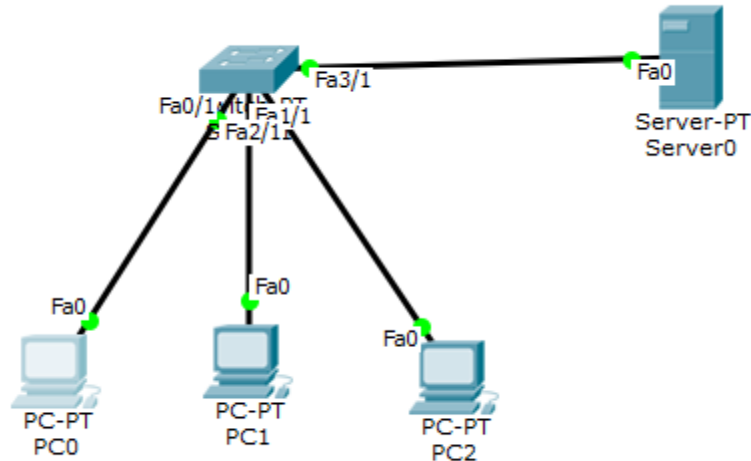


## CN LAB -04(20/7/2023)

USN:1BM21CS172

Create a topology in order to depict DHCP protocol.

**TOPOLOGY-1** (without router):



**SERVER:**

Server0

Physical Config Services Desktop Custom Interface

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYNLOG
- AAA
- NTP
- EMAIL
- FTP

DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

Start IP Address: 10.0.0.2

Subnet Mask: 255.0.0.0

Maximum number of Users: 512

TFTP Server: 0.0.0.0

Add Save Remove

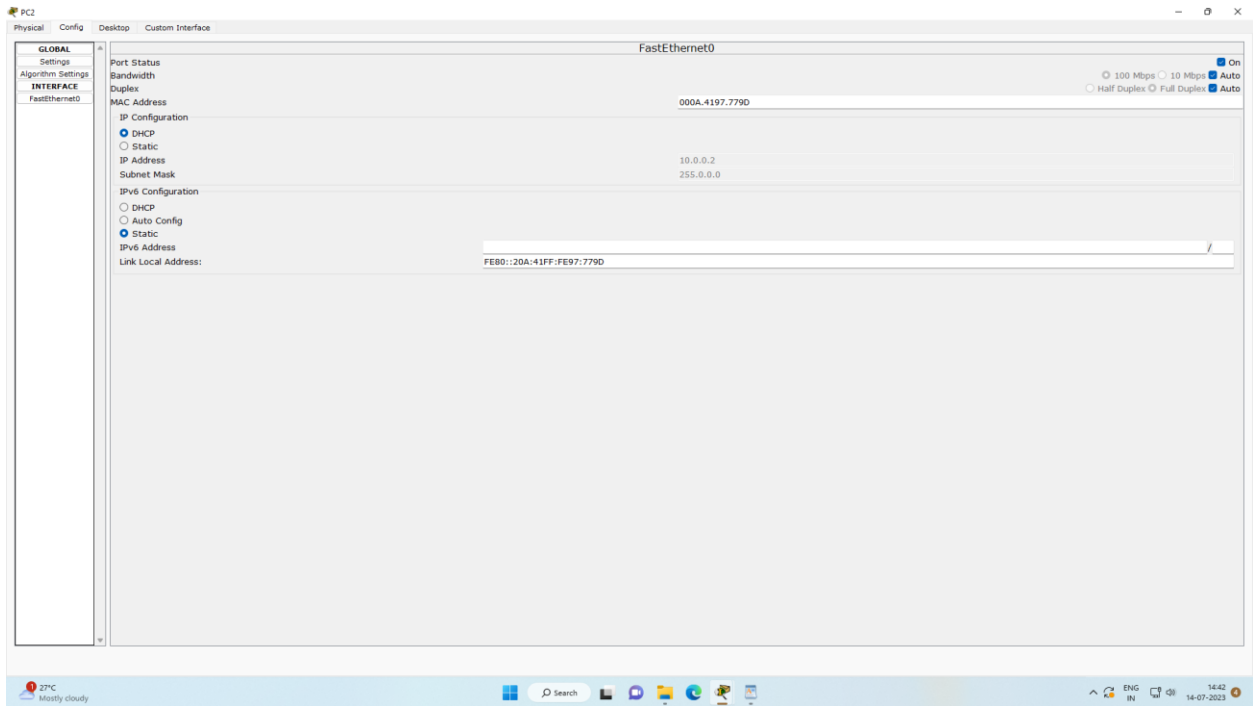
Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server
serverPool	0.0.0.0	0.0.0.0	10.0.0.2	255.0.0.0	512	0.0.0.0

27°C Mostly cloudy

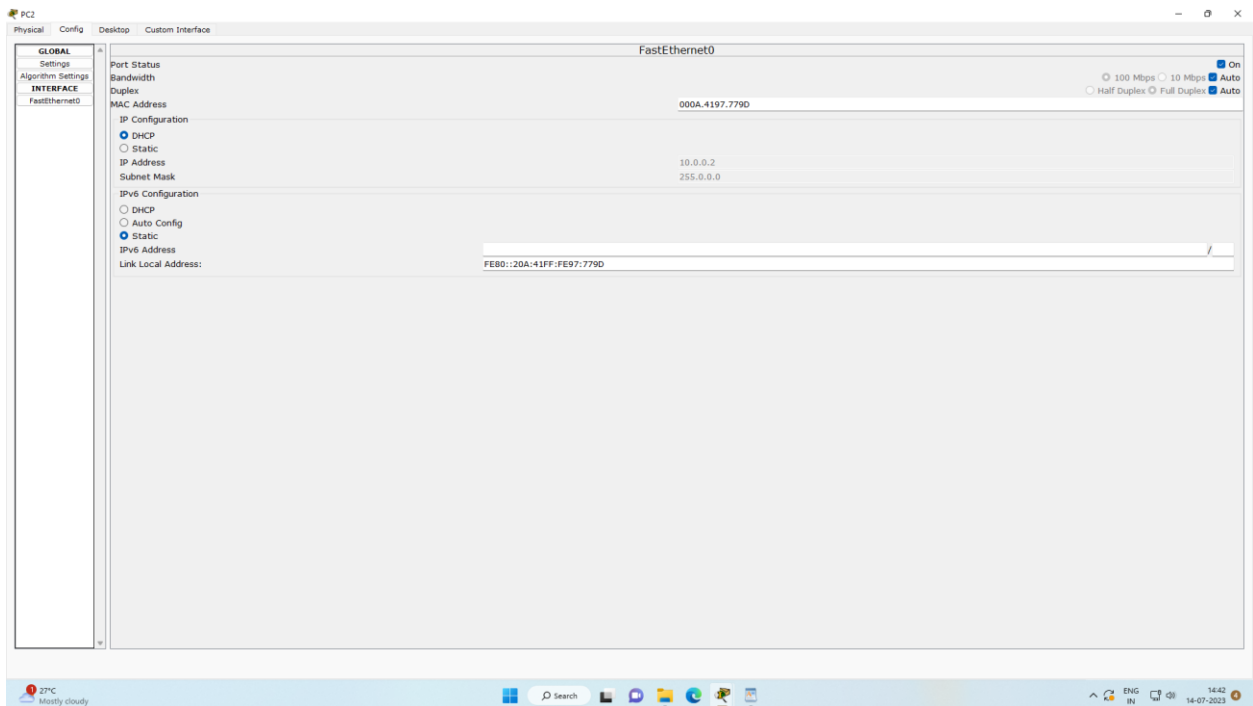
Search

ENG IN 14:41 14-07-2023

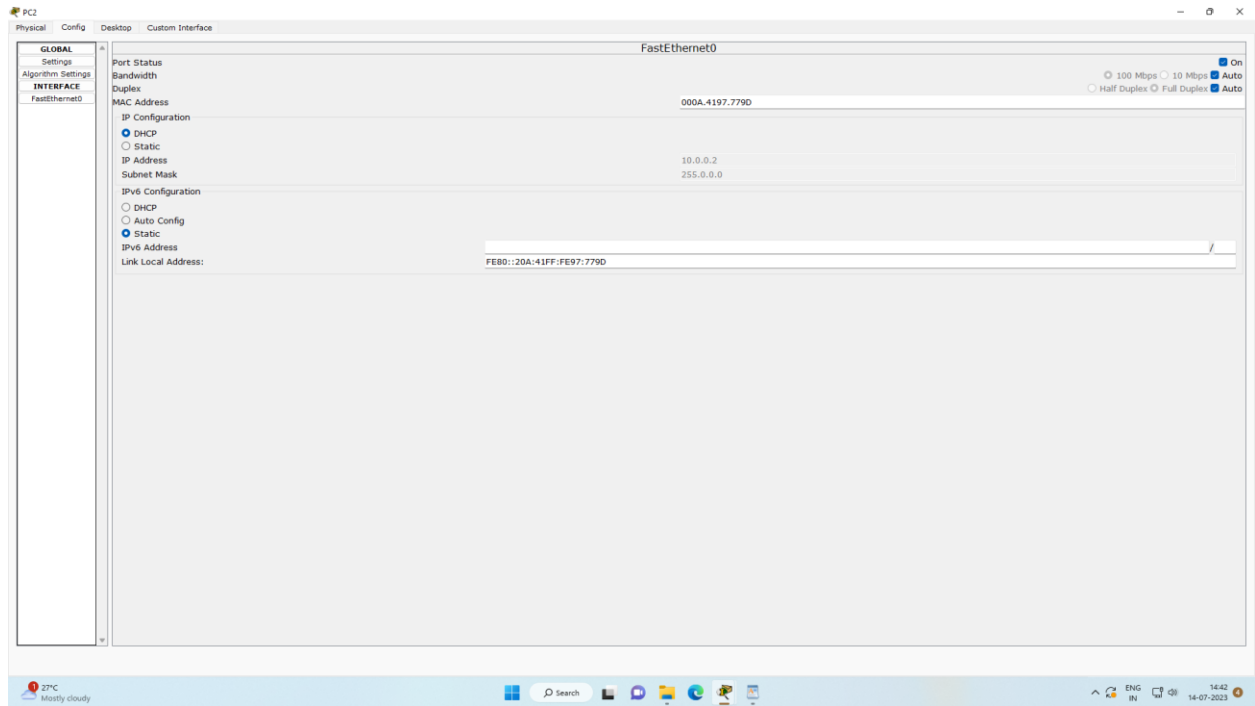
## PC-0



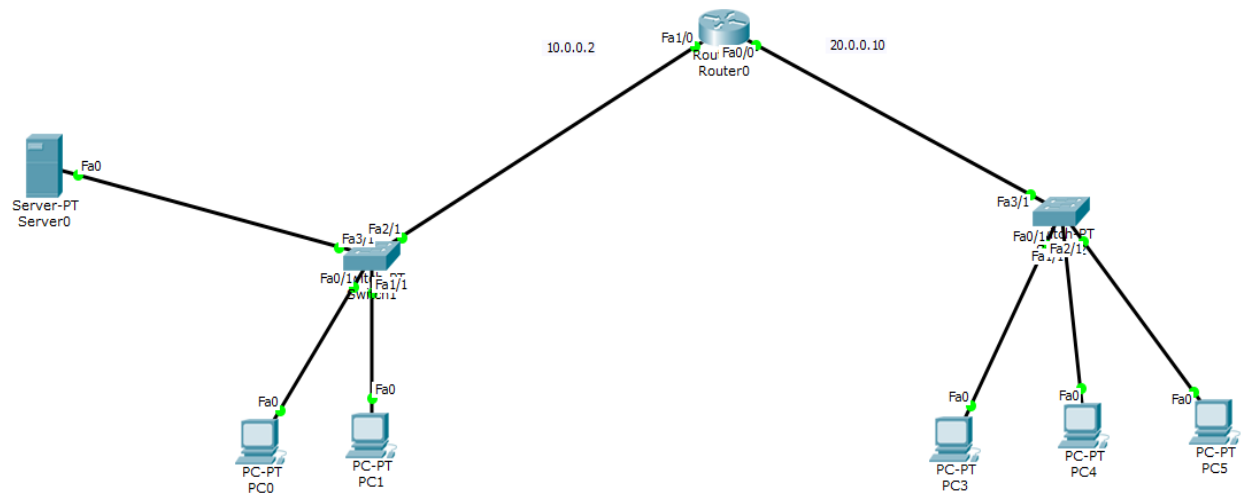
## PC-1



## PC-2



## TOPOLOGY -2(with 1 router)



## SERVER:

Server0

Physical Config Services Desktop Custom Interface

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- ENACL
- FTP

DHCP

Interface: /fastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool1

Default Gateway: 10.0.0.10

DNS Server: 0.0.0.0

Start IP Address: 20 0 0 2

Subnet Mask: 255 0 0 0

Maximum number of Users: 512

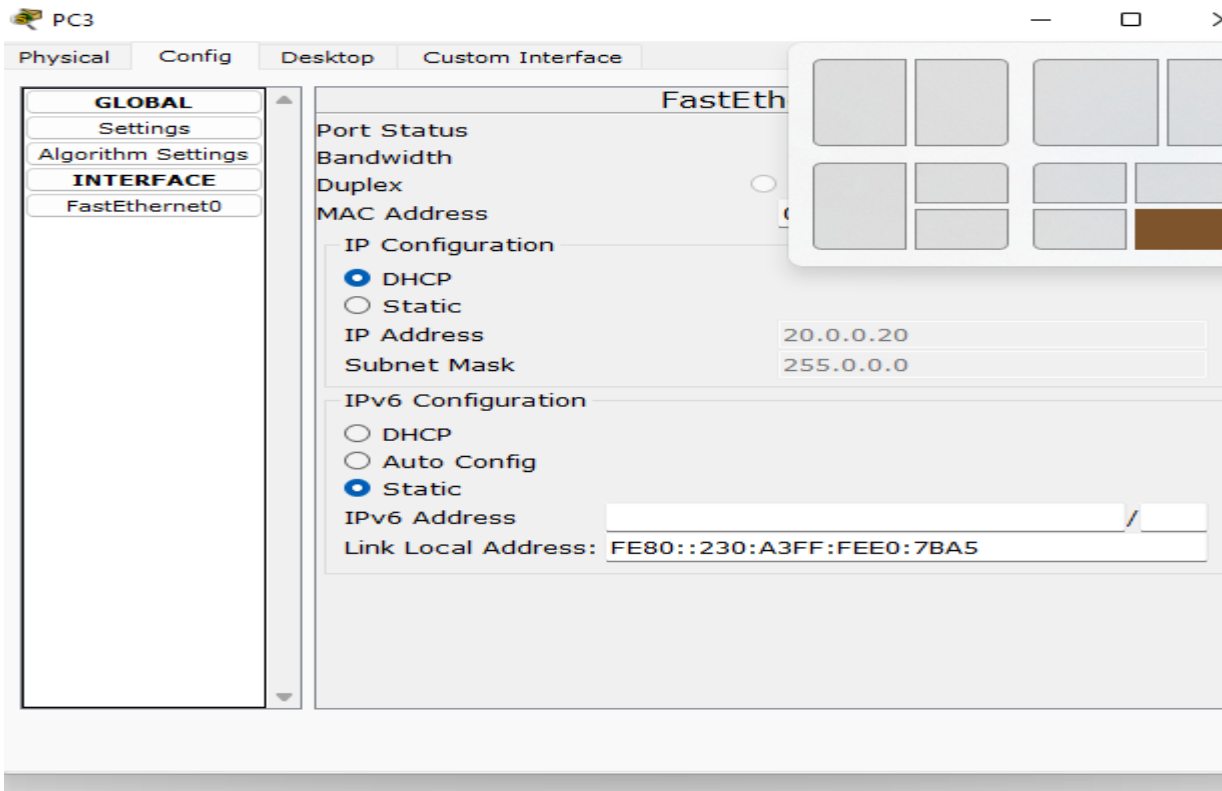
TFTP Server: 0.0.0.0

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server
serverPool1	10.0.0.10	0.0.0.0	20.0.0.2	255.0.0.0	512	0.0.0.0
serverPool	0.0.0.0	0.0.0.0	10.0.0.2	255.0.0.0	512	0.0.0.0

Top Events Event Brief

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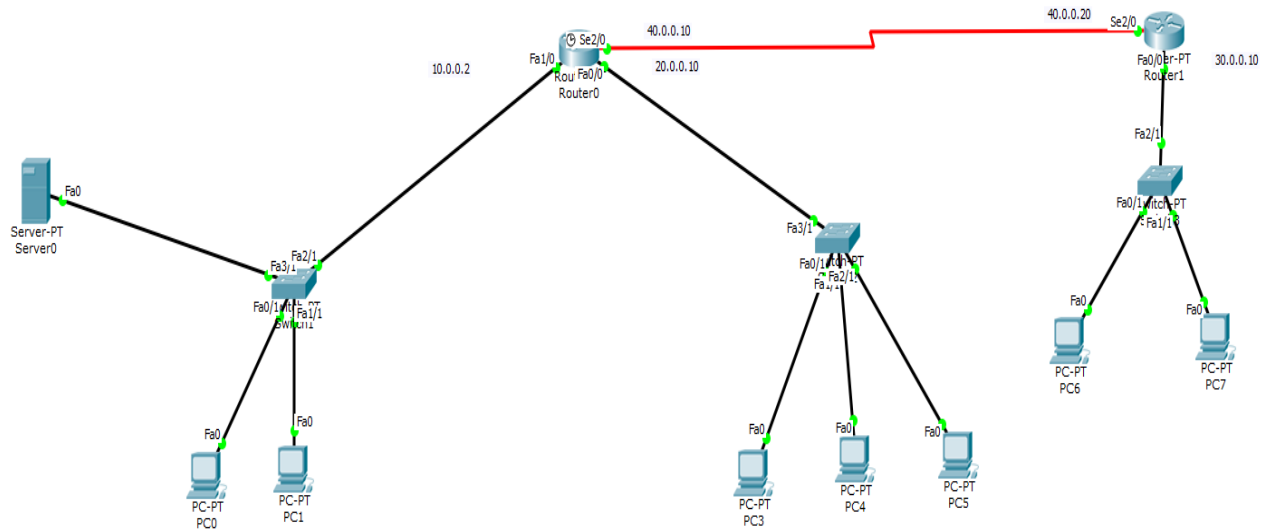
## PC-3



## CLI COMMANDS



## TOPOLOGY-3(with 2 routers)



## SERVER:

Server0

Physical Config Services Desktop Custom Interface

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP

DHCP

Interface: FastEthernet0 Service: ☒ On ☐ OFF

Pool Name: serverPool2

Default Gateway: 10.0.0.10

DNS Server: 0.0.0.0

Start IP Address: 30 0 0 2

Subnet Mask: 255 0 0 0

Maximum number of Users: 512

TFTP Server: 0.0.0.0

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server
serverPool2	10.0.0.10	0.0.0.0	30.0.0.2	255.0.0.0	512	0.0.0.0
serverPool1	10.0.0.10	0.0.0.0	20.0.0.2	255.0.0.0	512	0.0.0.0
serverPool	0.0.0.0	0.0.0.0	10.0.0.2	255.0.0.0	512	0.0.0.0

28°C Mostly cloudy

Search

ENG IN 15:32 14-07-2023

## PC-6

PC6

Physical Config Desktop Custom Interface

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

**FastEthernet0**

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 00D0.BA5A.A357

IP Configuration

☒ DHCP

☐ Static

IP Address 30.0.0.2

Subnet Mask 255.0.0.0

IPv6 Configuration

☐ DHCP

☐ Auto Config

☒ Static

IPv6 Address /

Link Local Address: FE80::2D0:BAFF:FE5A:A357

## PC-7

PC7

Physical Config Desktop Custom Interface

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

**FastEthernet0**

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0030.F2DE.D477

IP Configuration

☒ DHCP

☐ Static

IP Address 30.0.0.3

Subnet Mask 255.0.0.0

IPv6 Configuration

☐ DHCP

☐ Auto Config

☒ Static

IPv6 Address /

Link Local Address: FE80::230:F2FF:FEDE:D477

# CLI COMMANDS

```
Router#
Physical Config CLI

IOS Command Line Interface

San Jose, California 95134-1704

Cisco Internetwork Operating System Software
IOS (tm) PT1000 Software (PT1000-I-M), Version 12.3(29), RELEASE SOFTWARE (fc5)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2006 by Cisco Systems, Inc.
Compiled Wed 27-Apr-04 19:01 by mlwang

PT 1001 (PT3C2006) processor (revision 0x200) with 6941K/5120K bytes of memory

Processor board ID PT0123 (0123)
PT1008 processor: part number 3, mask 01
Bridging software.
IOS software, Version 12.3(29)
4 FastEthernet/IEEE 802.3 interface(s)
3 low-speed serial(sync/async) network interface(s)
128 bytes of non-volatile configuration memory.
4348K bytes of ATA CompactFlash (Read/Write)

--- System Configuration Dialog ---
Continue with configuration dialog? [yes/no]: no

Press RETURN to get started!

Router#enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Fa0/0
Router(config-if)#ip address 30.0.0.10 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINE-6-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-6-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#interface Fa2/0
Router(config-if)#ip address 40.0.0.20 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINE-6-CHANGED: Interface Serial2/0, changed state to up
%LINEPROTO-6-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config-if)#exit
Router(config)#interface Fa0/0
Router(config-if)#ip helper-address 10.0.0.1
Router(config-if)#exit
Router(config)#ip route 10.0.0.0 255.0.0.0 40.0.0.10
Router(config)#ip route 20.0.0.0 255.0.0.0 40.0.0.10
Router(config)#exit
Router#
%SYS-6-CONFIG_1: Configured from console by console

Router#
```

```
Router#
Physical Config CLI

IOS Command Line Interface

Router#enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Fa0/0
Router(config-if)#ip address 10.0.0.10 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINE-6-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-6-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#interface Fa0/0
Router(config-if)#ip address 20.0.0.10 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINE-6-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-6-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#interface Fa0/0
Router(config-if)#ip helper-address 10.0.0.1
Router(config-if)#exit
Router(config)#
%LINE-6-CHANGED: Interface FastEthernet4/0, changed state to down
%LINEPROTO-6-UPDOWN: Line protocol on Interface FastEthernet4/0, changed state to down

Router(config)#interface Fa2/1
%Invalid interface type and number
Router(config)#interface Fa0/0
Router(config-if)#ip address 10.0.0.2 255.0.0.0
% 10.0.0.0 overlaps with FastEthernet4/0
Router(config-if)#interface Fa0/0
Router(config-if)#no ip address
Router(config-if)#exit
Router(config)#interface Fa0/0
Router(config-if)#ip address 10.0.0.2 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINE-6-CHANGED: Interface FastEthernet1/0, changed state to up
%LINEPROTO-6-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

Router(config)#exit
Router#
%SYS-6-CONFIG_1: Configured from console by console

Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Fa0/0
Router(config-if)#ip helper-address 10.0.0.1
Router(config-if)#exit
Router(config)#
Router(config)#interface Fa0/0
Router(config-if)#ip address 10.0.0.2 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
```



Route0

PhysicalConfigCLI

IOS Command Line Interface

```
Router#
RVT2-S-CWF20_1: Configured from console by console

Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Fa0/0
Router(config-if)#ip helper-address 10.0.0.1
Router(config-if)#exit
Router(config)#
Router(config)#
Router(config)#interface FastEthernet1/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#

Router con0 is now available

Press RETURN to get started.


Router#enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Ser2/0
Router(config-if)#ip address 40.0.0.10 255.0.0.0
Router(config-if)#no shutdown

VLINE-S-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#exit
Router(config)#
VLINE-S-CHANGED: Interface Serial2/0, changed state to up
VLINEPROTO-S-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config)#ip route 30.0.0.0 255.0.0.0 40.0.0.10
Router(config)#exit
Router#
RVT2-S-CWF20_1: Configured from console by console
```

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Search

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15:33  
14-07-2023