Suresh
C3 C32
2103164

EXPERIMENT NO - 5

CN - C32 - 2103164

Aim :- Build a simple topology and configure it for static routing protocol using packet tracer. Setup a network and configure IP addressing, subnetting, masking.

Theory :-

Network topology refers to physical or logical layout of devices and connection within a network. Different network topologies are suited. applications and have unique advantages and disadvantages. Here are a few different network topologies along with small examples of their application

Star Topology :-

Description : In star topology, all devices are connected to central hub or switch. Devices do not connect directly connect directly to each other.
Application :- Star topology is mainly used in home network where all devices connect to central router or switch. This topology is straightforward to set up and manage.

Bus Topology :-

Description :- In bus topology, all devices share a single communication, line (bus). Data bars -

melted down the bus and devices can "tap
to acss the data.

Application :- Bus topologies were historically
used in early ethernet networks. While they
are less common today, they can still be found
application like industrial control systems.

Ring Topology :-

Description :- In ring topology, each devices is conn
to exactly two other devices, forming a closed
loop. Data travels in one direction around th
ring.

Application: Ring Topology are less common in
modern LANs but are used in specific applica
like fiber optic network. Token Ring Network
used this topology in the past.

Mesh Topology :-

Description :- In mesh topology, every devices is
connected to exactly two either two device,
creating multiple paths for data to travel.

Application :- Mesh topologies are often used in
critical application like data centres, where
redundancy and fault tolerance are crucial.
Each devices can communicate directly with
any other, enhancing reliability.

CN:-C32-2103164

Hybrid Topology :-

Description :- A hybrid topology combines two or more different topologies into a network. For example, a network might have star topology in one office and ring topology in another office connected through a single network router.

Application : Hybrid topologies allow organization to tailor their network to specific needs. They are commonly found in larger enterprises with diverse networking requirements.

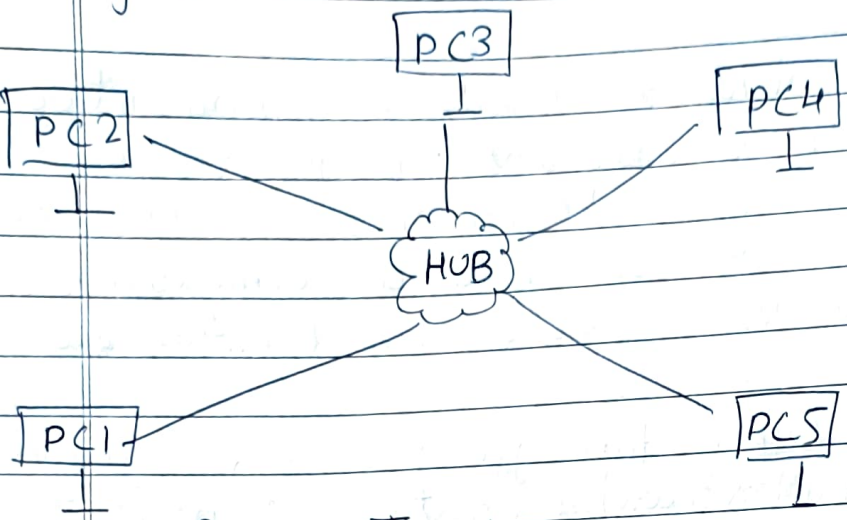
Tree Topology :-

Description :-

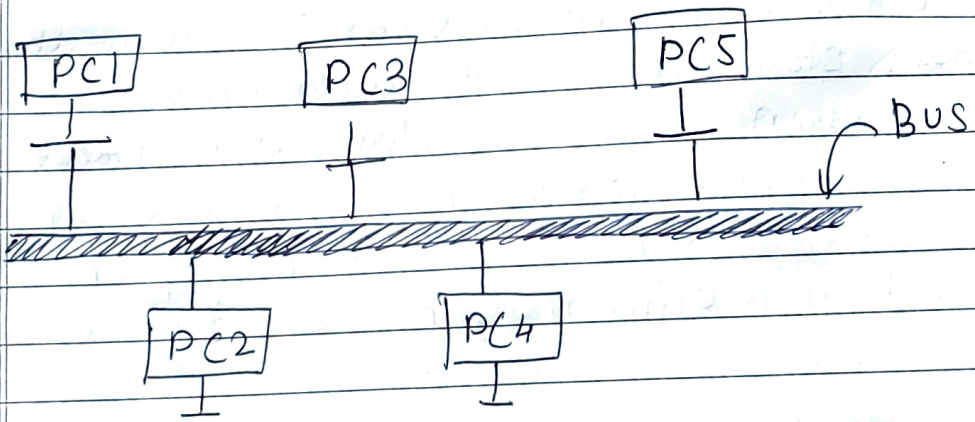
Also known as Hierachical Topology, there are star connected to central hub.

Application :- Tree topologies are often used in large scale network, such as cooporate networks with multiple branches. Each branch office may have star topology, they all connected to main office using a heirachical structure.

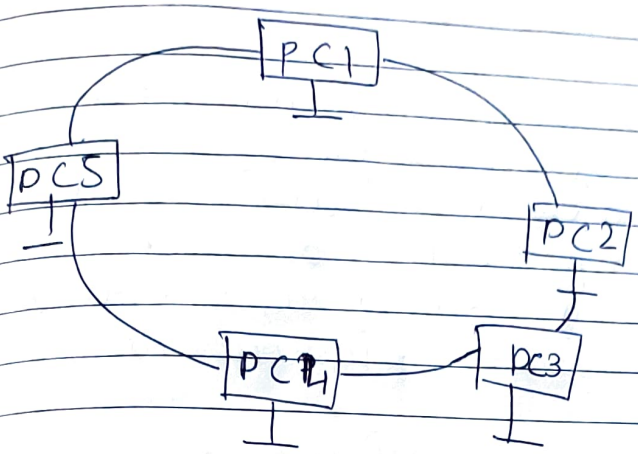
Diagrams :-



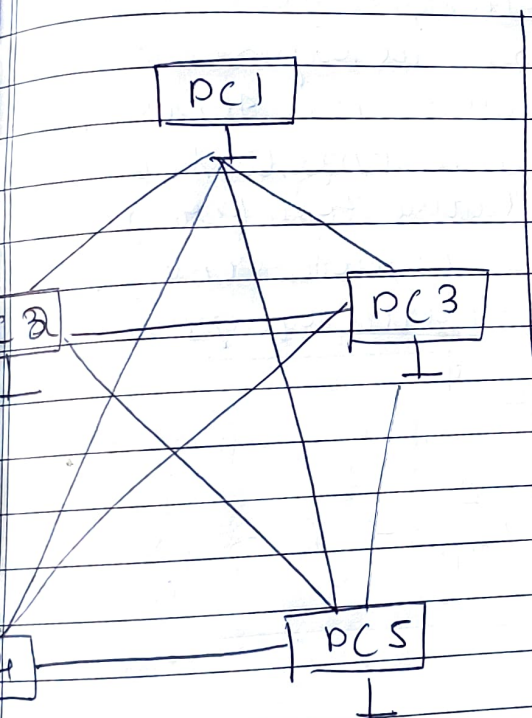
Star Topology



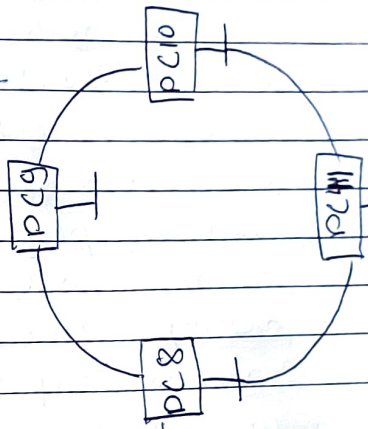
Bus Topology

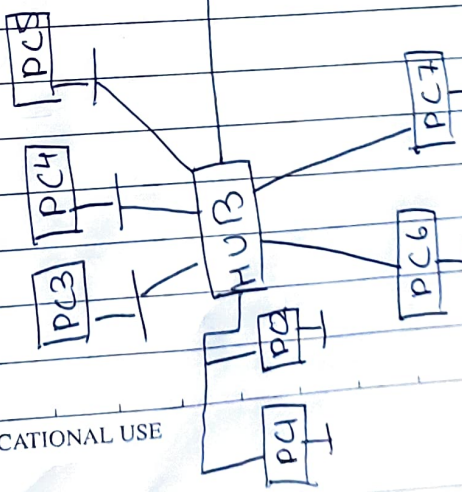


Ring Topology



Mesh Topology





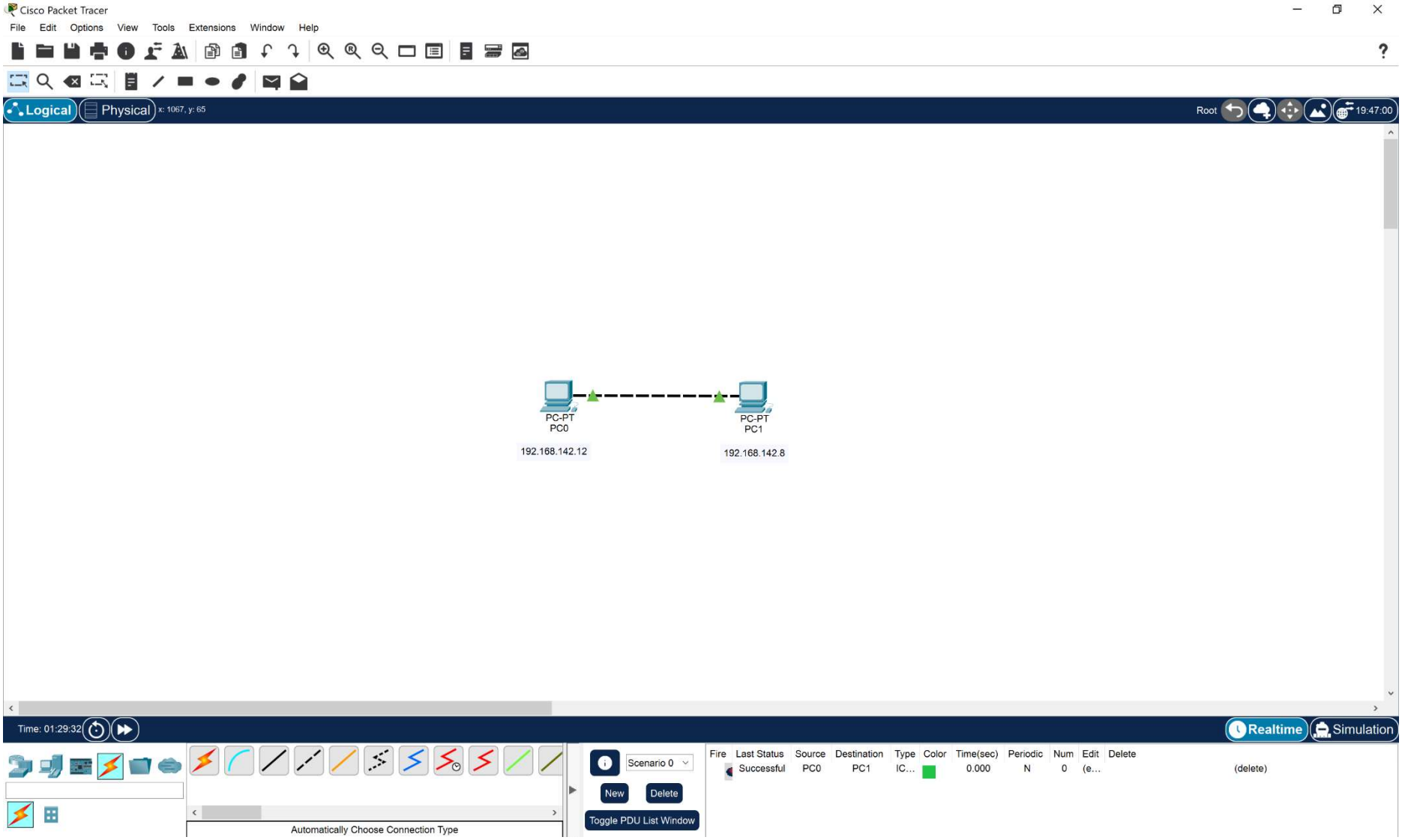
Hybrid Topology

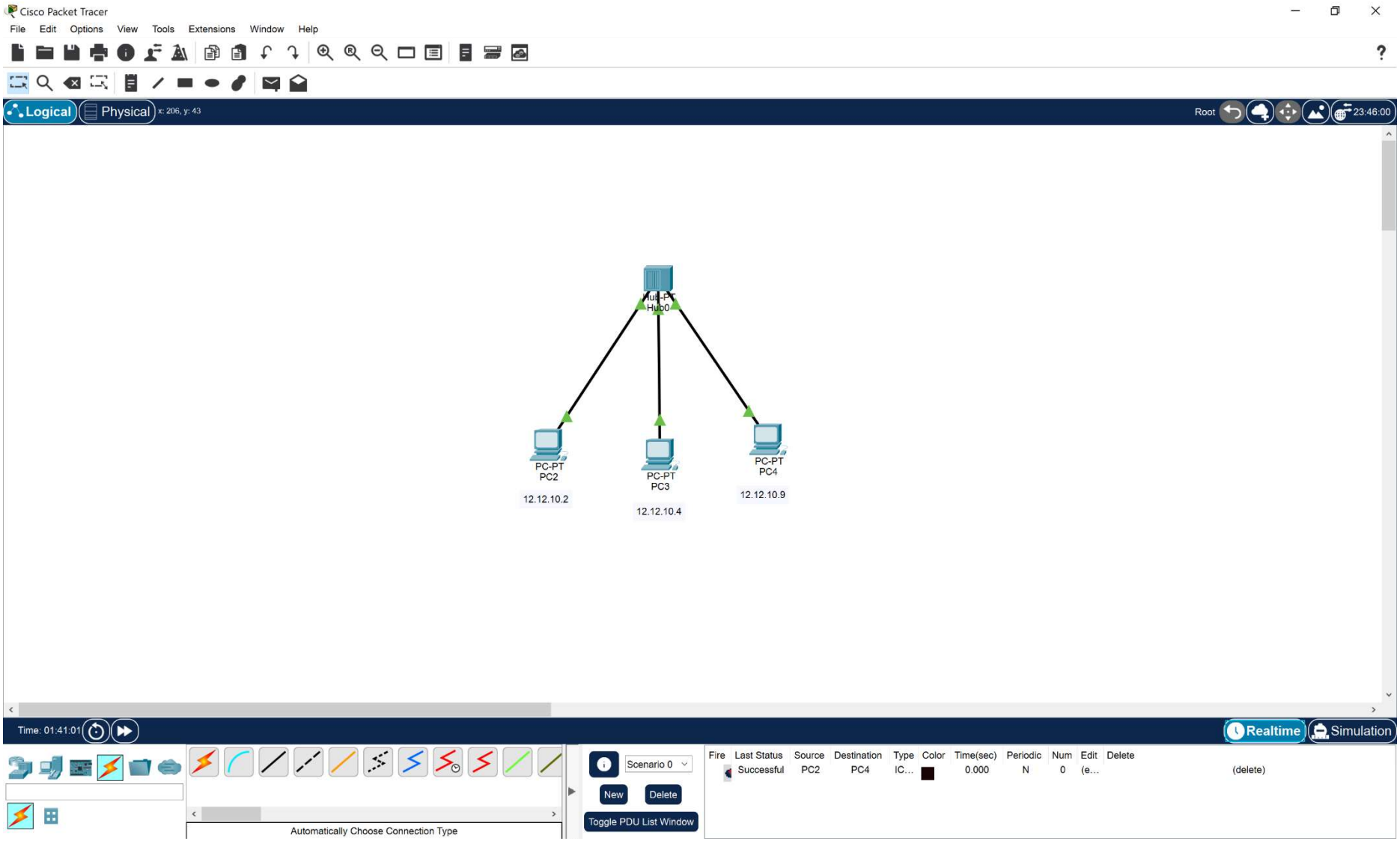
* Cisco packet Tracer :-

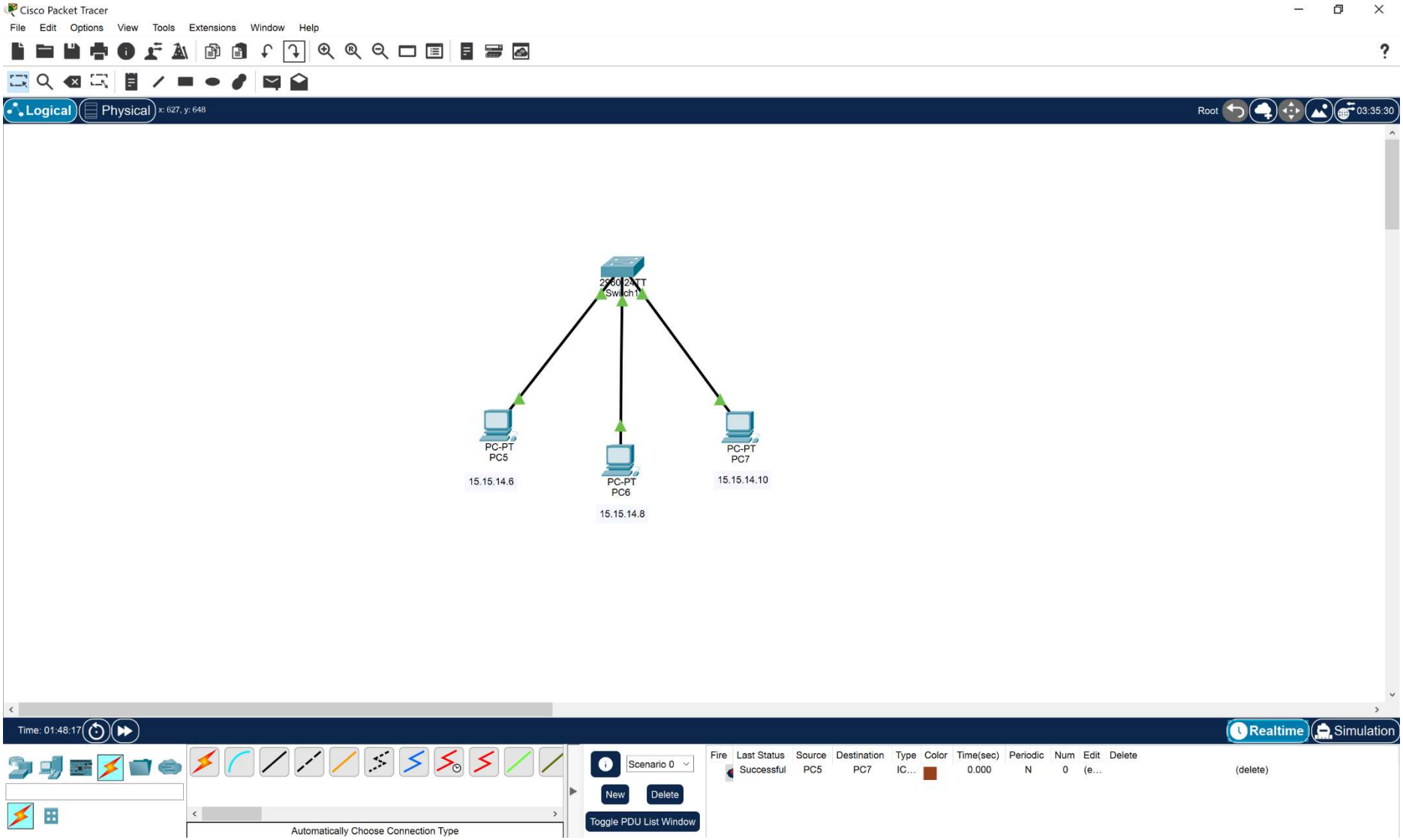
Cisco packet Tracer is a versatile networ simulation tool developed by Cisco Systems. I serves as a valuable resource for both networking professionals and learners, enablin them to design, configure, and test network setups in virtual environment.

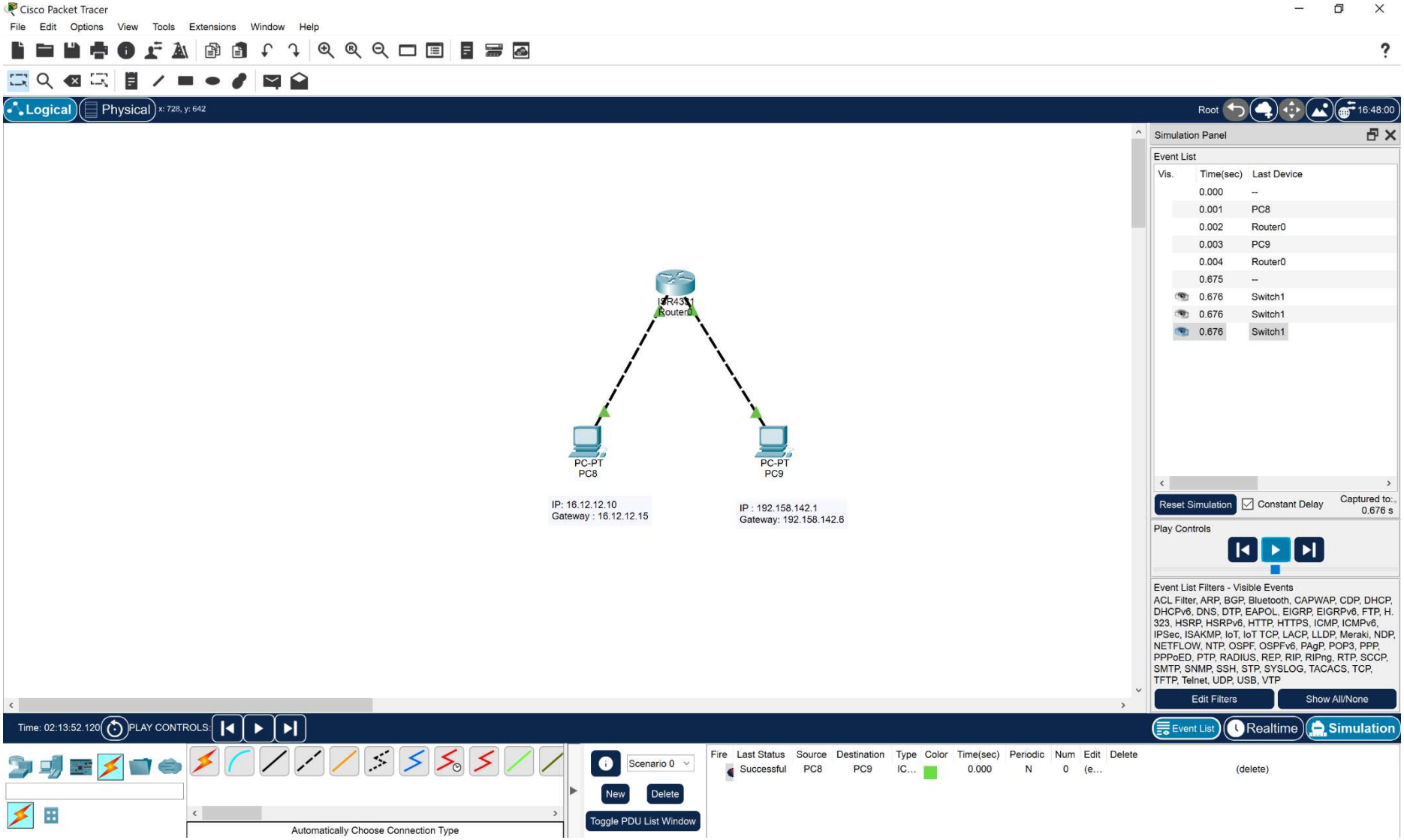
Packet Tracer offer a user friendly interfac and wide range of Cisco devices and networ components, allowing users to build and exper with various network topologies, troublesho issues and gain pratical experience witho need of physical hardware. Its commonly used in educational settings to teach netwo concept and is valuable tool for gaining hand on experience in networking before working with real-world equipment.

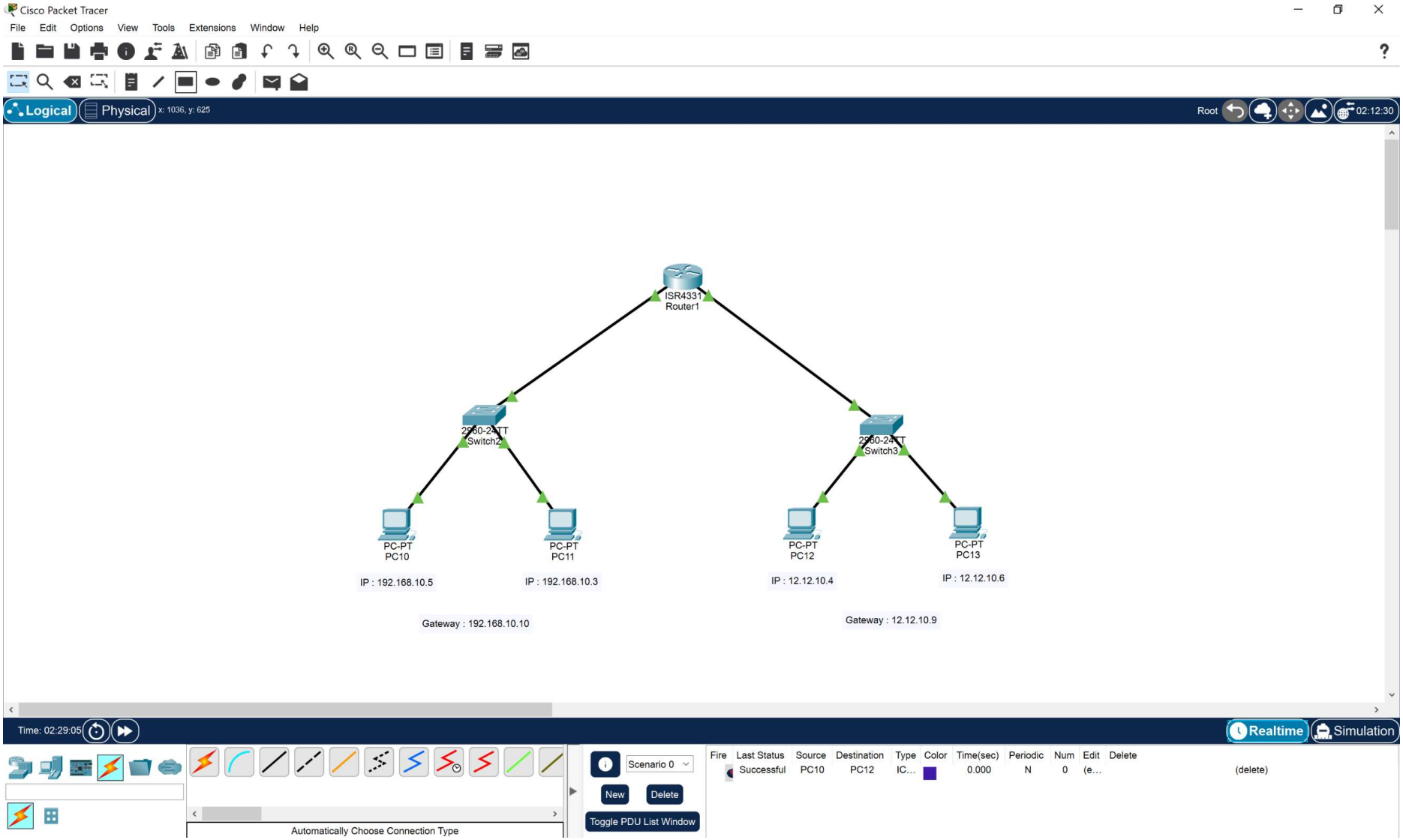
03/10/23


Cisco Packet Tracer
File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 1067, y: 65
Root
19:47:00
PC-PT
PC0
192.168.142.12
PC-PT
PC1
192.168.142.8
Time: 01:29:32
Realtime
Simulation
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
Successful
PC0
PC1
IC...
0.000
N
0
(e...
(delete)


Cisco Packet Tracer
File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 206, y: 43
Root
23:46:00
Multi-PT Hub0
PC-PT PC2
12.12.10.2
PC-PT PC3
12.12.10.4
PC-PT PC4
12.12.10.9
Time: 01:41:01
Realtime
Simulation
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle PDU List Window
Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete
Successful PC2 PC4 IC... 0.000 N 0 (e... (delete)


Cisco Packet Tracer
File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 627, y: 648
Root
03:35:30
2960-24TT
Switch1
PC-PT
PC5
15.15.14.6
PC-PT
PC6
15.15.14.8
PC-PT
PC7
15.15.14.10
Time: 01:48:17
Realtime
Simulation
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
Successful
PC5
PC7
IC...
0.000
N
0
(e...
(delete)


Cisco Packet Tracer
File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 728, y: 642
Root
16:48:00
ISR4331
Router0
PC-PT
PC8
PC-PT
PC9
IP: 16.12.12.10
Gateway : 16.12.12.15
IP : 192.158.142.1
Gateway: 192.158.142.6
Simulation Panel
Event List
Vis. Time(sec) Last Device
0.000 --
0.001 PC8
0.002 Router0
0.003 PC9
0.004 Router0
0.675 --
0.676 Switch1
0.676 Switch1
0.676 Switch1
Reset Simulation
Constant Delay
Captured to: 0.676 s
Play Controls
Event List Filters - Visible Events
ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, IoT, IoT TCP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoED, PTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP
Edit Filters
Show All/None
Time: 02:13:52.120
PLAY CONTROLS:
Event List
Realtime
Simulation
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle PDU List Window
Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete
Successful PC8 PC9 IC... 0.000 N 0 (e... (delete)


Cisco Packet Tracer
File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 1036, y: 625
Root
02:12:30
ISR4331
Router1
2960-24TT
Switch2
2960-24TT
Switch3
PC-PT
PC10
PC-PT
PC11
PC-PT
PC12
PC-PT
PC13
IP : 192.168.10.5
IP : 192.168.10.3
IP : 12.12.10.4
IP : 12.12.10.6
Gateway : 192.168.10.10
Gateway : 12.12.10.9
Time: 02:29:05
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
Successful
PC10
PC12
IC...
0.000
N
0
(e...
(delete)
Automatically Choose Connection Type