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Week number: 6

Name of experiment: Designing and Simulation of Network Topology using Cisco Packet Tracer

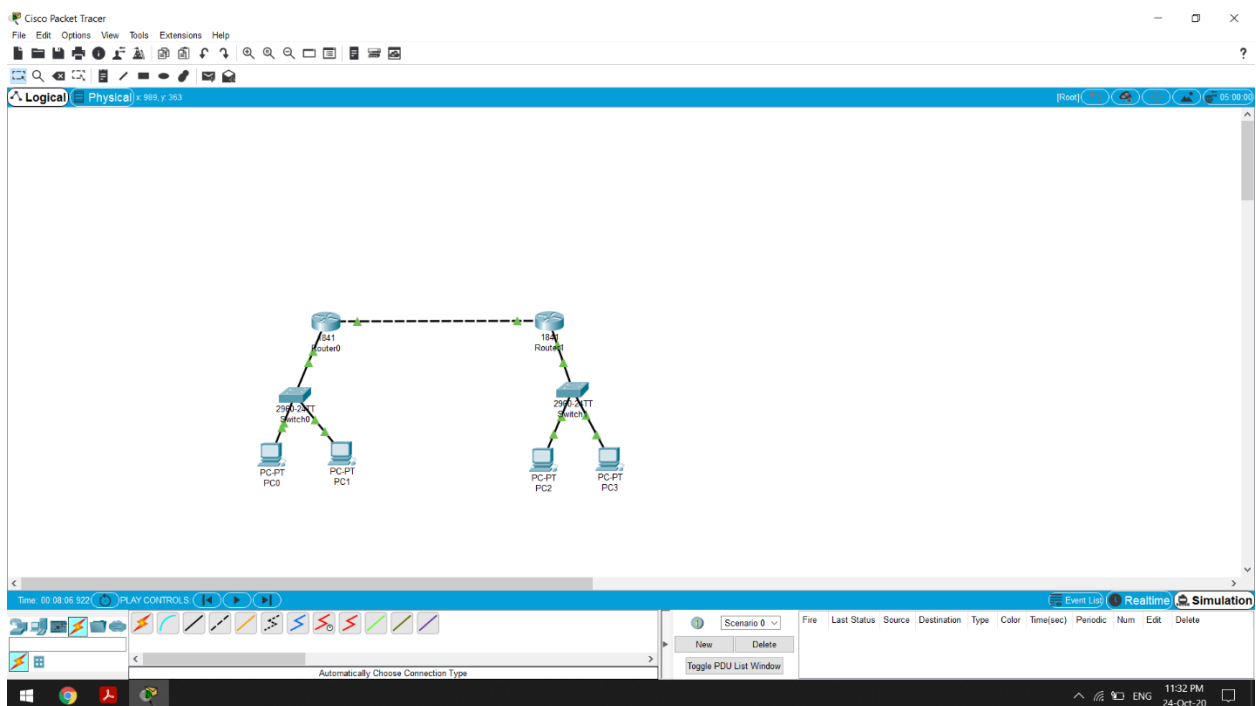
Date: 26-10-2020

Objectives of the experiment:

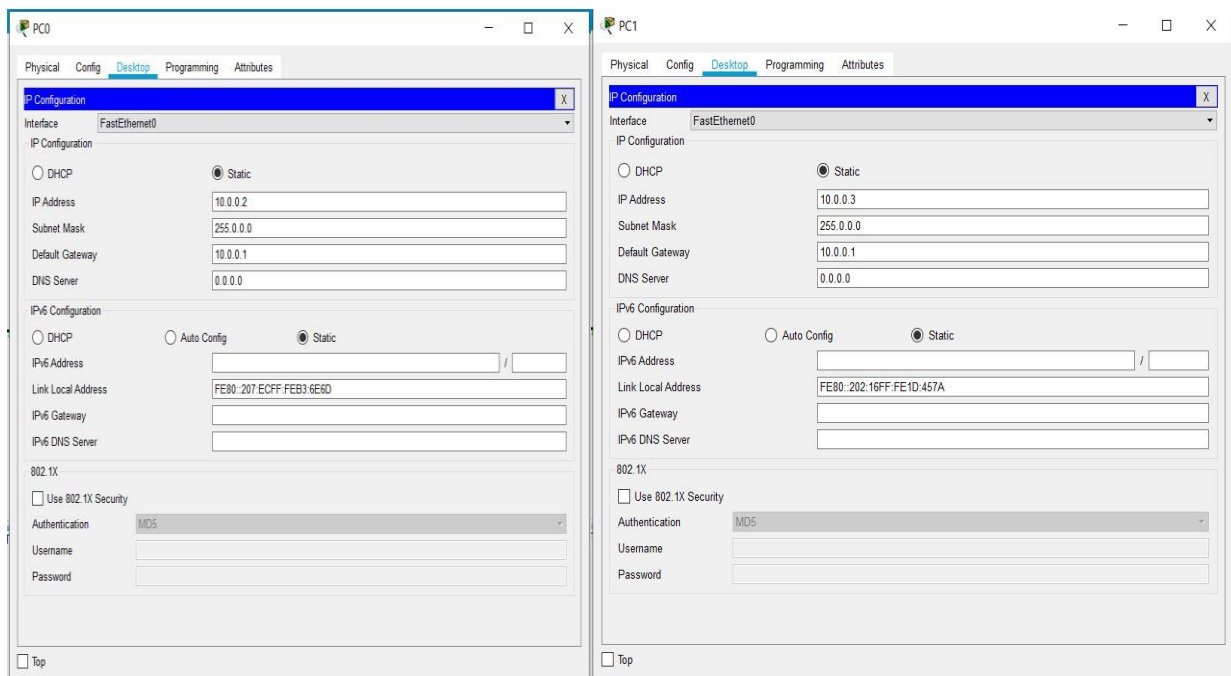
- To understand the purpose of Cisco Packet Tracer.
- To navigate, choose network and end devices and customize them.
- To interconnect devices and configure them using simple interface.
- To become familiar with building topologies in Packet Tracer.
- To simulate data interactions traveling through a network.

Task 1:

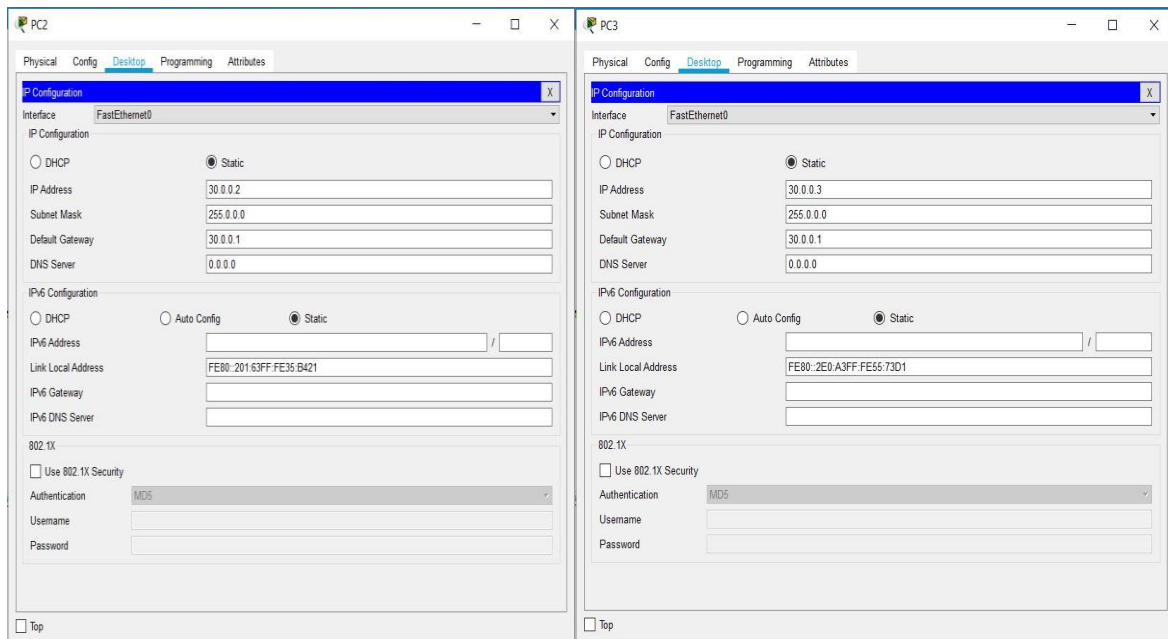
Topology-



PC0 and PC1-



PC2 and PC3-



Router0-

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet0/1

Port Status

Bandwidth

Duplex

MAC Address

IP Configuration

IP Address

Subnet Mask

Tx Ring Limit

Equivalent IOS Commands

Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#

Top

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet0/0

Port Status

Bandwidth

Duplex

MAC Address

IP Configuration

IP Address

Subnet Mask

Tx Ring Limit

Equivalent IOS Commands

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#

Top

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Static Routes

Network

Mask

Next Hop

Add

Network Address

30.0.0.0/8 via 20.0.0.2

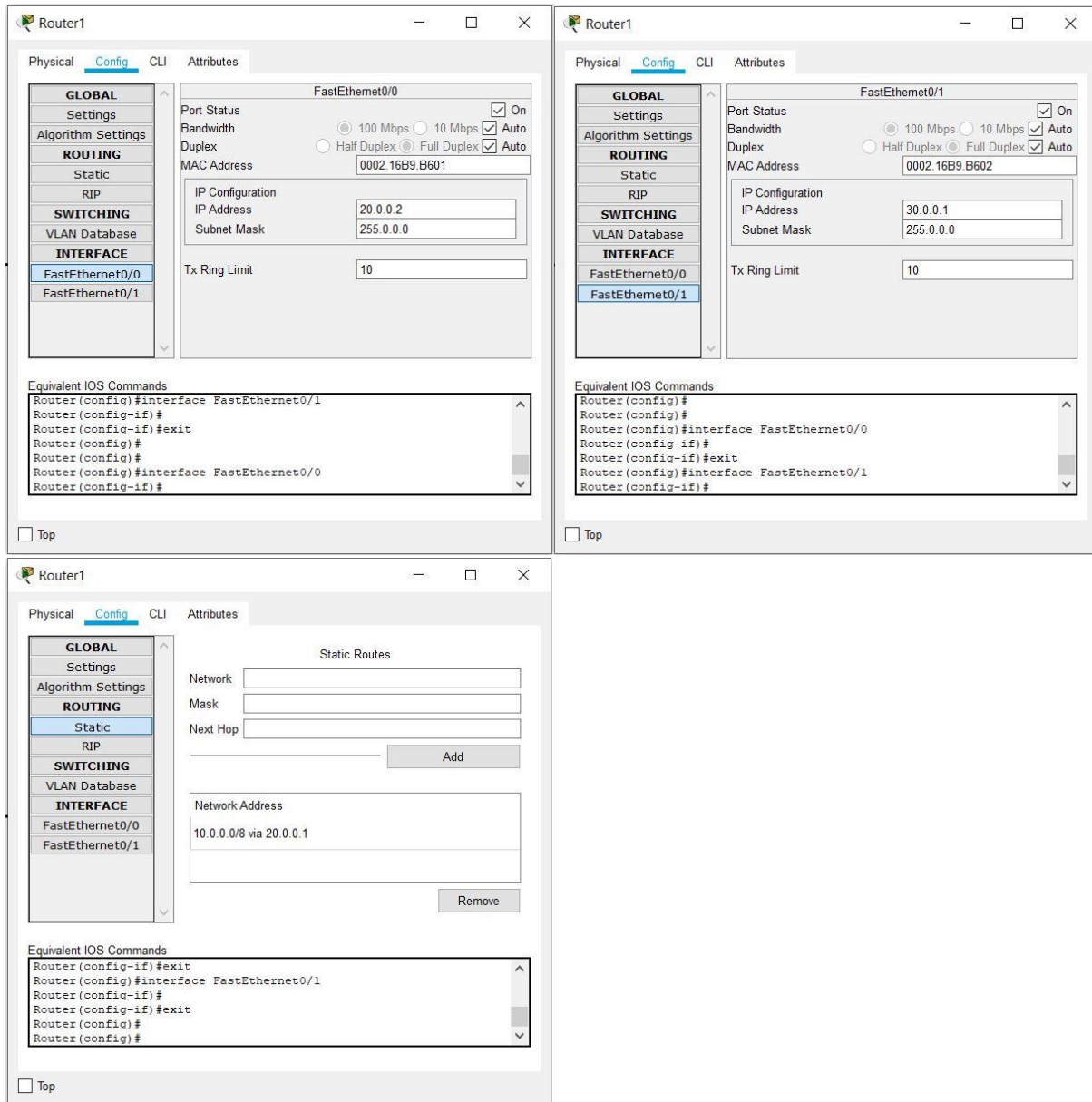
Remove

Equivalent IOS Commands

Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#

Top

Router1-



PDU from PC0 to PC1-

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x 1241, y 582

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.000	--	PC0	ARP
	0.001	PC0	Switch0	ARP
	0.002	Switch0	PC1	ARP
	0.002	Switch0	Router0	ARP
	0.003	PC1	Switch0	ARP
	0.004	Switch0	PC0	ARP
	0.004	--	PC0	ICMP
	0.005	PC0	Switch0	ICMP
	0.006	Switch0	PC1	ICMP
	0.007	PC1	Switch0	ICMP
	0.008	Switch0	PC0	ICMP
	0.160	--	Switch0	STP
Visible	0.161	Switch0	Router0	STP
Visible	0.161	Switch0	PC0	STP
Visible	0.161	Switch0	PC1	STP

Reset Simulation ☒ Constant Delay Captured to: 0.161 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, PPPoE, PTP, RADIUS, REP, RIP, RIPv2, RIPv3, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Scenario 0

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

Successful PC0 PC1 ICMP 0.000 N 0 (edit) (delete)

Toggle PDU List Window

Time: 00:07:21.736 PLAY CONTROLS

Automatically Choose Connection Type

11:31 PM 24-Oct-20

PDU from PC0 to PC2-

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x 1142, y 259

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.002	Switch0	Router0	ARP
	0.003	Router0	Switch0	ARP
	0.004	Switch0	PC0	ARP
	0.004	--	PC0	ICMP
	0.005	PC0	Switch0	ICMP
	0.006	Switch0	Router0	ICMP
	0.007	Router0	Router1	ICMP
	0.008	Router1	Switch1	ICMP
	0.009	Switch1	PC2	ICMP
	0.010	PC2	Switch1	ICMP
	0.011	Switch1	Router1	ICMP
	0.012	Router1	Router0	ICMP
	0.013	Router0	Switch0	ICMP
	0.014	Switch0	PC0	ICMP
	0.561	--	Switch1	STP
Visible	0.562	Switch1	PC2	STP
Visible	0.562	Switch1	Router1	STP
Visible	0.562	Switch1	PC3	STP

Reset Simulation ☒ Constant Delay Captured to: 0.562 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, PPPoE, PTP, RADIUS, REP, RIP, RIPv2, RIPv3, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Scenario 1

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

Successful PC0 PC2 ICMP 0.000 N 0 (edit) (delete)

Toggle PDU List Window

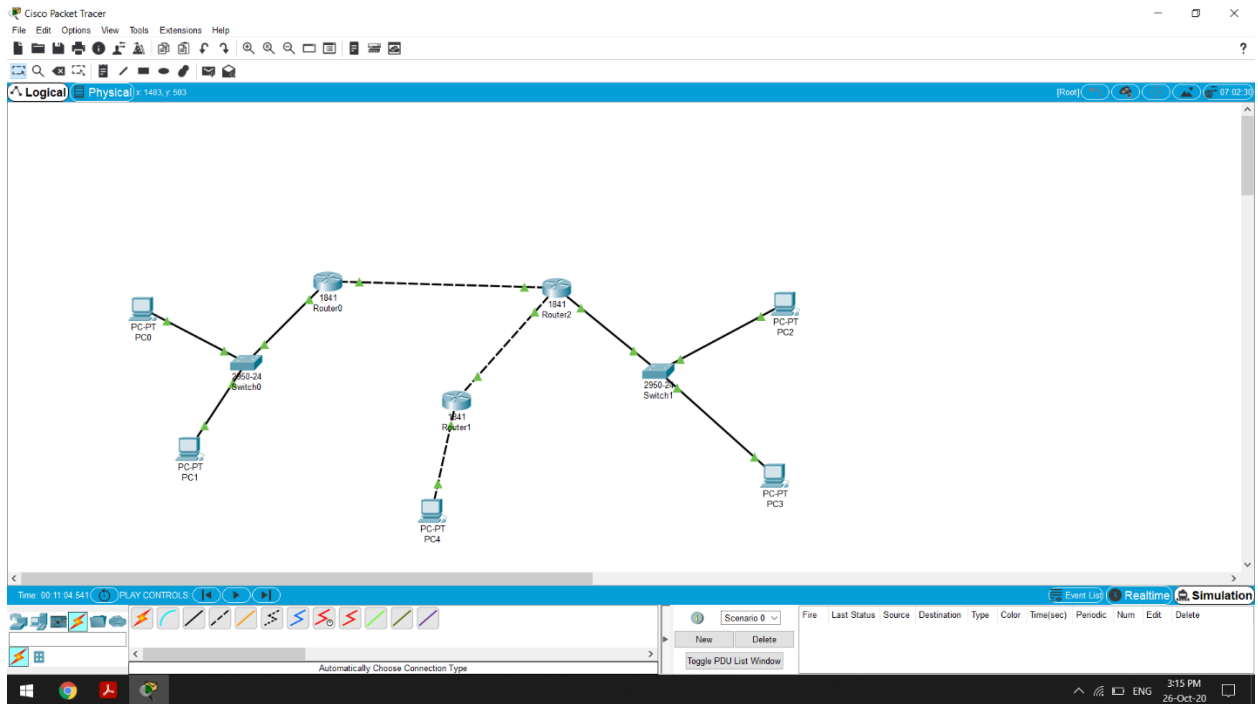
Time: 00:07:33.403 PLAY CONTROLS

Automatically Choose Connection Type

11:32 PM 24-Oct-20

Task 2:

Topology-



PC0-PC4

PC0	PC1
<p>Physical Config Desktop Programming Attributes</p> <p>IP Configuration</p> <p>Interface: FastEthernet0</p> <p>IP Configuration</p> <p><input type="radio"/> DHCP <input checked="" type="radio"/> Static</p> <p>IP Address: 10.0.0.2</p> <p>Subnet Mask: 255.0.0.0</p> <p>Default Gateway: 10.0.0.1</p> <p>DNS Server: 0.0.0.0</p> <p>IPv6 Configuration</p> <p><input type="radio"/> DHCP <input type="radio"/> Auto Config <input checked="" type="radio"/> Static</p> <p>IPv6 Address: [Empty]</p> <p>Link Local Address: FE80::2E0:F9FF:FEE4:C5EE</p> <p>IPv6 Gateway: [Empty]</p> <p>IPv6 DNS Server: [Empty]</p> <p>802.1X</p> <p><input type="checkbox"/> Use 802.1X Security</p> <p>Authentication: MDS</p> <p>Username: [Empty]</p> <p>Password: [Empty]</p>	<p>Physical Config Desktop Programming Attributes</p> <p>IP Configuration</p> <p>Interface: FastEthernet0</p> <p>IP Configuration</p> <p><input type="radio"/> DHCP <input checked="" type="radio"/> Static</p> <p>IP Address: 10.0.0.3</p> <p>Subnet Mask: 255.0.0.0</p> <p>Default Gateway: 10.0.0.1</p> <p>DNS Server: 0.0.0.0</p> <p>IPv6 Configuration</p> <p><input type="radio"/> DHCP <input type="radio"/> Auto Config <input checked="" type="radio"/> Static</p> <p>IPv6 Address: [Empty]</p> <p>Link Local Address: FE80::201:63FF:FE00:922C</p> <p>IPv6 Gateway: [Empty]</p> <p>IPv6 DNS Server: [Empty]</p> <p>802.1X</p> <p><input type="checkbox"/> Use 802.1X Security</p> <p>Authentication: MDS</p> <p>Username: [Empty]</p> <p>Password: [Empty]</p>

PC2

Physical Config Desktop Programming Attributes

IP Configuration

InterfaceFastEthernet0

IP Configuration

☐ DHCP

☒ Static

IP Address

30.0.0.3

Subnet Mask

255.0.0.0

Default Gateway

30.0.0.1

DNS Server

0.0.0.0

IPv6 Configuration

☐ DHCP

☐ Auto Config

☒ Static

IPv6 Address

Link Local Address

FE80::201:C9FF:FE3A:200E

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

Authentication

MD5

Username

Password

☐ Top

PC3

Physical Config Desktop Programming Attributes

IP Configuration

InterfaceFastEthernet0

IP Configuration

☐ DHCP

☒ Static

IP Address

30.0.0.2

Subnet Mask

255.0.0.0

Default Gateway

30.0.0.1

DNS Server

0.0.0.0

IPv6 Configuration

☐ DHCP

☐ Auto Config

☒ Static

IPv6 Address

Link Local Address

FE80::260:47FF:FE63:7E3A

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

Authentication

MD5

Username

Password

☐ Top

PC4

Physical Config Desktop Programming Attributes

IP Configuration

InterfaceFastEthernet0

IP Configuration

☐ DHCP

☒ Static

IP Address

40.0.0.2

Subnet Mask

255.0.0.0

Default Gateway

40.0.0.1

DNS Server

0.0.0.0

IPv6 Configuration

☐ DHCP

☐ Auto Config

☒ Static

IPv6 Address

Link Local Address

FE80::201:96FF:FE71:BB7

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

Authentication

MD5

Username

Password

☐ Top

Router0-

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet0/0

Port Status

On

Bandwidth

100 Mbps

10 Mbps

Auto

Duplex

Half Duplex

Full Duplex

Auto

MAC Address

00E0.F71B.4701

IP Configuration

IP Address

10.0.0.1

Subnet Mask

255.0.0.0

Tx Ring Limit

10

Equivalent IOS Commands

Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#interface FastEthernet0/0
Router(config-if)#

☐ Top

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet0/1

Port Status

On

Bandwidth

100 Mbps

10 Mbps

Auto

Duplex

Half Duplex

Full Duplex

Auto

MAC Address

00E0.F71B.4702

IP Configuration

IP Address

20.0.0.1

Subnet Mask

255.0.0.0

Tx Ring Limit

10

Equivalent IOS Commands

Router(config)#
Router(config)#
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#

☐ Top

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Static Routes

Network

Mask

Next Hop

Add

Network Address

30.0.0.0/8 via 20.0.0.2

40.0.0.0/8 via 20.0.0.2

Remove

Equivalent IOS Commands

Router(config)#
Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#

☐ Top

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Static Routes

Network

Mask

Next Hop

Add

Network Address

40.0.0.0/8 via 20.0.0.2

50.0.0.0/8 via 20.0.0.2

Remove

Equivalent IOS Commands

Router(config)#
Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#

☐ Top

Router1-

Router1

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet0/0

Port Status

On

Bandwidth

100 Mbps

10 Mbps

Duplex

Half Duplex

Full Duplex

MAC Address0090.0C5B.2B01

IP Configuration

IP Address40.0.0.1

Subnet Mask255.0.0.0

Tx Ring Limit10

Equivalent IOS Commands

Router(config)#ip route 20.0.0.0 255.0.0.0 50.0.0.1

Router(config)#ip route 30.0.0.0 255.0.0.0 50.0.0.1

Router(config)#

Router(config)#

Router(config)#

Router(config)#interface FastEthernet0/0

Router(config-if)#

Router(config-if)#exit

Router(config)#interface FastEthernet0/0

Router(config-if)#

☐ Top

Router1

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet0/1

Port Status

On

Bandwidth

100 Mbps

10 Mbps

Duplex

Half Duplex

Full Duplex

MAC Address0090.0C5B.2B02

IP Configuration

IP Address50.0.0.2

Subnet Mask255.0.0.0

Tx Ring Limit10

Equivalent IOS Commands

Router(config)#

Router(config)#

Router(config)#interface FastEthernet0/0

Router(config-if)#

Router(config-if)#exit

Router(config)#interface FastEthernet0/1

Router(config-if)#

☐ Top

Router1

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Static Routes

Network

Mask

Next Hop

Add

Network Address

10.0.0.0/8 via 50.0.0.1

20.0.0.0/8 via 50.0.0.1

Remove

Equivalent IOS Commands

Router(config-if)#exit

Router(config)#interface FastEthernet0/1

Router(config-if)#

Router(config-if)#exit

Router(config)#

Router(config)#

☐ Top

Router1

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Static Routes

Network

Mask

Next Hop

Add

Network Address

20.0.0.0/8 via 50.0.0.1

30.0.0.0/8 via 50.0.0.1

Remove

Equivalent IOS Commands

Router(config-if)#exit

Router(config)#interface FastEthernet0/1

Router(config-if)#

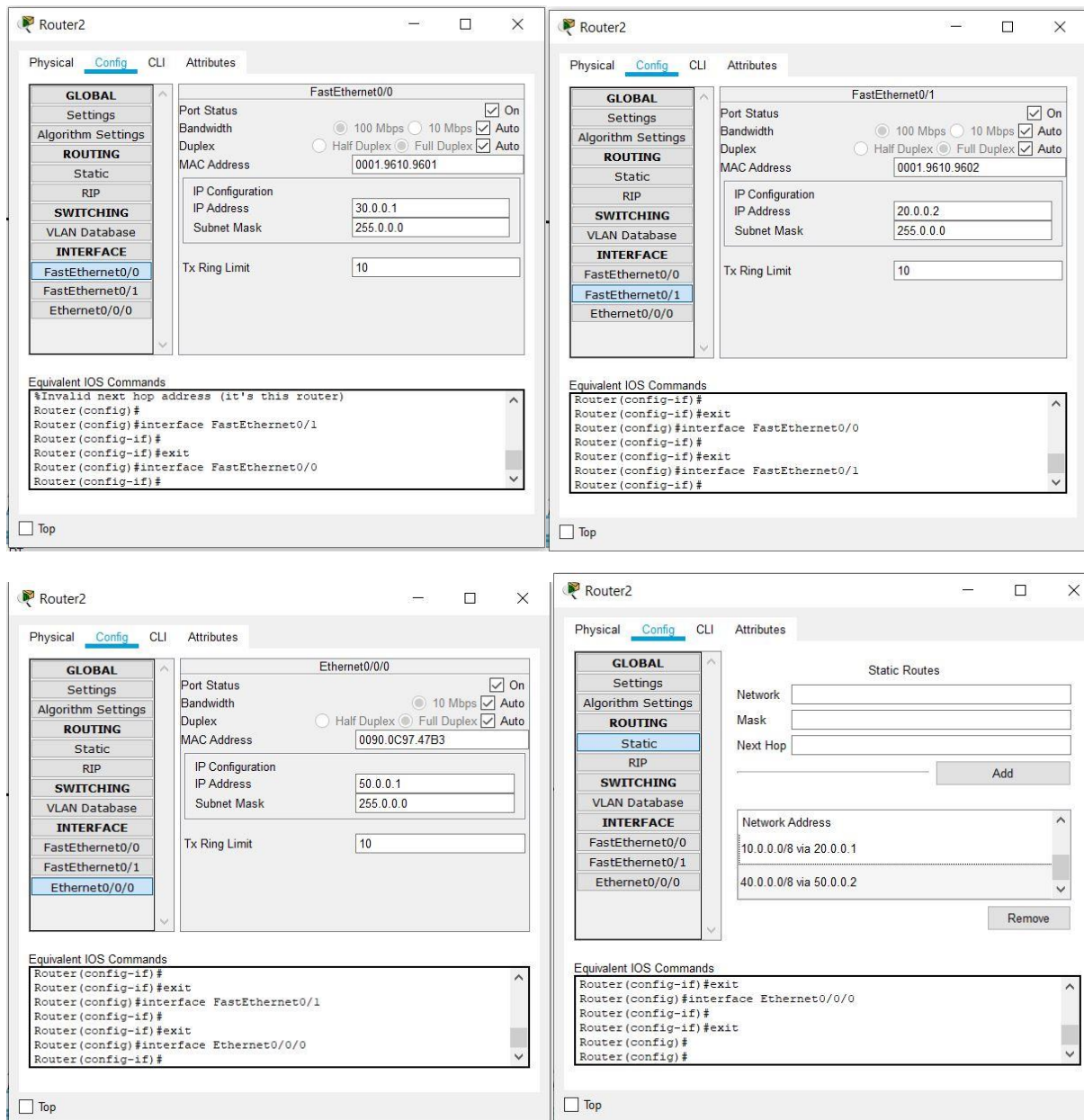
Router(config-if)#exit

Router(config)#

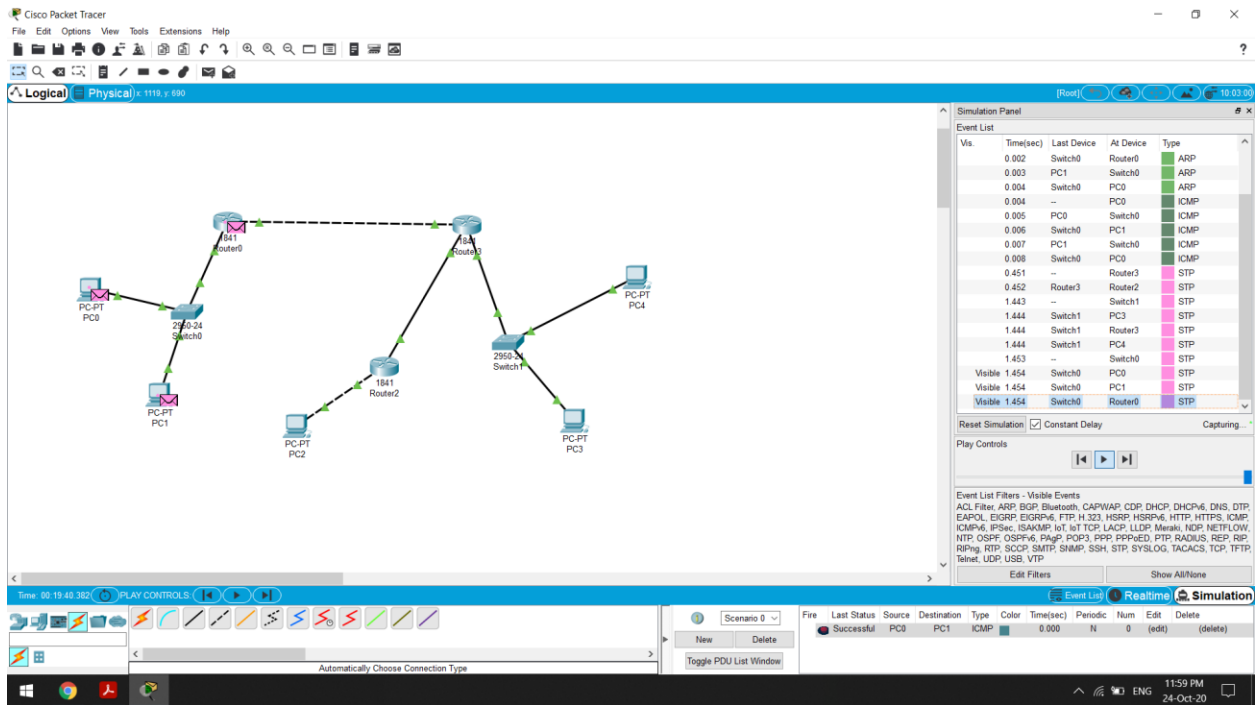
Router(config)#

☐ Top

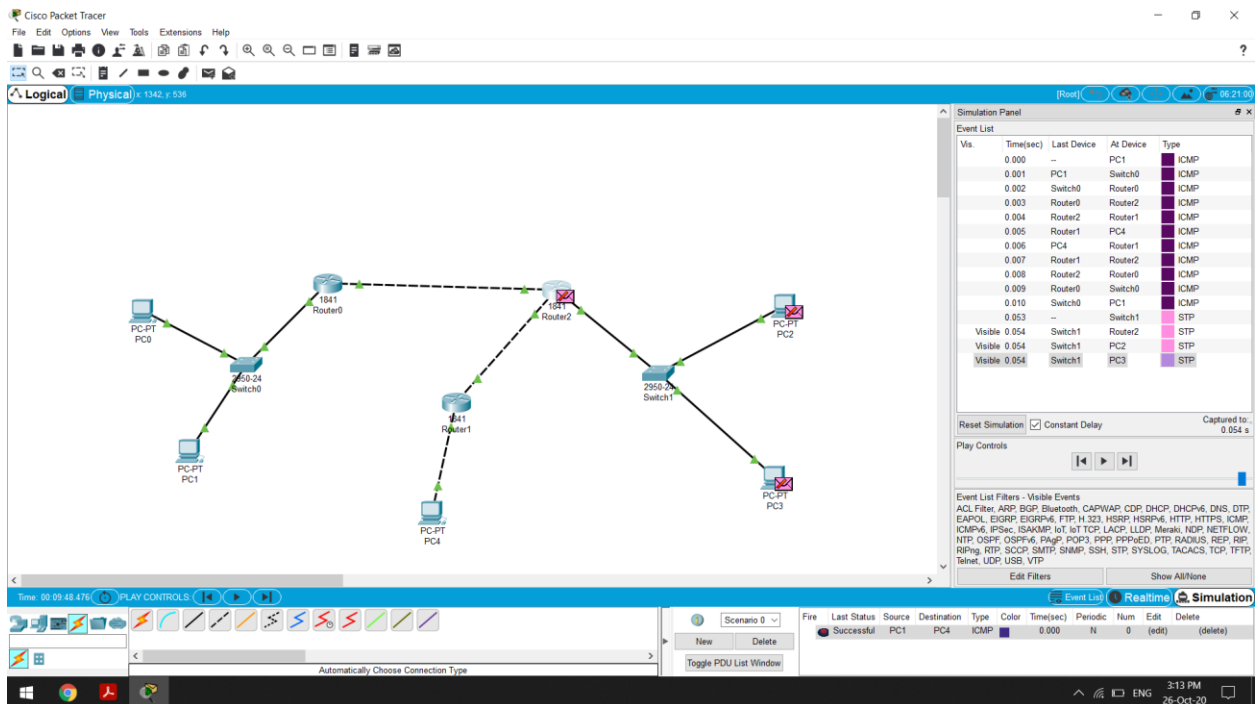
Router2-



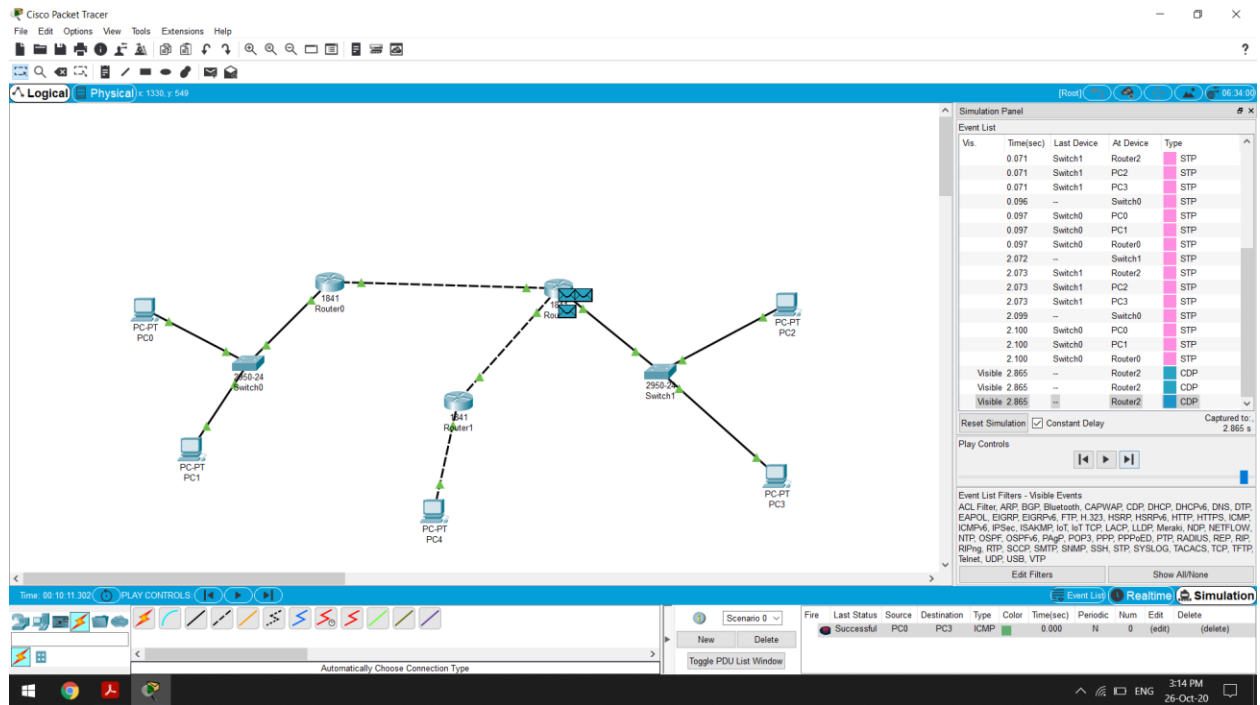
PDU from PC0 to PC1-



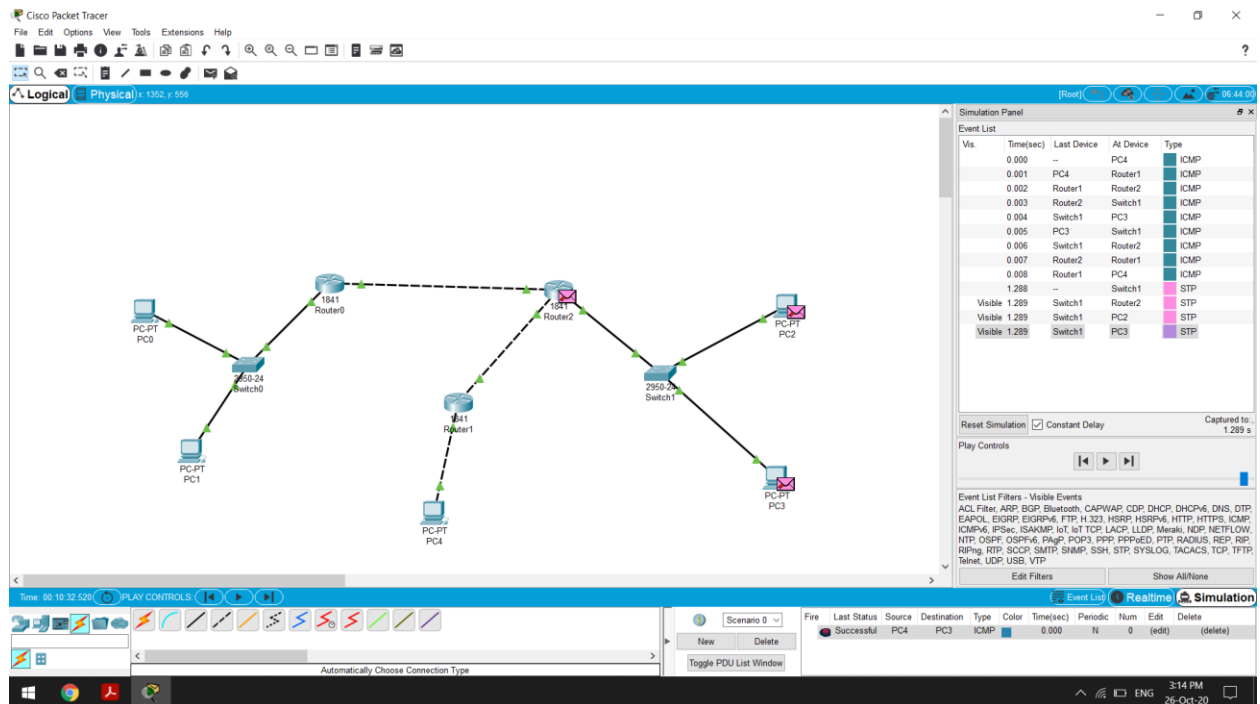
PDU from PC1 to PC4-



PDU from PC0 to PC3-



PDU from PC4 to PC3-



PDU from PC4 to PC1-

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x 1380, y 519

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.010	Router1	PC4	ICMP
	0.040	--	Switch1	STP
	0.041	Switch1	Router2	STP
	0.041	Switch1	PC2	STP
	0.041	Switch1	PC3	STP
	0.079	--	Switch0	STP
	0.080	Switch0	PC3	STP
	0.080	Switch0	PC1	STP
	0.080	Switch0	Router0	STP
	0.231	--	Switch1	CDP
	0.231	--	Switch1	CDP
	0.231	--	Switch1	CDP
	0.232	Switch1	PC2	CDP
	0.232	Switch1	PC3	CDP
	0.232	Switch1	Router2	CDP
	0.236	--	Switch1	DTP
	0.239	Switch1	Router2	DTP
	Visible 2.046	--	Switch1	STP

Reset Simulation ☒ Constant Delay Captured to: 2.046 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, PAg, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPv2, RIPv3, SSCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:10:54.548 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

Successful PC4 PC1 ICMP 0.000 N 0 (edit) (delete)

3:14 PM 26-Oct-20