC1 and PC2 cannot ping each other's gateway</p> <p>What is missing from the network that is preventing communication between these devices?</p> <p>->It is not possible to ping two PCs with different IP address which are connected to router with different interfaces</p>
<p>RESULT: Learnt how the Cisco Packet Tracer application works. Learnt how to make a successful connection between two computers using router. Also learnt how to subnet an address and test the required configurations.</p>	