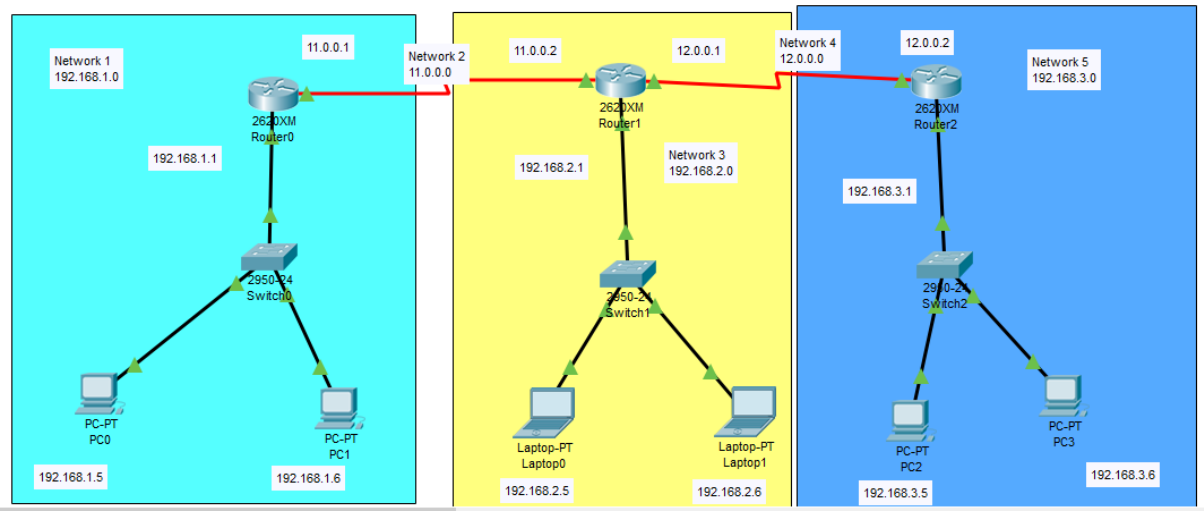
Design and Configuring WAN using three Routers with Static Routing



Addressing Table:

Device	Interface	IP Address	Subnet Mask
PC0	NIC	192.168.1.5	255.255.255.0
PC1	NIC	192.168.1.6	255.255.255.0
PC2	NIC	192.168.2.5	255.255.255.0
PC3	NIC	192.168.2.6	255.255.255.0
PC4	NIC	192.168.3.5	255.255.255.0
PC5	NIC	192.168.3.6	255.255.255.0
Router 1 FastEthernet 0/0	NIC	192.168.1.1	255.255.255.0
Router 1 Serial 0/0	INC	11.0.0.1	255.0.0.0
Router 2 Serial 0/0	INC	11.0.0.2	255.0.0.0
Router 2 Serial 0/1	INC	12.0.0.1	255.0.0.0
Router 2 FastEthernet 0/0	INC	192.168.2.1	255.255.255.0
Router 3 Serial 0/0	INC	12.0.0.2	255.0.0.0
Router 3 FastEthernet 0/0	INC	192.168.3.1	255.255.255.0

Objectives:

1. Design a WAN network using three router, three switch and 6 PCs.
2. Configure 3 Routers with static routing.
3. Use serial DCE to connect each router by adding MIC-1T interface.
4. Now assign unique I.P address for each pc.
5. Configure routers in CLI Router configurations are given below.
6. Verify the connectivity by simulation

Static Routing Table:

Router 1				
Network	192.168.2.0	11.0.0.0	192.168.3.0	12.0.0.0
Musk	255.255.255.0	255.0.0.0	255.255.255.0	255.0.0.0
Next hop	11.0.0.2	11.0.0.2	11.0.0.2	11.0.0.2
Router 2				
Network	192.168.1.0	11.0.0.0	192.168.3.0	12.0.0.0
Musk	255.255.255.0	255.0.0.0	255.255.255.0	255.0.0.0
Next hop	11.0.0.1	11.0.0.1	12.0.0.2	12.0.0.2
Router 2				
Network	192.168.1.0	11.0.0.0	12.0.0.0	192.168.2.0
Musk	255.255.255.0	255.0.0.0	255.0.0.0	255.255.255.0
Next hop	12.0.0.1	12.0.0.1	12.0.0.1	12.0.0.1

Router Configuration:

ROUTER 1:

outer>en

Router#config t

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface serial 0/0

Router(config-if)#ip address 11.0.0.1 255.0.0.0

Router(config-if)#clock rate 128000

Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/0, changed state to down

Router(config-if)#exit

Router(config)#interface f

Router(config)#interface fastEthernet

% Incomplete command.

Router(config)#interface fastEthernet0/0

Router(config-if)#ip address 192.168.1.1 255.255.255.0

Router(config-if)#no shut

Router(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit

Router(config)#

%LINK-5-CHANGED: Interface Serial0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to up

Router(config)#ip route 192.168.2.0 255.255.255.0 11.0.0.2

Router(config)#ip route 12.0.0.0 255.0.0.0 11.0.0.2

Router(config)#ip route 192.168.3.0 255.255.255.0 12.0.0.2

Router(config)#end

ROUTER 2:

Router>en

Router# config t

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface f0/0

Router(config-if)#ip add 192.168.2.1 255.255.255.0

Router(config-if)#no shut

Router(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit

Router(config)#int s0/0

Router(config-if)#ip add 11.0.0.2 255.0.0.0

Router(config-if)#no shut

Router(config-if)#

%LINK-5-CHANGED: Interface Serial0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to up

Router(config-if)#exit

Router(config)# int s0/1

Router(config-if)#clock rate 128000

Router(config-if)#ip add 12.0.0.1 255.0.0.0

Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/1, changed state to down

Router(config-if)#

%LINK-5-CHANGED: Interface Serial0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1, changed state to up

Router(config)#ip route 192.168.1.0 255.255.255.0 11.0.0.1

Router(config)#ip route 192.168.3.0 255.255.255.0 12.0.0.2

Router(config)#end

ROUTER 3:

Router>en

Router#config t

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#int f0/0

Router(config-if)#ip add 192.168.3.1 255.255.255.0

Router(config-if)#no shut

Router(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit

Router(config)#int s0/0

Router(config-if)#ip add 12.0.0.2 255.0.0.0

Router(config-if)#no shut

Router(config-if)#

%LINK-5-CHANGED: Interface Serial0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to up

Router(config)#ip route 192.168.2.0 255.255.255.0 12.0.0.1

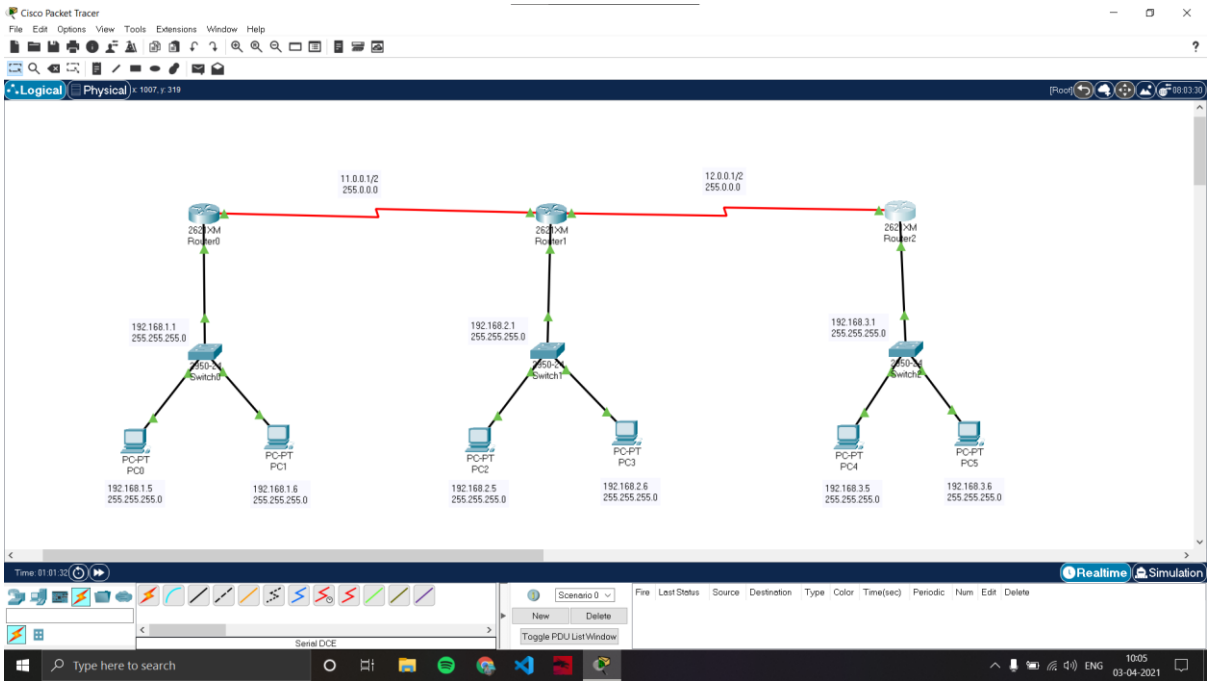
Router(config)#ip route 11.0.0.0 255.0.0.0 12.0.0.1

Router(config)#ip route 192.168.1.0 255.255.255.0 12.0.0.1

Router(config)#end

Add 2-3 screenshots

Final circuit picture:



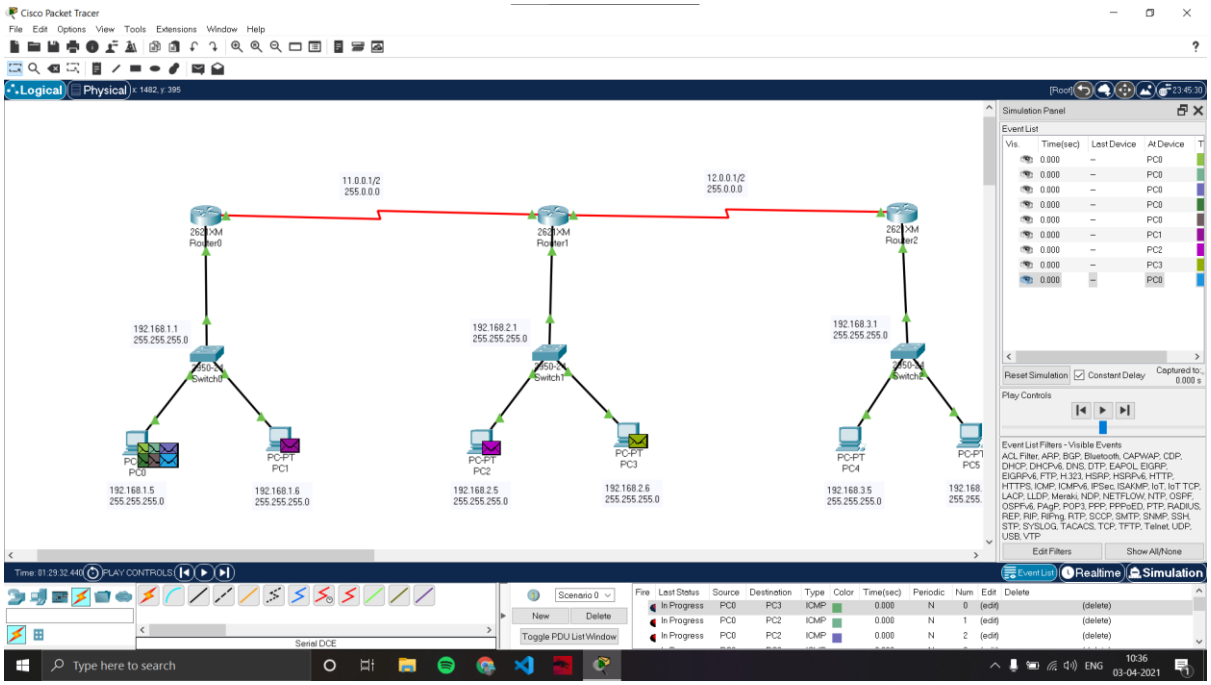
Before configuring router:

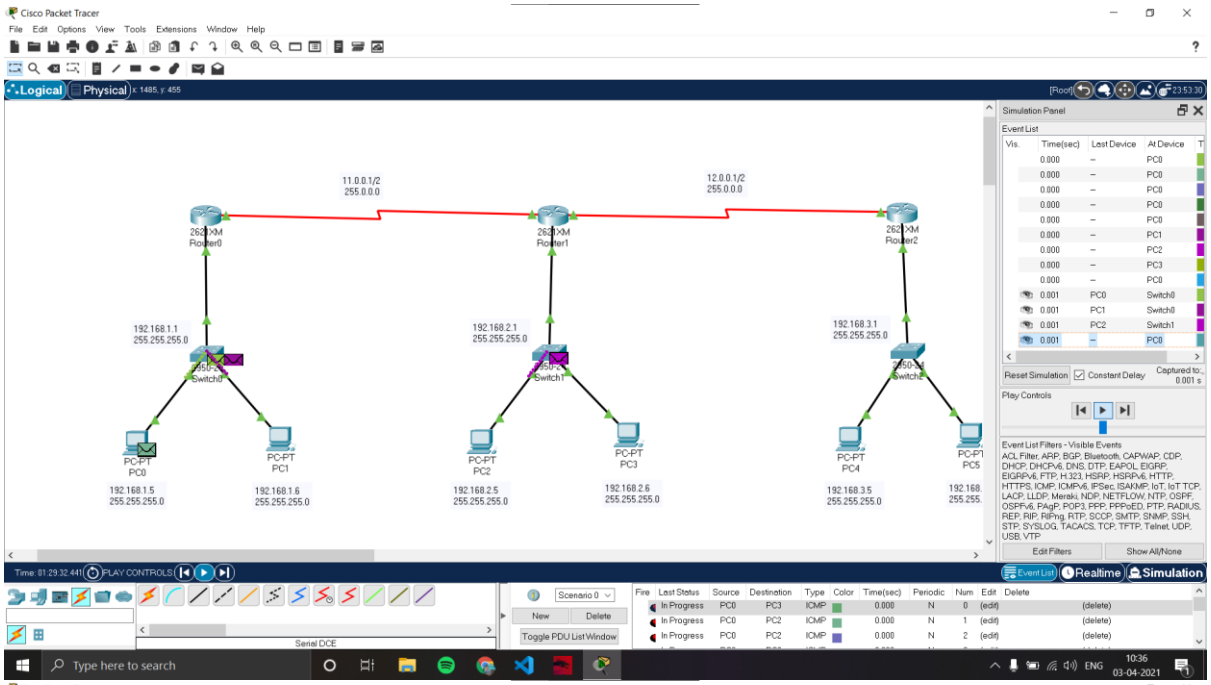
Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Failed	PC0	PC3	ICMP		0.000	N	0	(edit)	(delete)

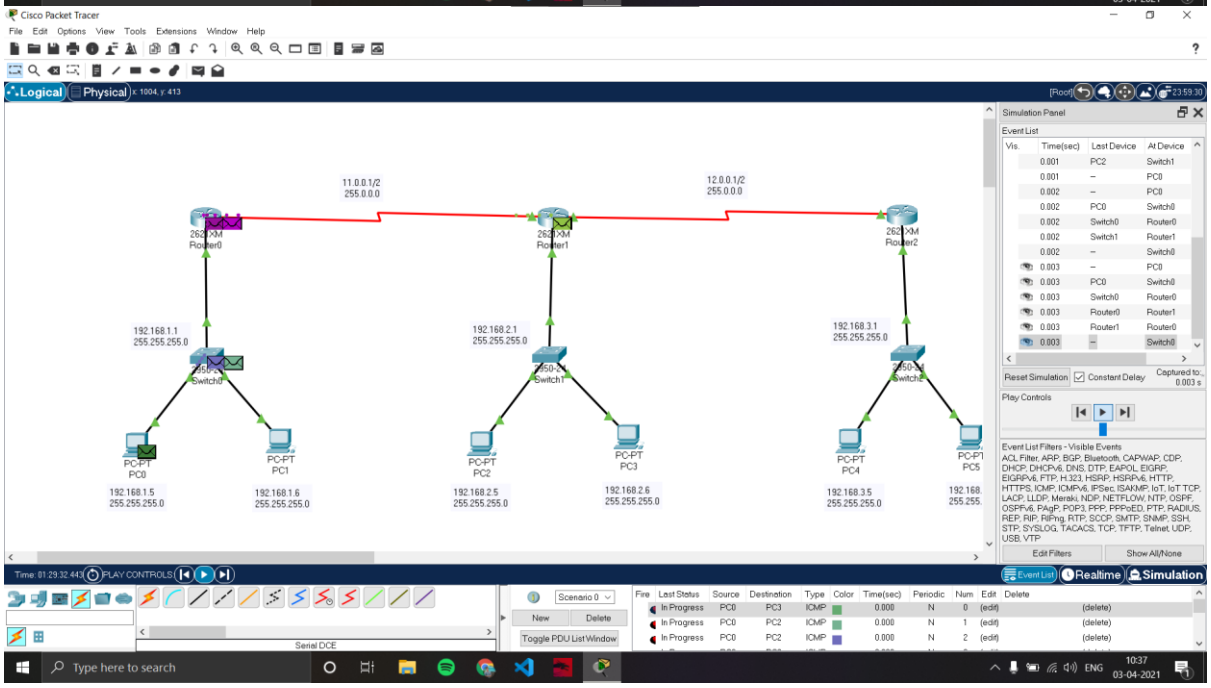
After configuring router:

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC2	PC0	ICMP		0.000	N	6	(edit)	(delete)
	Successful	PC3	PC5	ICMP		0.000	N	7	(edit)	(delete)
	Successful	PC0	PC5	ICMP		0.000	N	8	(edit)	(delete)

Simulation:




Cisco Packet Tracer
File Edit Options View Tools Extensions Window Help
Logical Physical
11.0.0.1/2
255.0.0.0
12.0.0.1/2
255.0.0.0
2621XM Router0
2621XM Router1
2621XM Router2
192.168.1.1
255.255.255.0
192.168.2.1
255.255.255.0
192.168.3.1
255.255.255.0
2950-24 Switch0
2950-24 Switch1
2950-24 Switch2
PC-PT PC0
PC-PT PC1
PC-PT PC2
PC-PT PC3
PC-PT PC4
PC-PT PC5
192.168.1.5
255.255.255.0
192.168.1.6
255.255.255.0
192.168.2.5
255.255.255.0
192.168.2.6
255.255.255.0
192.168.3.5
255.255.255.0
Simulation Panel
Event List
Vis. Time(sec) Last Device At Device
Reset Simulation
Constant Delay
Play Controls
Event List Filters - Visible Events
Edit Filters
Show All/None
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
Serial DCE
Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete
In Progress PC0 PC3 ICMP 0.000 N 0 (edit) (delete)
In Progress PC0 PC2 ICMP 0.000 N 1 (edit) (delete)
In Progress PC0 PC2 ICMP 0.000 N 2 (edit) (delete)
Type here to search
ENG
10:36
03-04-2021


Cisco Packet Tracer
File Edit Options View Tools Extensions Window Help
Logical Physical
11.0.0.1/2
255.0.0.0
12.0.0.1/2
255.0.0.0
2621XM Router0
2621XM Router1
2621XM Router2
192.168.1.1
255.255.255.0
192.168.2.1
255.255.255.0
192.168.3.1
255.255.255.0
2950-24 Switch0
2950-24 Switch1
2950-24 Switch2
PC-PT PC0
PC-PT PC1
PC-PT PC2
PC-PT PC3
PC-PT PC4
PC-PT PC5
192.168.1.5
255.255.255.0
192.168.1.6
255.255.255.0
192.168.2.5
255.255.255.0
192.168.2.6
255.255.255.0
192.168.3.5
255.255.255.0
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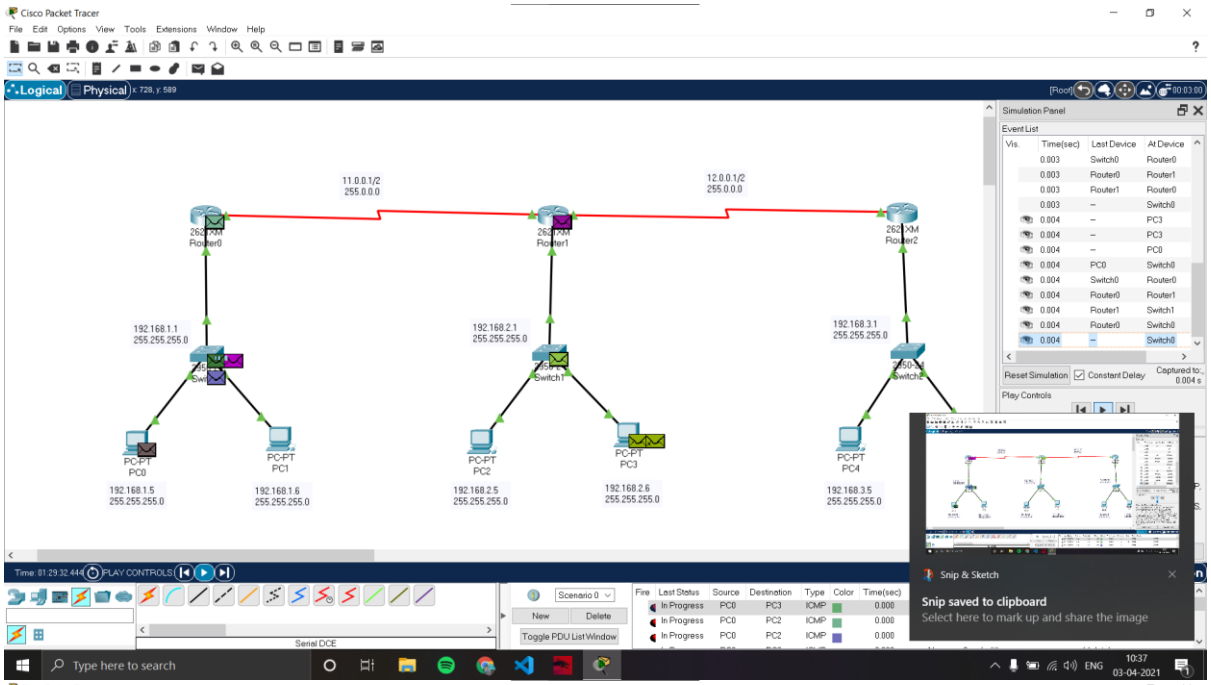
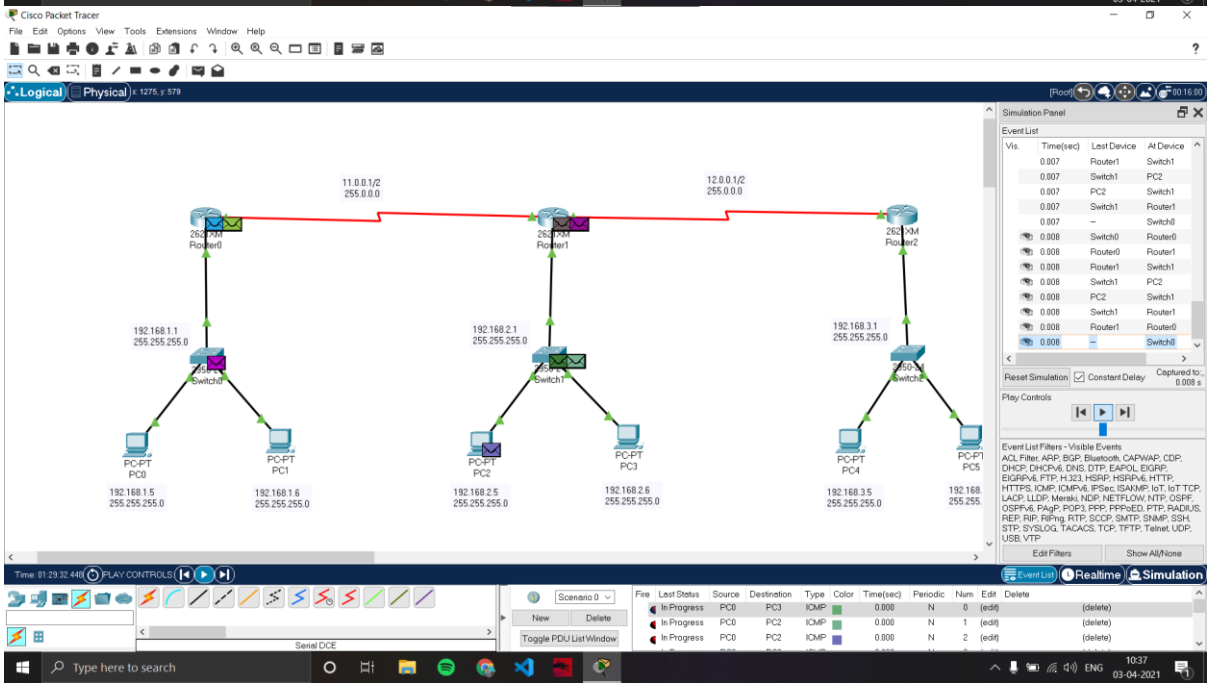
Edit Filters
Show All/None
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
Serial DCE
Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete
In Progress PC0 PC3 ICMP 0.000 N 0 (edit) (delete)
In Progress PC0 PC2 ICMP 0.000 N 1 (edit) (delete)
In Progress PC0 PC2 ICMP 0.000 N 2 (edit) (delete)
Type here to search
ENG
10:37
03-04-2021


Cisco Packet Tracer
File Edit Options View Tools Extensions Window Help
Logical Physical
11.0.0.1/2
255.0.0.0
12.0.0.1/2
255.0.0.0
Router0
Router1
Router2
192.168.1.1
255.255.255.0
192.168.2.1
255.255.255.0
192.168.3.1
255.255.255.0
PC-PT PC0
PC-PT PC1
PC-PT PC2
PC-PT PC3
PC-PT PC4
192.168.1.5
255.255.255.0
192.168.1.6
255.255.255.0
192.168.2.5
255.255.255.0
192.168.2.6
255.255.255.0
192.168.3.5
255.255.255.0
Simulation Panel
Event List
Reset Simulation
Constant Delay
Play Controls
Snip & Sketch
Snip saved to clipboard
Select here to mark up and share the image
Type here to search
ENG
10:37
03-04-2021


Cisco Packet Tracer
File Edit Options View Tools Extensions Window Help
Logical Physical
11.0.0.1/2
255.0.0.0
12.0.0.1/2
255.0.0.0
Router0
Router1
Router2
192.168.1.1
255.255.255.0
192.168.2.1
255.255.255.0
192.168.3.1
255.255.255.0
PC-PT PC0
PC-PT PC1
PC-PT PC2
PC-PT PC3
PC-PT PC4
PC-P1 PC5
192.168.1.5
255.255.255.0
192.168.1.6
255.255.255.0
192.168.2.5
255.255.255.0
192.168.2.6
255.255.255.0
192.168.3.5
255.255.255.0
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Event List
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Simulation
Type here to search
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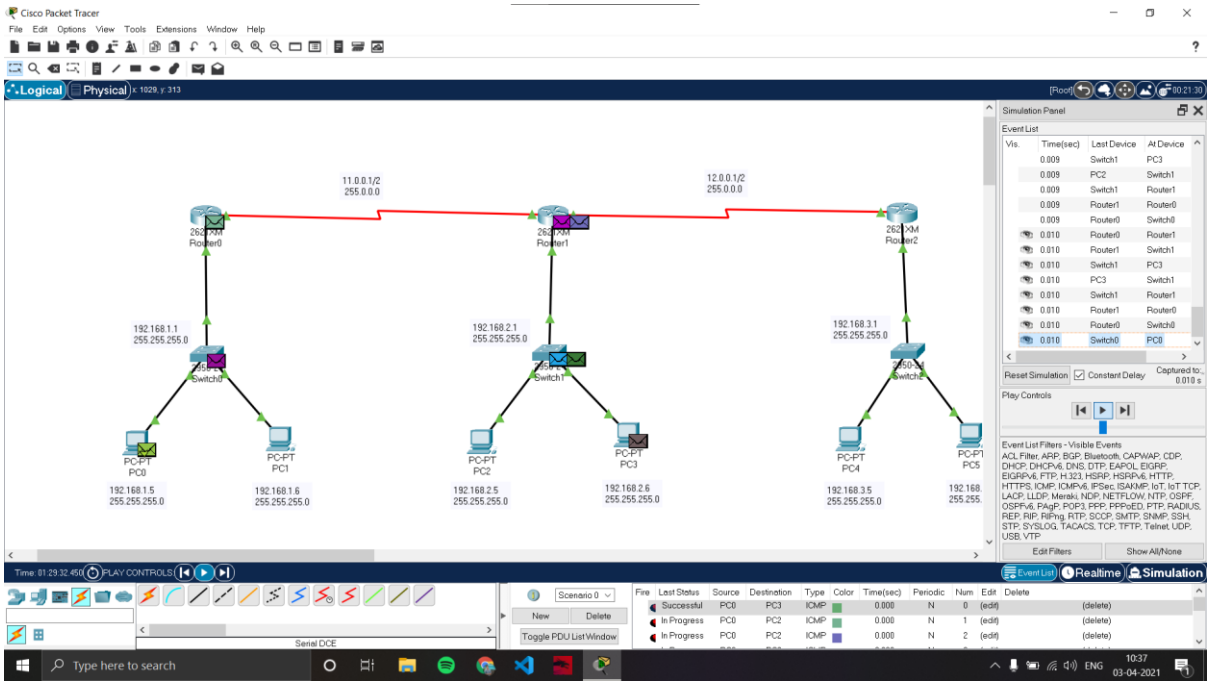
03-04-2021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Logical
Physical
11.0.0.1/2
255.0.0.0
12.0.0.1/2
255.0.0.0
Router0
Router1
Router2
192.168.1.1
255.255.255.0
192.168.2.1
255.255.255.0
192.168.3.1
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192.168.1.6
255.255.255.0
192.168.2.5
255.255.255.0
192.168.2.6
255.255.255.0
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