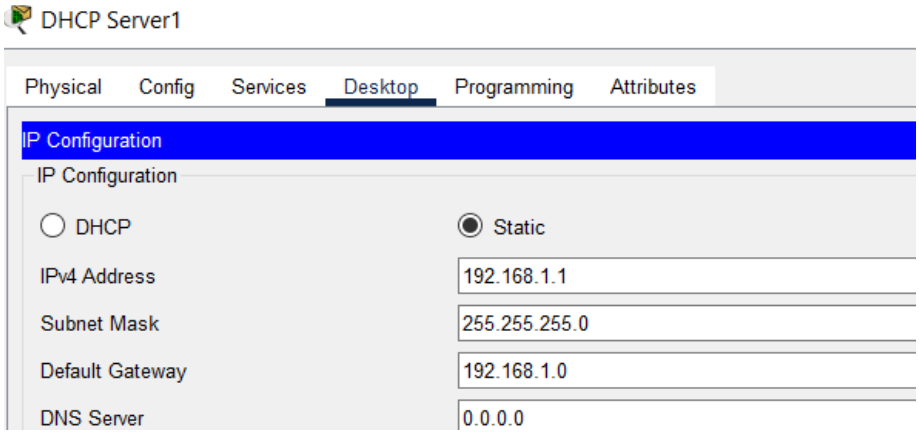
DHCP: DHCP (Dynamic Host Configuration Protocol) is a network management protocol used to automatically assign IP addresses and other network configuration parameters (like subnet mask, default gateway, and DNS) to devices connected to a network. This eliminates the need to manually configure IP addresses for each device.

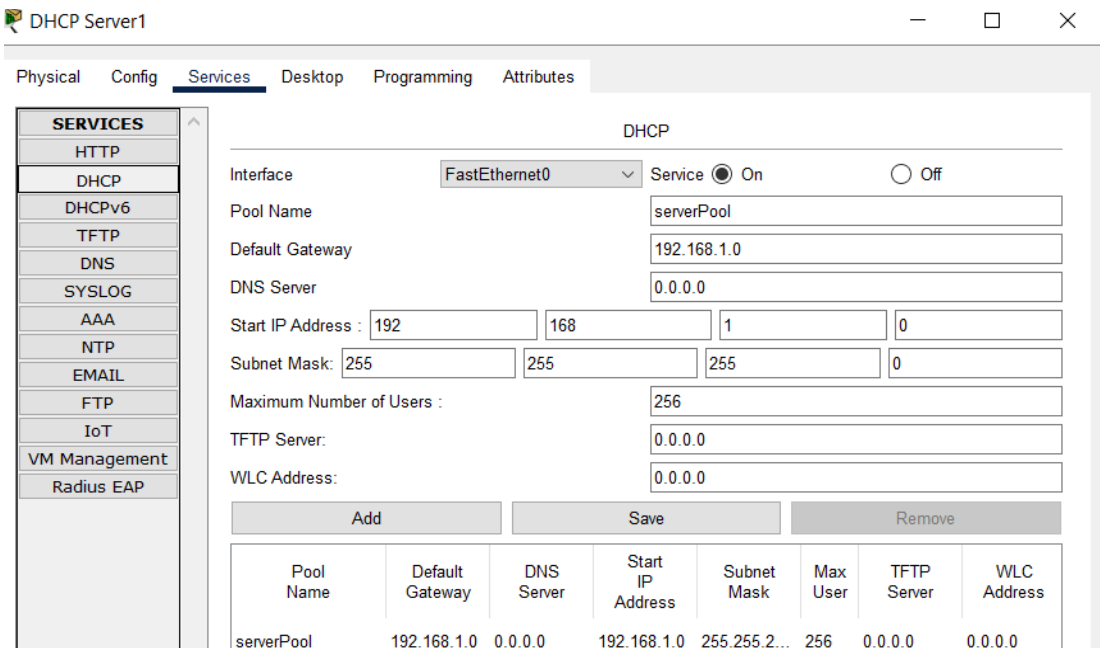
Working of DHCP:

When a device (client) connects to the network, it follows a four-step DHCP process:

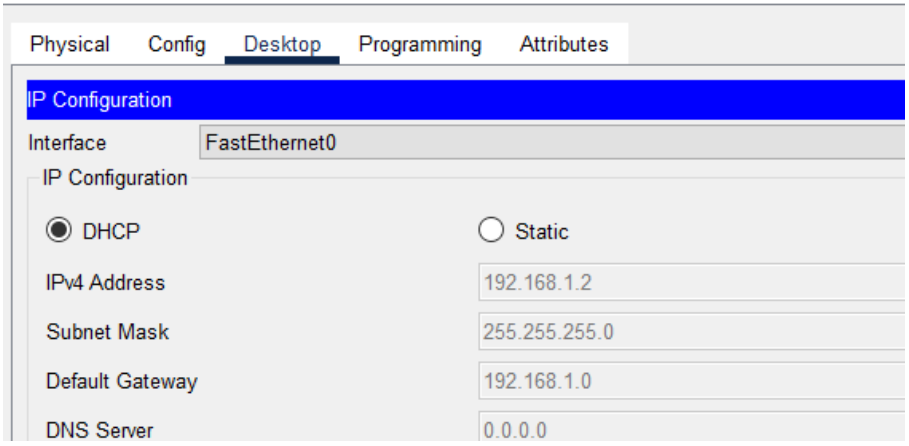
1. DHCP Discover – The client broadcasts a request to find available DHCP servers.
2. DHCP Offer – The DHCP server replies with an IP address offer from its available pool.
3. DHCP Request – The client sends a request to accept the offered IP address.
4. DHCP Acknowledgment (ACK) – The server confirms and assigns the IP to the client.

This process ensures that every connected device receives a unique IP address automatically.

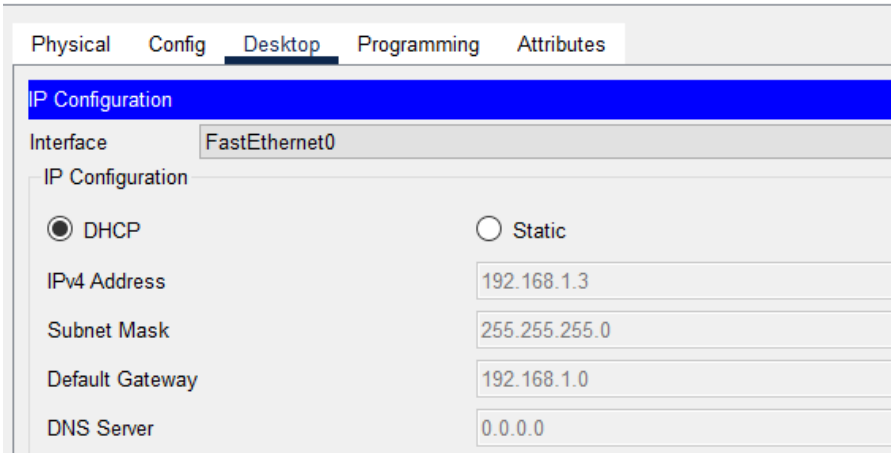


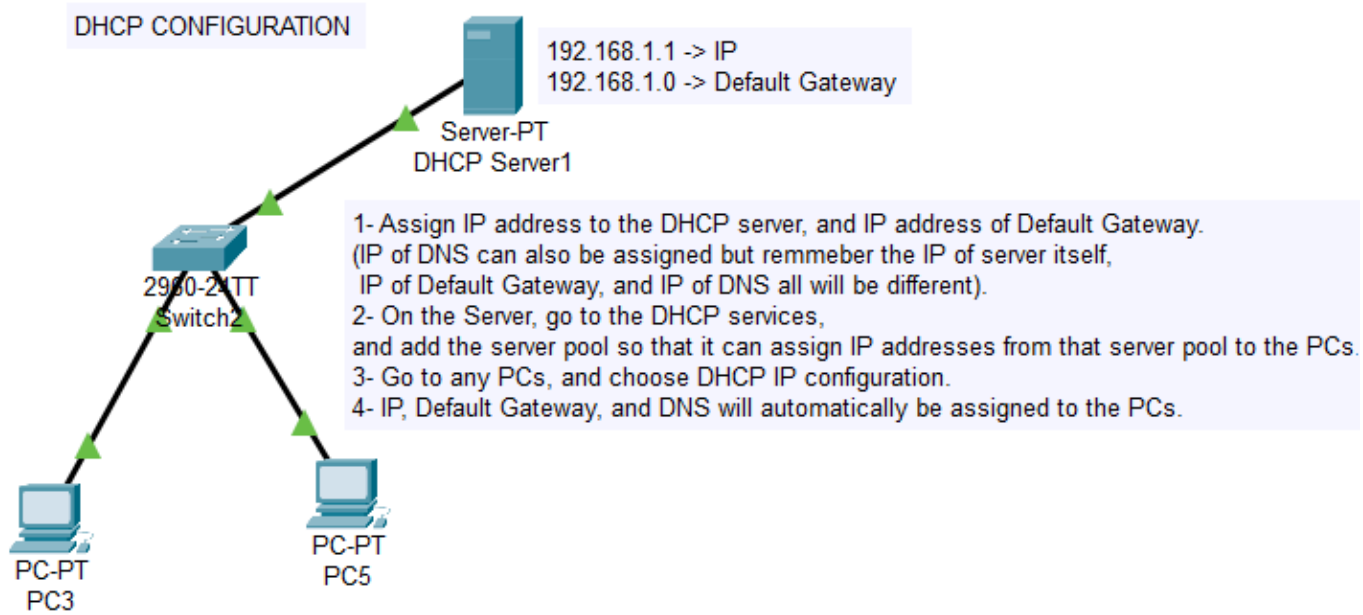


PC3


Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.2
Subnet Mask
255.255.255.0
Default Gateway
192.168.1.0
DNS Server
0.0.0.0

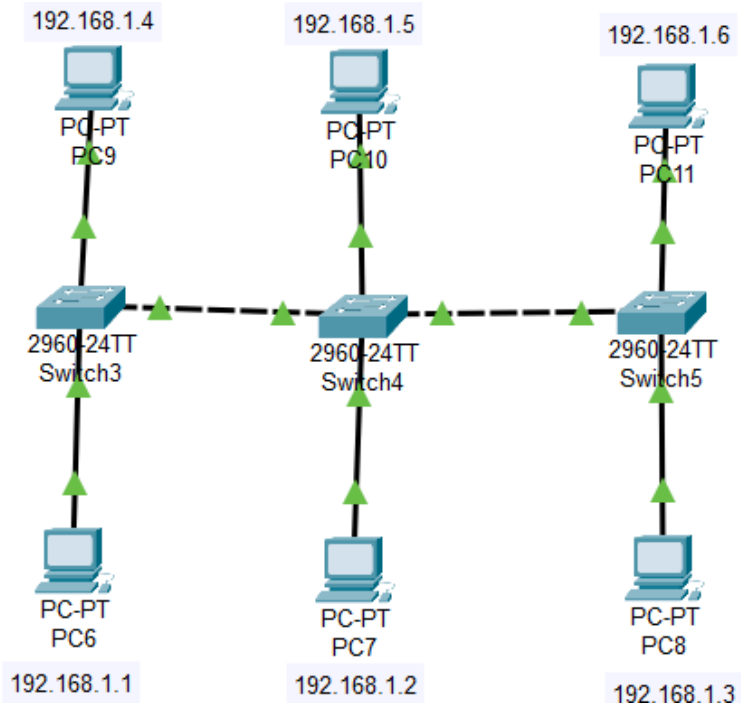
PC5


Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.3
Subnet Mask
255.255.255.0
Default Gateway
192.168.1.0
DNS Server
0.0.0.0


DHCP CONFIGURATION
192.168.1.1 -> IP
192.168.1.0 -> Default Gateway
Server-PT
DHCP Server1
2960-24TT
Switch2
PC-PT
PC3
PC-PT
PC5
1- Assign IP address to the DHCP server, and IP address of Default Gateway.
(IP of DNS can also be assigned but remmeber the IP of server itself,
IP of Default Gateway, and IP of DNS all will be different).
2- On the Server, go to the DHCP services,
and add the server pool so that it can assign IP addresses from that server pool to the PCs.
3- Go to any PCs, and choose DHCP IP configuration.
4- IP, Default Gateway, and DNS will automatically be assigned to the PCs.

TOPOLOGIES

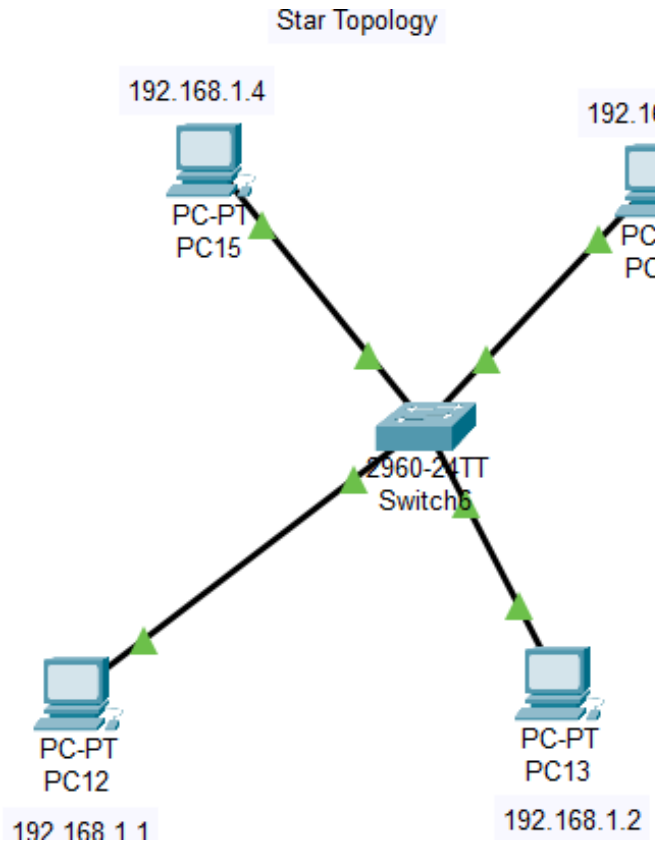
BUS TOPOLOGY:



Straight-Through Cable
Different devices
(PC–Switch,
Router–Switch)

Crossover Cable
Similar devices
(PC–PC,
Switch–Switch)
Direct data exchange

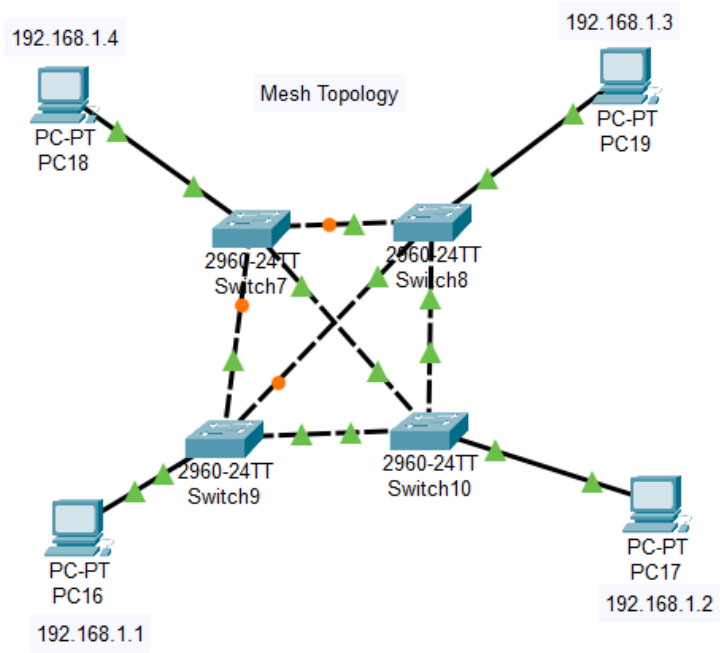
STAR TOPOLOGY:



PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC15	PC14	ICMP		0.000	N	0	(edit)	
	Successful	PC15	PC13	ICMP		0.000	N	1	(edit)	
	Successful	PC14	PC12	ICMP		0.000	N	2	(edit)	
	Successful	PC13	PC12	ICMP		0.000	N	3	(edit)	

MESH TOPOLOGY:



PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC18	PC17	ICMP		0.000	N	0	(edit)	
	Successful	PC16	PC19	ICMP		0.000	N	1	(edit)	
	Successful	PC18	PC16	ICMP		0.000	N	2	(edit)	
	Successful	PC17	PC16	ICMP		0.000	N	3	(edit)	