



CN Lab-3 Cisco - practical of cn having nothing

Computer Network (University of Mumbai)

Experiment Number: 3					
Date of Performance:		10-08-2022			
Date of Submission:		17-08-2022			
Program Execution/ formation/ correction/ ethical practices (07)	Documentation (02)	Timely Submission (03)	Viva Answer to sample questions (03)	Experiment Total (15)	Sign

Experiment No: 3

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

Laboratory Outcome: Setup a Network using Cisco packet tracer and implement static routing.

Related Theory:

Routing is one of the most essential procedures in data communication. It ensures that data travels from one network to another with optimal speed and minimal delay, and that its integrity is maintained in the process.

Broadly, routing is performed in two different ways:

- Dynamic routing continuously updates its routing table with paths and their cost/metric, while making optimal routing decisions based on changing network operating environments.
- Static routing performs routing decisions with preconfigured routes in the routing table, which can be changed manually only by administrators. Static routes are normally implemented in those situations where the choices in route selection are limited, or there is only a single default route available. Also, static routing can be used if you have only few devices for route configuration and there is no need for route change in the future.

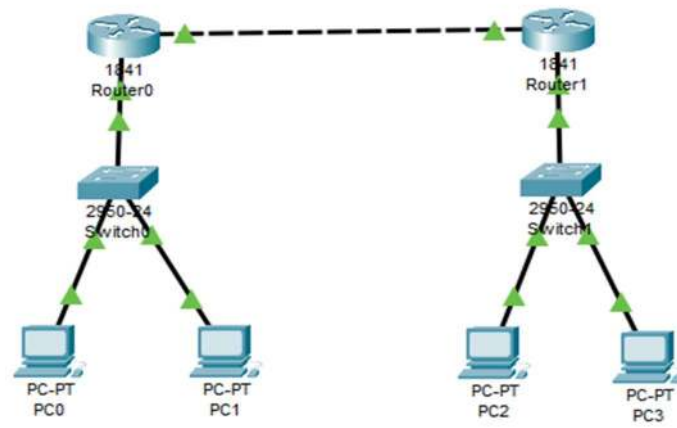
Static routing is considered the simplest form of routing.

You can supplement dynamic routes with static routes where appropriate. You can redistribute static routes into dynamic routing algorithms but you cannot redistribute routing information calculated by dynamic routing algorithms into the static routing table.

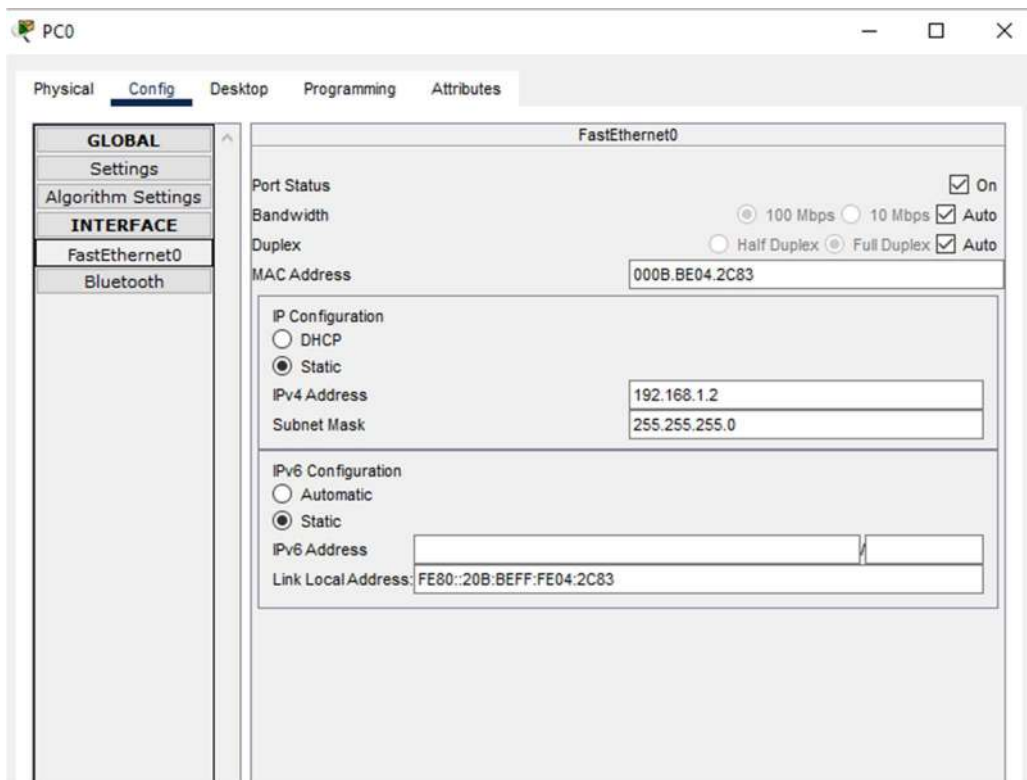
You should use static routes in environments where network traffic is predictable and where the network design is simple. You should not use static routes in large, constantly changing networks because static routes cannot react to network changes. Most networks use dynamic routes to communicate between routers but may have one or two static routes configured for special cases. Static routes are also useful for specifying a gateway of last resort (a default router to which all unroutable packets are sent).

Program Listings and Output:

Connect the devices as shown below:



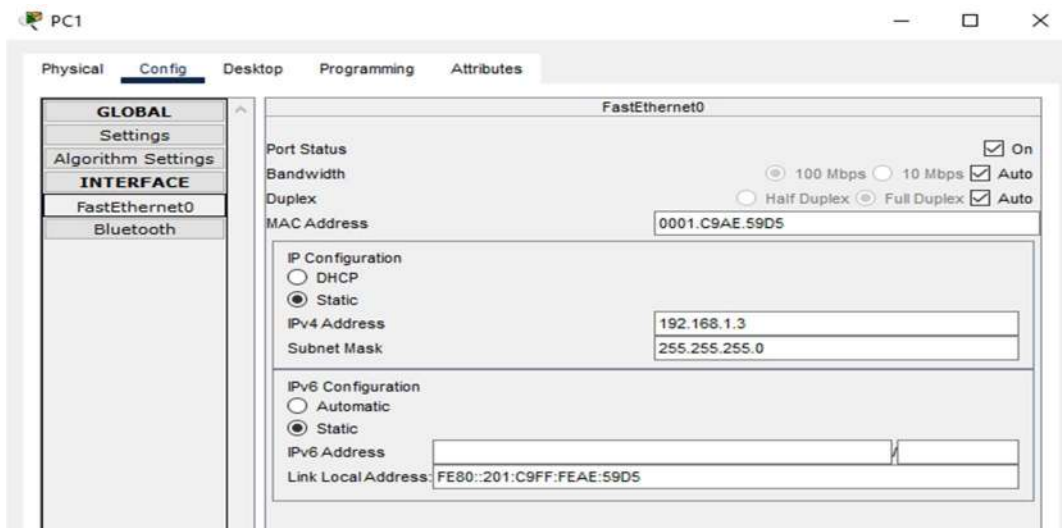
Configure PC0:



The screenshot shows the configuration window for PC0. The 'Config' tab is selected, and the 'FastEthernet0' interface is chosen under the 'INTERFACE' section. The configuration is as follows:

Section	Parameter	Value
Global Settings	Port Status	<input checked="" type="checkbox"/> On
	Bandwidth	<input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
	Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
	MAC Address	000B.BE04.2C83
IP Configuration	IP Configuration	<input type="radio"/> DHCP <input checked="" type="radio"/> Static
	IPv4 Address	192.168.1.2
	Subnet Mask	255.255.255.0
IPv6 Configuration	IPv6 Configuration	<input type="radio"/> Automatic <input checked="" type="radio"/> Static
	IPv6 Address	
	Link Local Address	FE80::20B:BEFF:FE04:2C83

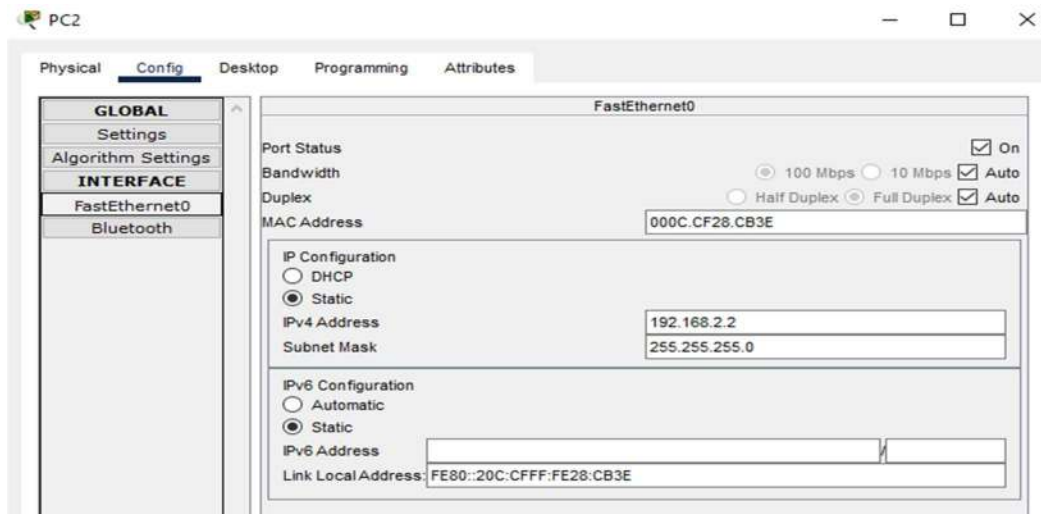
Configure PC1:



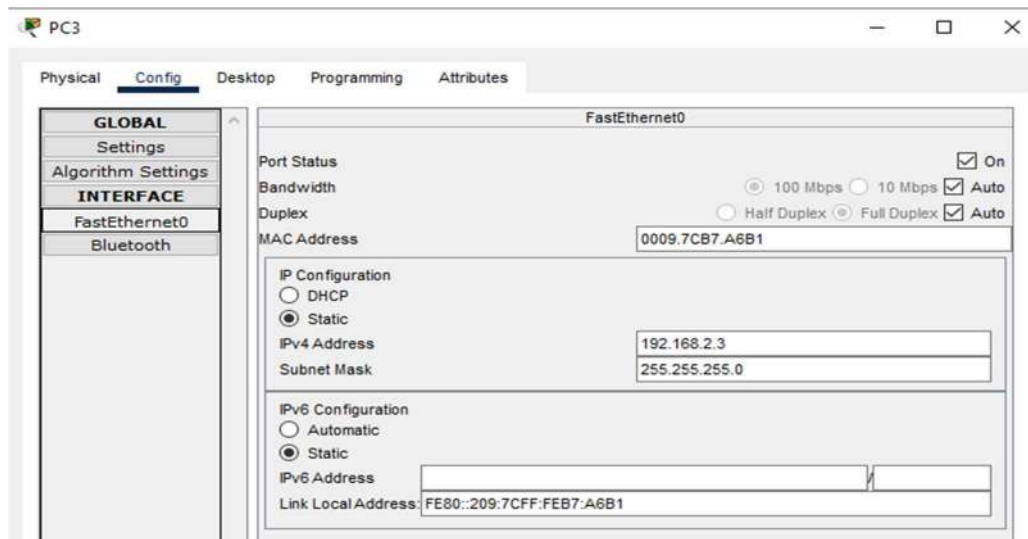
The screenshot shows the configuration window for PC1. The 'Config' tab is selected, and the 'FastEthernet0' interface is chosen under the 'INTERFACE' section. The configuration is as follows:

Section	Parameter	Value
Global Settings	Port Status	<input checked="" type="checkbox"/> On
	Bandwidth	<input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
	Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
	MAC Address	0001.C9AE.59D5
IP Configuration	IP Configuration	<input type="radio"/> DHCP <input checked="" type="radio"/> Static
	IPv4 Address	192.168.1.3
	Subnet Mask	255.255.255.0
IPv6 Configuration	IPv6 Configuration	<input type="radio"/> Automatic <input checked="" type="radio"/> Static
	IPv6 Address	
	Link Local Address	FE80::201:C9FF:FEAE:59D5

Configure PC2:



Configure PC3:



Configure Router 0:

Router0

Physical Config CLI Attributes

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 0002.4A4B.0101

IP Configuration

IPv4 Address 192.168.1.4

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Router0

Physical Config CLI Attributes

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 0002.4A4B.0102

IP Configuration

IPv4 Address 192.168.3.2

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Configure Router 1:

Router1

Physical Config CLI Attributes

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

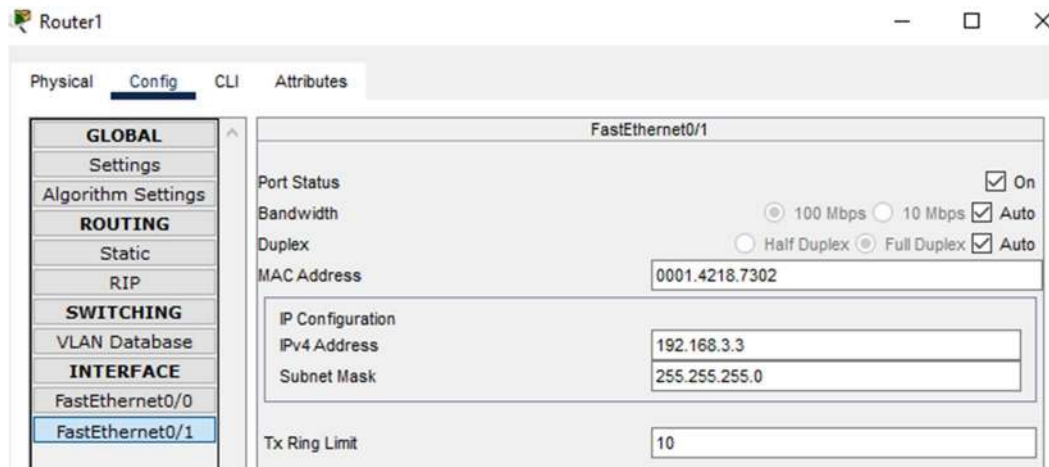
MAC Address 0001.4218.7301

IP Configuration

IPv4 Address 192.168.2.4

Subnet Mask 255.255.255.0

Tx Ring Limit 10



Verifying Connection with Message Transfer:

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	PC3	Router1	ICMP		0.000	N	18	(edit)
	Successful	PC0	PC2	ICMP		0.000	N	19	(edit)
	Successful	PC1	PC3	ICMP		0.000	N	20	(edit)

Conclusion: We have built a simple network topology and configure it for static routing protocol using packet tracer