

K. J. Somaiya College of Engineering, Mumbai-77
(A Constituent College of Somaiya Vidyavihar University)

Batch:C2 Roll No.:16010122323

Experiment / assignment / tutorial No. 07

Grade: AA / AB / BB / BC / CC / CD /DD

Signature of the Staff In-charge with date

Experiment No.:7

TITLE: Study Cisco Router Configuration Command using Cisco packet tracer

AIM: To study basic Cisco Router configuration Commands

Expected Outcome of Experiment:

CO:

Books/ Journals/ Websites referred:

1. S. Tanenbaum, "Computer Networks", Pearson Education, Fourth Edition
2. Forouzan, "Data Communications and Networking", TMH, Fourth Edition

Pre Lab/ Prior Concepts: Basics of Routing and Cisco Packet Tracer

New Concepts to be learned: Different Modes of Operation of Cisco router

Cisco IOS Modes of Operation:

- The Cisco IOS software provides access to several different command modes. Each command mode provides a different group of related commands.
- For security purposes, the Cisco IOS software provides two levels of access

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to commands:

- User mode
- Privileged mode
- The unprivileged user mode is called user EXEC mode. The privileged mode is called privileged EXEC mode and requires a password. The commands available in user EXEC mode are a subset of the commands available in privileged EXEC mode.
- The following table describes some of the most commonly used modes, how to enter the modes, and the resulting prompts. The prompt helps you identify which mode you are in and, therefore, which commands are available to you

Modes of Operation	Usage	How to enter the mode	Prompt
User EXEC	Change terminal settings on a temporary basis, perform basic tests, and list system information.	First level accessed.	Router>
Privileged EXEC	System administration, set operating parameters.	From user EXEC mode, enter enable password command	Router#
Global Config	Modify configuration that affect the system as a whole.	From privileged EXEC, enter configure terminal.	Router(config)#
Interface Config	Modify the operation of an interface.	From global mode, enter interface type number.	Router(config-if)#
Setup	Create the initial configuration.	From privileged EXEC mode, enter command setup.	Prompted dialog

User EXEC Mode:

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When you are connected to the router, you are started in user EXEC mode. The user EXEC commands are a subset of the privileged EXEC commands.

Privileged EXEC Mode:

Privileged commands include the following:

- Configure – Changes the software configuration.
- Debug – Display process and hardware event messages.
- Setup – Enter configuration information at the prompts.

Enter the command `disable` to exit from the privileged EXEC mode and return to user EXEC mode.

Configuration Mode:

Configuration mode has a set of sub-modes that you use for modifying interface settings, routing protocol settings, line settings, and so forth. Use caution with configuration mode because all changes you enter take effect immediately.

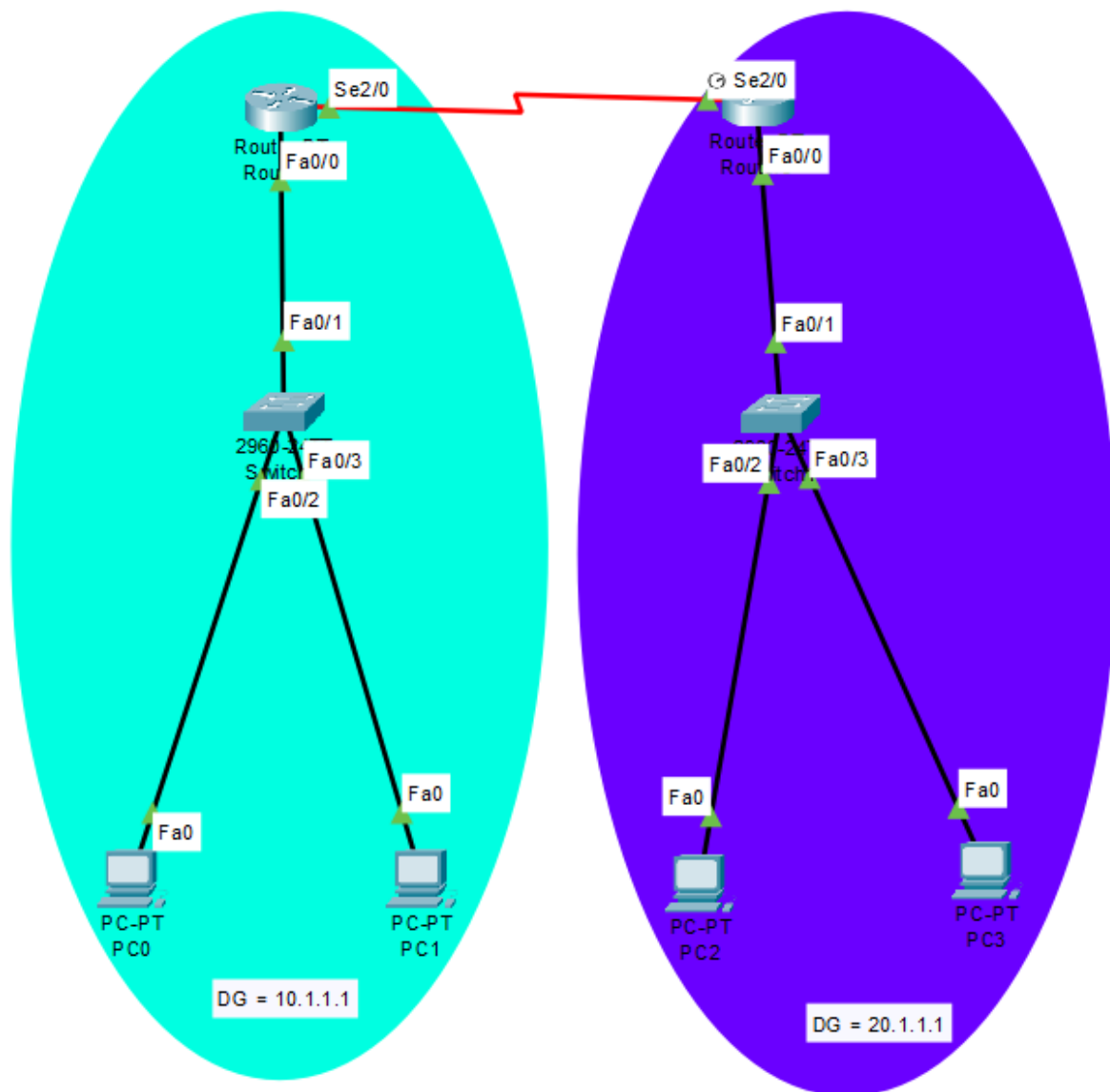
To enter configuration mode, enter the command `configure terminal` and exit by pressing `Ctrl-Z`.

Note: Almost every configuration command also has a `no` form. In general, use the `no` form to disable a feature or function. Use the command without the keyword `no` to re-enable a disabled feature or to enable a feature that is disabled by default. For example, IP routing is enabled by default. To disable IP routing, enter the `no ip routing` command and enter `ip routing` to re-enable it.

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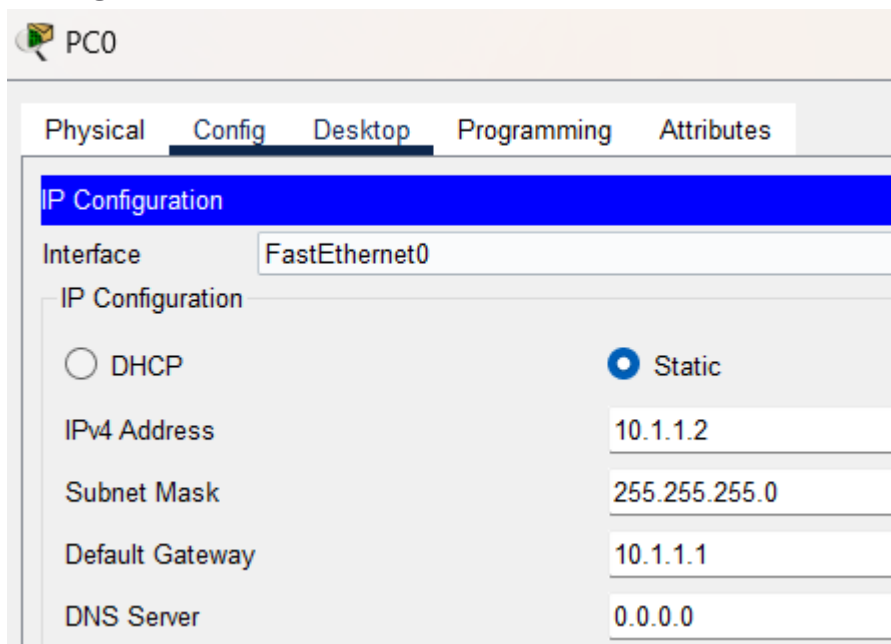
IMPLEMENTATION:

Overall Network:



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Configurations of all the PC0-PC3:



The screenshot shows the configuration window for PC0. The 'Config' tab is selected, and the 'IP Configuration' section is highlighted. The interface is 'FastEthernet0'. The IP configuration is set to 'Static' (selected with a radio button). The IPv4 Address is '10.1.1.2', the Subnet Mask is '255.255.255.0', the Default Gateway is '10.1.1.1', and the DNS Server is '0.0.0.0'.

Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	10.1.1.2
Subnet Mask	255.255.255.0
Default Gateway	10.1.1.1
DNS Server	0.0.0.0

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PC1

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 10.1.1.3

Subnet Mask 255.255.255.0

Default Gateway 10.1.1.1

DNS Server 0.0.0.0

PC2

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

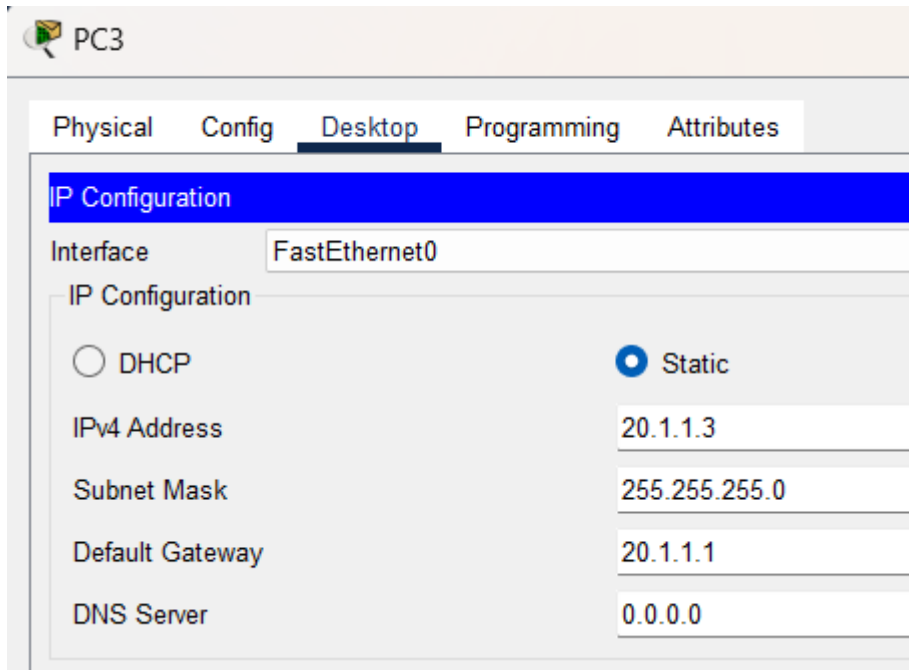
IPv4 Address 20.1.1.2

Subnet Mask 255.255.255.0

Default Gateway 20.1.1.1

DNS Server 0.0.0.0

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Configuration commands for routers:

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Se2/0
Router(config-if)#ip address 30.1.1.2 255.255.255.0
Router(config-if)#no shutdown
```

Configuration of First router:

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 Router2

Physical Config CLI Attributes

GLOBAL	Serial2/0
Settings	
Algorithm Settings	
ROUTING	
Static	
RIP	
INTERFACE	
FastEthernet0/0	

Port Status	
Duplex	<input checked="" type="radio"/> Full Duplex
Clock Rate	2000000
IP Configuration	
IPv4 Address	30.1.1.1
Subnet Mask	255.255.255.0

Configuration of second router:

 Router3

Physical Config CLI Attributes

GLOBAL	Serial2/0
Settings	
Algorithm Settings	
ROUTING	
Static	
RIP	
INTERFACE	
FastEthernet0/0	

Port Status	
Duplex	<input checked="" type="radio"/> Full Duplex
Clock Rate	2000000
IP Configuration	
IPv4 Address	30.1.1.2
Subnet Mask	255.255.255.0

Ip route of first router:

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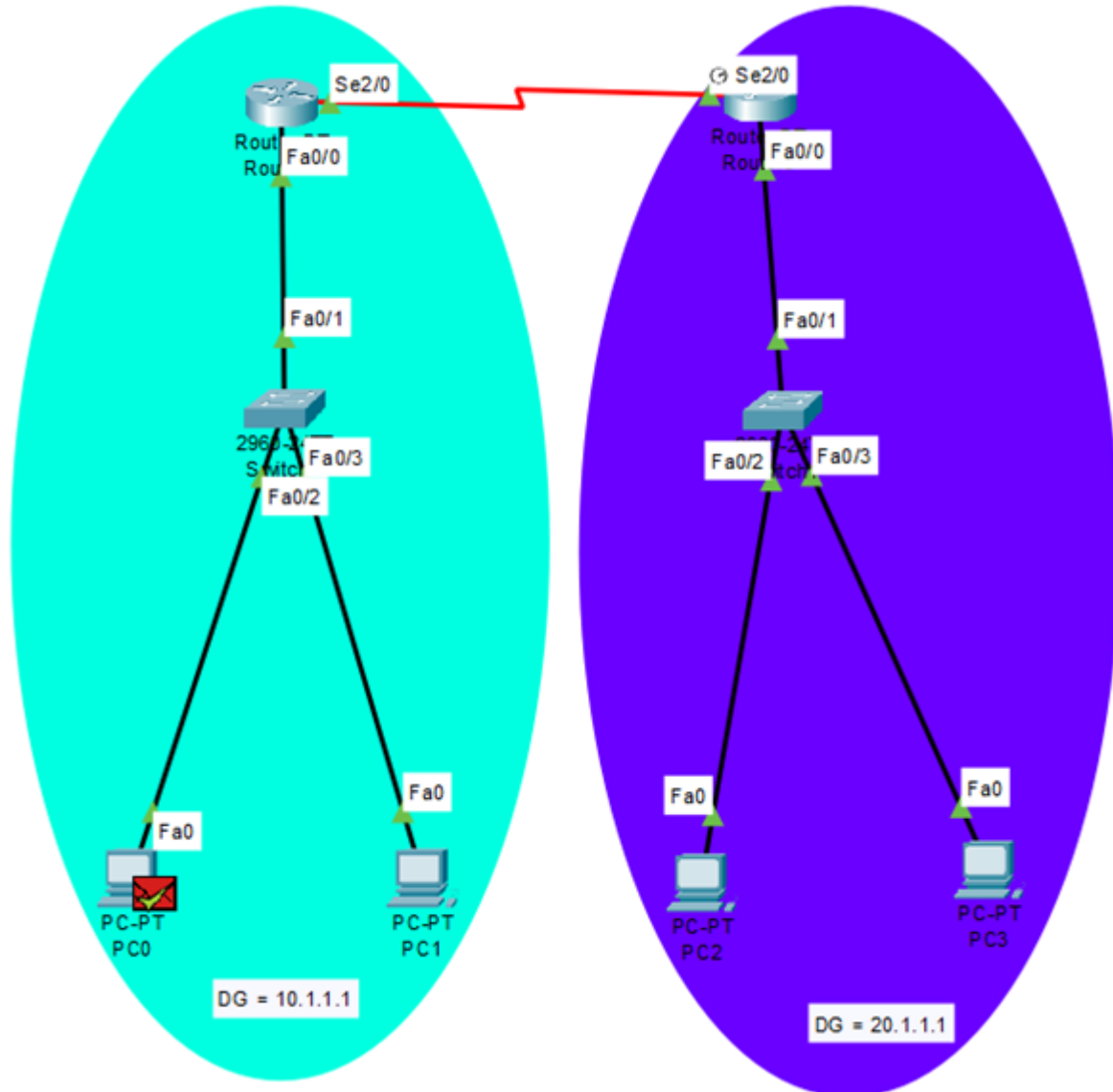
```
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

10.0.0.0/24 is subnetted, 1 subnets
C      10.1.1.0 is directly connected, FastEthernet0/0
20.0.0.0/24 is subnetted, 1 subnets
S      20.1.1.0 [1/0] via 30.1.1.2
30.0.0.0/24 is subnetted, 1 subnets
C      30.1.1.0 is directly connected, Serial2/0
```



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Simulation from PC0 to PC2:



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Simulation Panel		
Event List		
Vis.	Time(sec)	Last Device
	0.000	--
	0.001	PC0
	0.002	Switch0
	0.003	Router2
	0.004	Router3
	0.005	Switch1
	0.006	PC2
	0.007	Switch1
	0.008	Router3
	0.009	Router2
Visible	0.010	Switch0

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC0	PC2	ICMP		0.000	N	0	(edit)	

CONCLUSION: Learnt and Implemented configuration commands using cisco packet tracer

Date: _____

Signature of faculty in-charge