Experiment Name: Configuration of VLAN Network

Introduction: A *VLAN* (virtual LAN) is a subnetwork which can group together collections of devices on separate physical local area *networks* (LANs).

A VLAN is a group of devices on one or more LANs that are configured to communicate as if they were attached to the same wire, when in fact they are located on a number of different LAN segments. ... VLANs define broadcast domains in a Layer 2 network.

A LAN is a grouping of two or more devices on a network. A VLAN is a virtual LAN, a subgroup within a local network. VLANs make it easy for network administrators to separate a single switched network into multiple groups to match the functional and security requirements of their systems.

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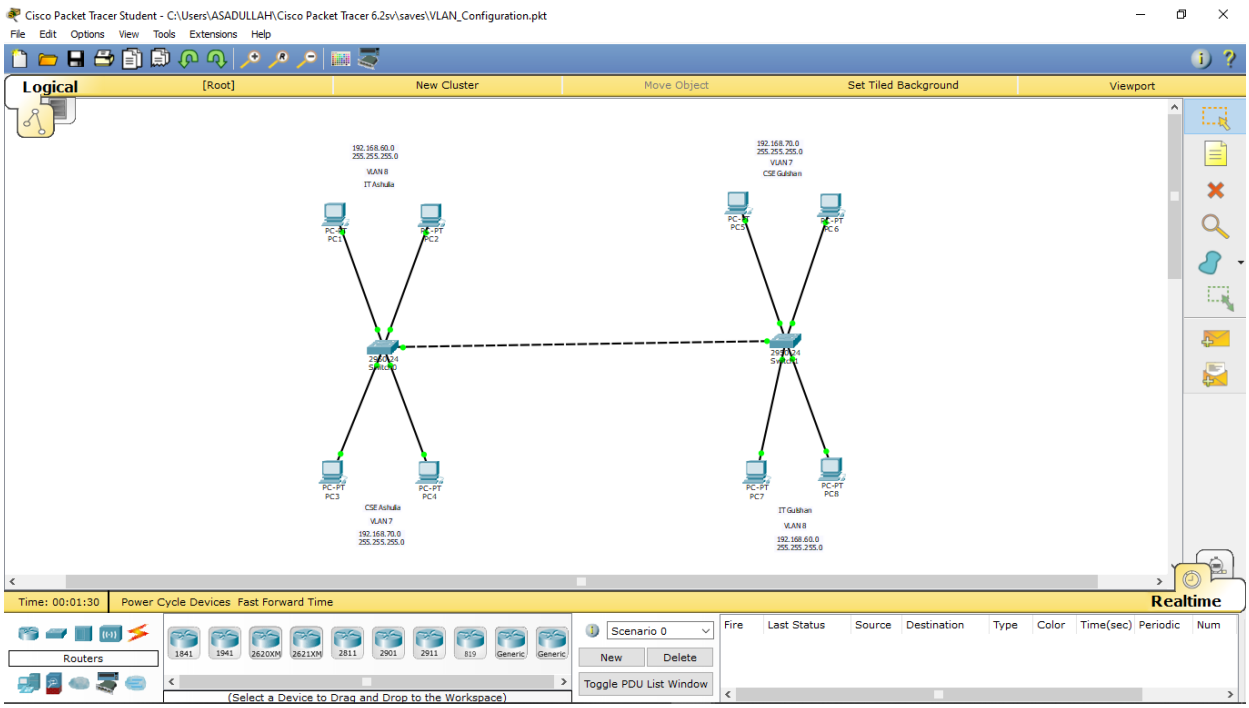
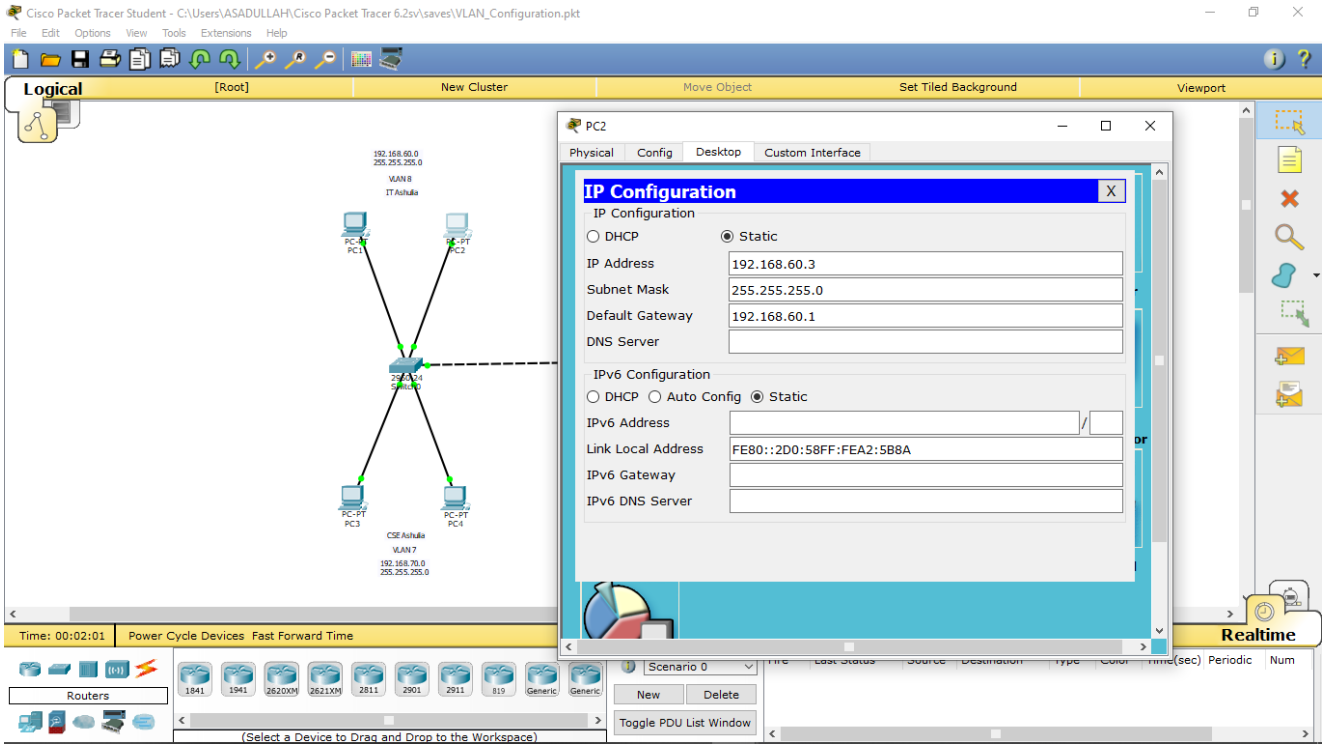
VLANs make it easy for network administrators to separate a single switched network into multiple groups to match the functional and security requirements of their systems. However, VLANs are entirely virtual. They can be implemented without having to run new cables or make major changes in the existing network infrastructure.

Problem Solving:

1. Configuration of PC's IP
2. Configuring the Switches
3. Enable using CLI Interface
4. Connection through the auto connection
5. Trunk Connection





Which Commands I have used to configure my VLAN Network:

For Switch 01:

Switch>enable
Switch#config t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW1
SW1(config)#vlan 7
SW1(config-vlan)#name cse_ashulia
SW1(config-vlan)#exit
SW1(config)#vlan 8
SW1(config-vlan)#name it_ashulia
SW1(config-vlan)#exit
SW1(config)#interface fastEthernet 0/1
SW1(config-if)#switchport access vlan 8
SW1(config-if)#exit
SW1(config)#interface fastEthernet 0/2
SW1(config-if)#switchport access vlan 8
SW1(config-if)#exit
SW1(config)#interface fastEthernet 0/3
SW1(config-if)#switchport access vlan 7
SW1(config-if)#exit
SW1(config)#interface fastEthernet 0/4
SW1(config-if)#switchport access vlan 7
SW1(config-if)#exit
SW1(config)#interface fastEthernet 0/5
SW1(config-if)#switchport mode trunk
SW1(config-if)#exit

For Switch 02:

```
Switch>
Switch>enable
Switch#config t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW2
SW2(config)#vlan 7
SW2(config-vlan)#name cse_gulshan
SW2(config-vlan)#exit
SW2(config)#vlan 8
SW2(config-vlan)#name it_gulshan
SW2(config-vlan)#exit
SW2(config)#interface fastEthernet 0/1
SW2(config-if)#switchport access vlan 7
SW2(config-if)#exit
SW2(config)#interface fastEthernet 0/2
SW2(config-if)#switchport access vlan 7
SW2(config-if)#exit
SW2(config)#interface fastEthernet 0/3
SW2(config-if)#switchport access vlan 8
SW2(config-if)#exit
SW2(config)#interface fastEthernet 0/4
SW2(config-if)#switchport access vlan 8
SW2(config-if)#exit
SW2(config)#
```

Results:

PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	De
	Successful	PC8	PC2	ICMP		0.000	N	0	(edit)	
	Successful	PC7	PC1	ICMP		0.000	N	1	(edit)	
	Successful	PC6	PC6	ICMP		0.000	N	2	(edit)	
	Successful	PC5	PC4	ICMP		0.000	N	3	(edit)	
	Successful	PC4	PC6	ICMP		0.000	N	4	(edit)	
	Successful	PC1	PC8	ICMP		0.000	N	5	(edit)	

List Window

e	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete	
	Successful	PC8	PC2	ICMP		0.000	N	0	(edit)		(delete)
	Successful	PC7	PC1	ICMP		0.000	N	1	(edit)		(delete)
	Successful	PC6	PC6	ICMP		0.000	N	2	(edit)		(delete)
	Successful	PC5	PC4	ICMP		0.000	N	3	(edit)		(delete)
	Successful	PC4	PC6	ICMP		0.000	N	4	(edit)		(delete)
	Successful	PC1	PC8	ICMP		0.000	N	5	(edit)		(delete)

Experiment Name: Configuration of RIP Network

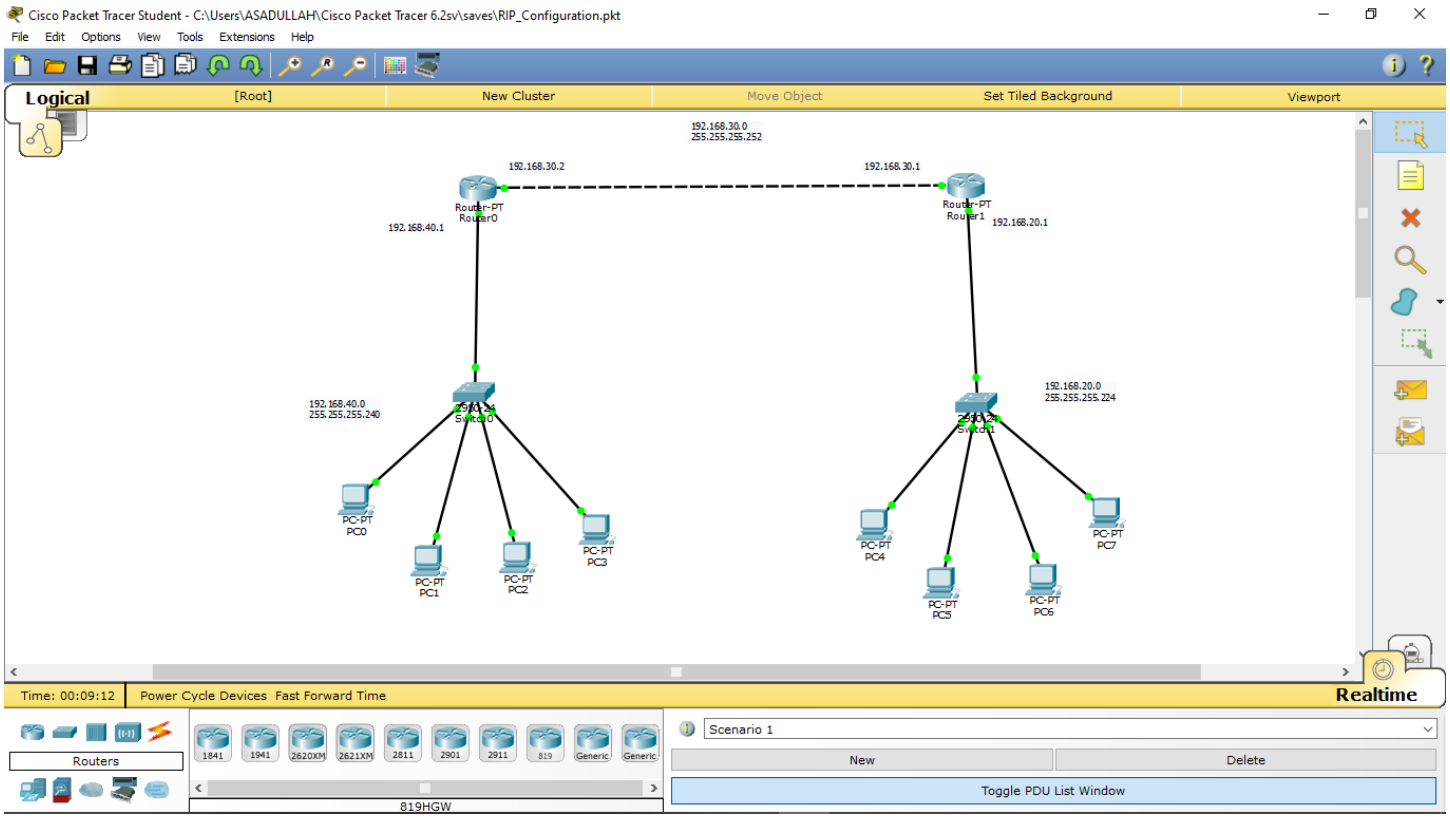
Introduction: The Routing Information Protocol (RIP) is one of the oldest distance-vector routing protocols ... In most networking environments, RIP is not the preferred choice for routing as its time to ... However, it is easy to configure, because RIP does not require any parameters, ... (MD5) authentication for RIP was introduced in 1997.

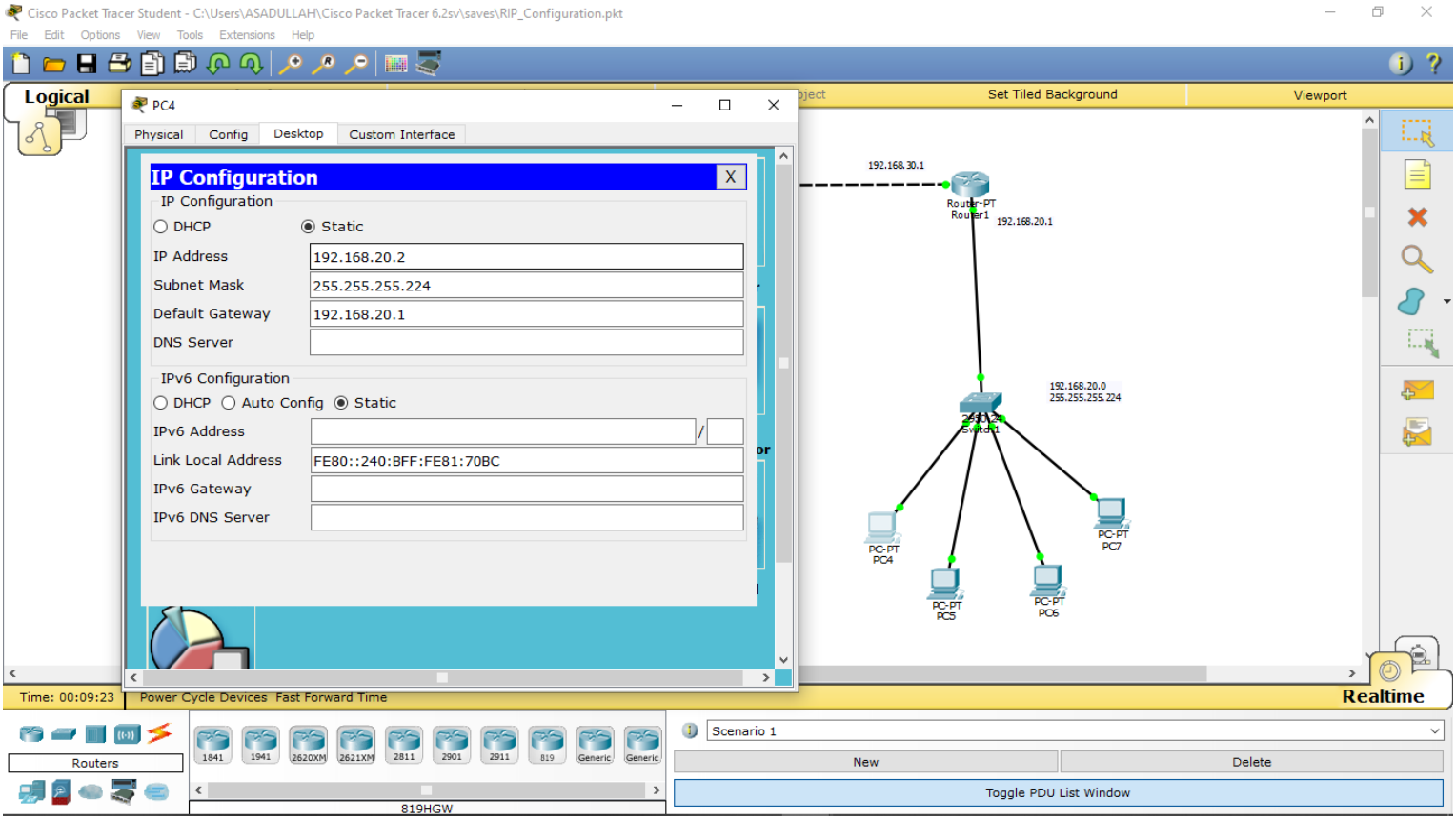
The Routing Information Protocol (RIP) is one of the oldest distance-vector routing protocols which employs the hop count as a routing metric. RIP prevents routing loops by implementing a limit on the number of hops allowed in a path from source to destination.

Routing Information Protocol (RIP) is a distance vector protocol that uses hop count as its primary metric. RIP defines how routers should share information when moving traffic among an interconnected group of local area networks (LANs).

Problem Solving:

1. Configuration of Routers
2. Configuration of PC's IP
3. Enable the Routers using the CLI Interface
4. Connection through auto connection
5. Trunk Connection
6. Step 1 Enable the RIP routing process, which places you in router configuration mode via the Router#router rip command.
7. Step 2 Specify those networks that should be advertised using RIP via the Router(config-router)#network [network-number] command


Cisco Packet Tracer Student - C:\Users\ASADULLAH\Cisco Packet Tracer 6.2sv\saves\RIP_Configuration.pkt
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
192.168.30.0
255.255.255.252
192.168.30.2
192.168.30.1
Router-PT
Router0
Router-PT
Router1
192.168.40.1
192.168.20.1
192.168.40.0
255.255.255.240
192.168.20.0
255.255.255.224
PC-PT
PC0
PC-PT
PC1
PC-PT
PC2
PC-PT
PC3
PC-PT
PC4
PC-PT
PC5
PC-PT
PC6
PC-PT
PC7
Time: 00:09:12
Power Cycle Devices Fast Forward Time
Realtime
Routers
1841
1941
2620XM
2621XM
2811
2901
2911
819
Generic
819HGW
Scenario 1
New
Delete
Toggle PDU List Window


Cisco Packet Tracer Student - C:\Users\ASADULLAH\Cisco Packet Tracer 6.2sv\saves\RIP_Configuration.pkt
File Edit Options View Tools Extensions Help
Logical
Set Tiled Background
Viewport
PC4
Physical
Config
Desktop
Custom Interface
IP Configuration
IP Configuration
DHCP
Static
IP Address
192.168.20.2
Subnet Mask
255.255.255.224
Default Gateway
192.168.20.1
DNS Server
IPv6 Configuration
DHCP
Auto Config
Static
IPv6 Address
Link Local Address
FE80::240:BFF:FE81:70BC
IPv6 Gateway
IPv6 DNS Server
192.168.30.1
Router-PT
Router1
192.168.20.1
192.168.20.0
255.255.255.224
PC-PT
PC4
PC-PT
PC5
PC-PT
PC6
PC-PT
PC7
Time: 00:09:23
Power Cycle Devices Fast Forward Time
Realtime
Routers
819HGW
Scenario 1
New
Delete
Toggle PDU List Window

For Configuration I have used some CLI Commands:

For Router 01:

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R1
R1(config)#interface fastEthernet 0/0
R1(config-if)#ip address 192.168.40.1 255.255.255.240
R1(config-if)#no shut
R1(config-if)#exit
R1(config)#interface fastEthernet 1/0
R1(config-if)#ip address 192.168.30.2 255.255.255.252
R1(config-if)#no shut
R1(config-if)#exit
R1(config)#router rip
R1(config-router)#network 192.168.40.0
R1(config-router)#network 192.168.30.0
R1(config-router)#exit
R1(config)#
```

For Router 02:

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R2
R2(config)#interface fastEthernet 0/0
R2(config-if)#ip address 192.168.20.1 255.255.255.224
R2(config-if)#no shut
R2(config-if)#exit
R2(config)#interface fastEthernet 1/0
R2(config-if)#ip address 192.168.30.1 255.255.255.255
R2(config-if)#no shut
R2(config-if)#exit
R2(config)#router rip
R2(config-router)#network 192.168.20.0
R2(config-router)#network 192.168.30.0
R2(config-router)#exit
R2(config)#
```

Results:

PDU List Window

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	Successful	PC7	PC3	ICMP		0.000	N	0	(edit)	
	Successful	PC6	PC0	ICMP		0.000	N	1	(edit)	
	Successful	PC0	PC5	ICMP		0.000	N	2	(edit)	
	Successful	PC1	PC4	ICMP		0.000	N	3	(edit)	
	Successful	PC2	PC7	ICMP		0.000	N	4	(edit)	
	Successful	PC6	PC1	ICMP		0.000	N	5	(edit)	
	Successful	PC6	PC1	ICMP		0.000	N	6	(edit)	

PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
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	Successful	PC6	PC0	ICMP		0.000	N	1	(edit)	(delete)
	Successful	PC0	PC5	ICMP		0.000	N	2	(edit)	(delete)
	Successful	PC1	PC4	ICMP		0.000	N	3	(edit)	(delete)
	Successful	PC2	PC7	ICMP		0.000	N	4	(edit)	(delete)
	Successful	PC6	PC1	ICMP		0.000	N	5	(edit)	(delete)
	Successful	PC6	PC1	ICMP		0.000	N	6	(edit)	(delete)