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Roll No. 31258

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Assignment No. 10 (C2)

DOS :- 03-12-2021

Title :- Understand Installing and configure DHCP server.

Problem statement :-

Installing and configure DHCP server and write a program to install the software on remote machine.

Pre-requisites -

Application Layer : protocols, Roles.
DHCP.

Objectives :-

① To understand installation and configure DHCP server.

Learning Outcomes :-

After completion of the assignment, students will be able to understand installing and configure DHCP server.

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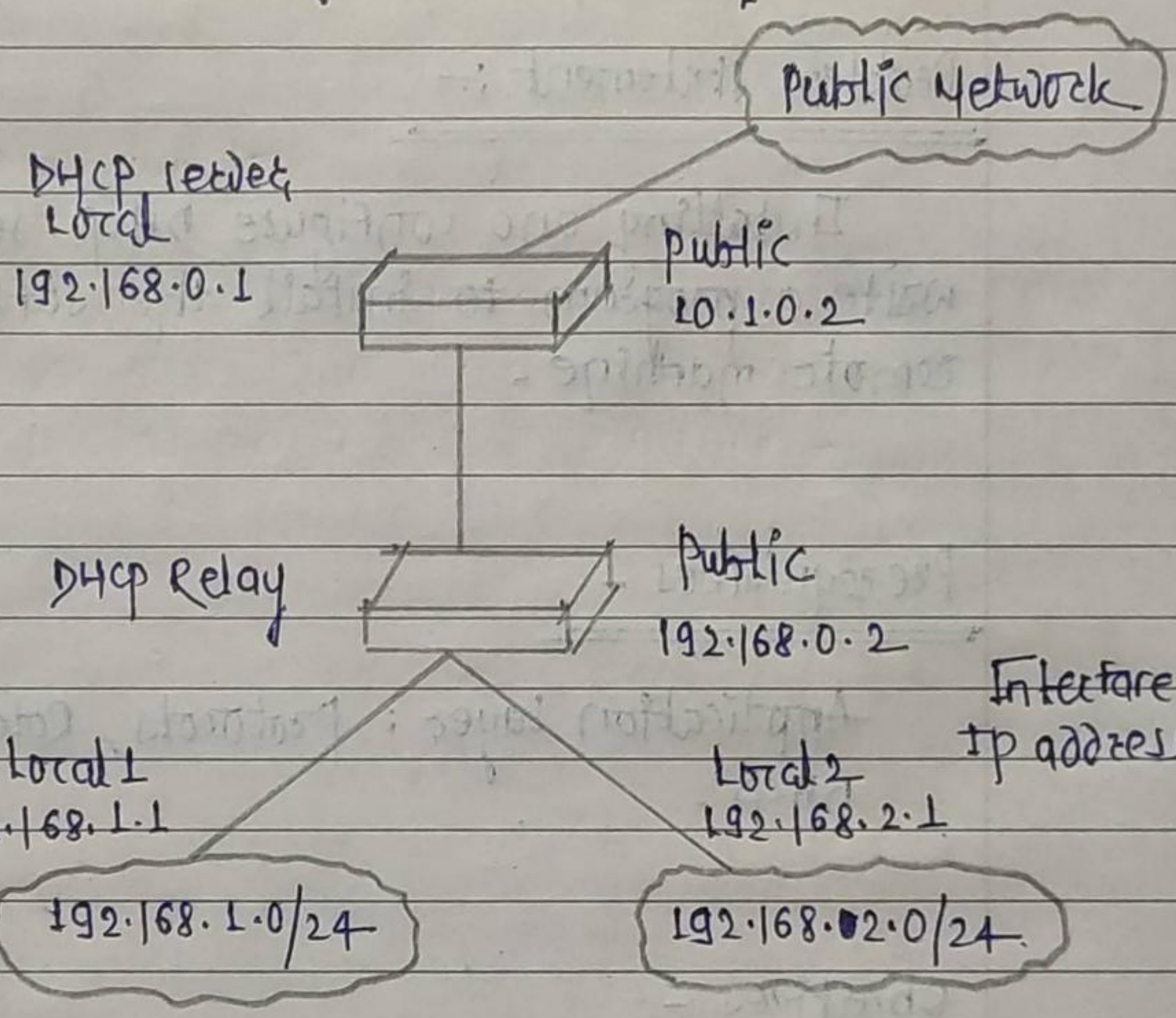
THEORY :-

Dynamic Host Configuration protocol (DHCP) is defined as a network protocol that indicates or enables a server to automatically allocate an IP address to a respective computer from a specified defined range of numbers (scope) which is configured for a required network.



DHCP available for IPv4 and IPv6.

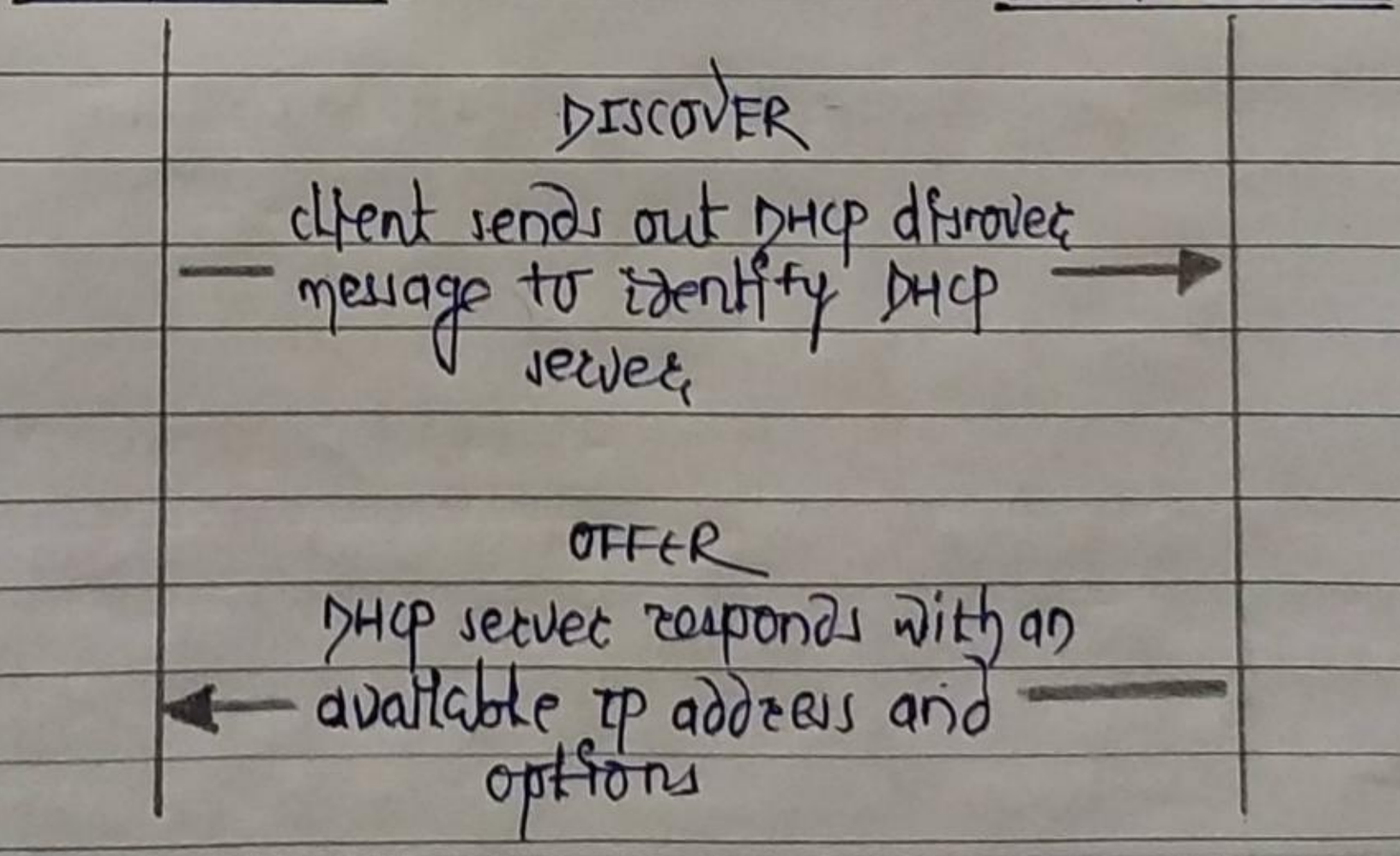
Why Use DHCP ?

→ Dynamic Host Configuration protocol (DHCP) is network protocol for automatically assigning TCP/IP information to client machines.
→ DHCP is useful for fast delivery of

client network configuration - When configuring the client system, the administrator can choose DHCP and not have to enter an IP address, netmask, gateway or DNS servers. The client retrieves this information from the DHCP server.

→ DHCP is also useful if an administrator wants to change the IP addresses of a larger number of systems. Instead of reconfiguring all the systems, he can just edit one DHCP configuration file on the server for the new set of IP address. If the DNS servers for an organization changes, the changes are made on the DHCP server, not on the DHCP clients. Once the network is restarted on the clients (or the clients are rebooted), the changes will take effect.

DHCP handshake :-



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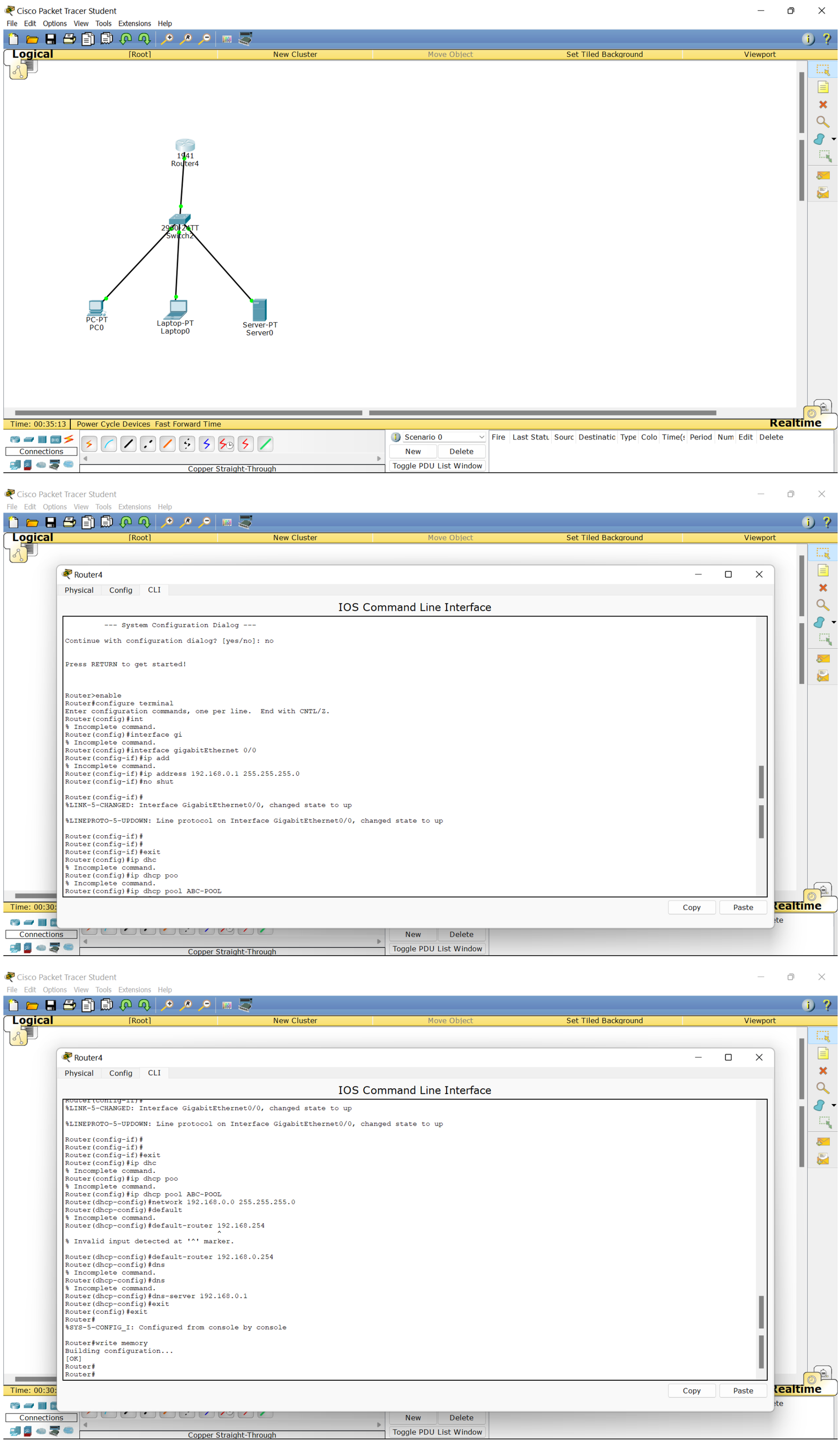
REQUEST
client requests IP address
from server

ACKNOWLEDGE
server acknowledges IP request
and completes installation
cycle -

CONCLUSION :-

Successfully installed and configured DHCP server and also created a program to install software on a remote machine -

OUTPUT :-



Cisco Packet Tracer Student

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport

Router4

Physical Config CLI

IOS Command Line Interface

```
System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 2010 by cisco Systems, Inc.
Total memory size = 512 MB - On-board = 512 MB, DIMM0 = 0 MB
CISCO1941/K9 platform with 524288 Kbytes of main memory
Main memory is configured to 64/-1(On-board/DIMM0) bit mode with ECC disabled

Readonly ROMMON initialized

program load complete, entry point: 0x80803000, size: 0x1b340
program load complete, entry point: 0x80803000, size: 0x1b340

IOS Image Load Test
___________________
Digitally Signed Release Software
program load complete, entry point: 0x81000000, size: 0x2bb1c58
Self decompressing the image :
################################################################################ [OK]
Smart Init is enabled
smart init is sizing iomem
                    TYPE      MEMORY_REQ
     Onboard devices &
          buffer pools      0x01E8F000
-------------------------------------------------
                TOTAL:      0x01E8F000
Rounded IOMEM up to: 32Mb.
Using 6 percent iomem. [32Mb/512Mb]

               Restricted Rights Legend
Use, duplication, or disclosure by the Government is
subject to restrictions as set forth in subparagraph
(c) of the Commercial Computer Software - Restricted
Rights clause at FAR sec. 52.227-19 and subparagraph
(c) (1) (ii) of the Rights in Technical Data and Computer
Software clause at DFARS sec. 252.227-7013.
           cisco Systems, Inc.
```

Copy Paste

Time: 00:30:

Realtime

Connections

Copper Straight-Through

New Delete

Toggle PDU List Window

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File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport

1941 Router4

2960-24TT Switch2

PC-PT PC0

Laptop-PT Laptop0

Server-PT Server0

PC0

Physical Config Desktop Custom Interface

IP Configuration

IP Configuration

DHCP Static DHCP request successful.

IP Address 192.168.0.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.0.254

DNS Server 192.168.0.1

IPv6 Configuration

DHCP Auto Config Static

IPv6 Address /

Link Local Address FE80::201:43FF:FE4B:4408

IPv6 Gateway

IPv6 DNS Server

Time: 00:32:19 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Statu Sourc Destinatic Type Colo Time(s Period Num Edit Delete

Cisco Packet Tracer Student

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport

1941 Router4

2960-24TT Switch2

PC-PT PC0

Laptop-PT Laptop0

Server-PT Server0

PC0

Physical Config Desktop Custom Interface

Command Prompt

```
Packet Tracer PC Command Line 1.0
PC>ip config
Invalid Command.

PC>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time=0ms TTL=255
Reply from 192.168.0.1: bytes=32 time=1ms TTL=255
Reply from 192.168.0.1: bytes=32 time=0ms TTL=255
Reply from 192.168.0.1: bytes=32 time=0ms TTL=255

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>
```

Time: 00:33:05 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Statu Sourc Destinatic Type Colo Time(s Period Num Edit Delete

Cisco Packet Tracer Student

File Edit Options View Tools Extensions Help

Logical | [Root] | New Cluster | Move Object | Set Tiled Background | Viewport

1941 Router4

2960-24TT Switch2

PC-PT PC0

Laptop-PT Laptop0

Server-PT Server0

Laptop0

Physical | Config | Desktop | Custom Interface

IP Configuration

IP Configuration

DHCP Static DHCP request successful.

IP Address 192.168.0.3

Subnet Mask 255.255.255.0

Default Gateway 192.168.0.254

DNS Server 192.168.0.1

IPv6 Configuration

DHCP Auto Config Static

IPv6 Address /

Link Local Address FE80::201:C9FF:FEBC:ECBE

IPv6 Gateway

IPv6 DNS Server

Time: 00:33:40 | Power Cycle Devices | Fast Forward Time | Realtime

Connections | Copper Straight-Through

Scenario 0 | New | Delete | Toggle PDU List Window

Fire | Last Statu | Sourc | Destinatic | Type | Colo | Time(s | Period | Num | Edit | Delete

Cisco Packet Tracer Student

File Edit Options View Tools Extensions Help

Logical | [Root] | New Cluster | Move Object | Set Tiled Background | Viewport

1941 Router4

2960-24TT Switch2

PC-PT PC0

Laptop-PT Laptop0

Server-PT Server0

Laptop0

Physical | Config | Desktop | Custom Interface

Command Prompt

```
PC>clr
Invalid Command.

PC>clear
Invalid Command.

PC>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time=0ms TTL=255
Reply from 192.168.0.1: bytes=32 time=0ms TTL=255
Reply from 192.168.0.1: bytes=32 time=0ms TTL=255
Reply from 192.168.0.1: bytes=32 time=0ms TTL=255

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0%
loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

PC>
```

Time: 00:34:25 | Power Cycle Devices | Fast Forward Time | Realtime

Connections | Copper Straight-Through

Scenario 0 | New | Delete | Toggle PDU List Window

Fire | Last Statu | Sourc | Destinatic | Type | Colo | Time(s | Period | Num | Edit | Delete

Cisco Packet Tracer Student

File Edit Options View Tools Extensions Help

Logical | [Root] | New Cluster | Move Object | Set Tiled Background | Viewport

1941 Router4

2960-24TT Switch2

PC-PT PC0

Laptop-PT Laptop0

Server-PT Server0

Server0

Physical | Config | Services | Desktop | Custom Interface

IP Configuration

Interface FastEthernet0

IP Configuration

DHCP Static DHCP request successful.

IP Address 192.168.0.4

Subnet Mask 255.255.255.0

Default Gateway 192.168.0.254

DNS Server 192.168.0.1

IPv6 Configuration

DHCP Auto Config Static

IPv6 Address /

Link Local Address FE80::2E0:F9FF:FE25:D7E6

IPv6 Gateway

IPv6 DNS Server

Time: 00:34:40 | Power Cycle Devices | Fast Forward Time | Realtime

Connections | Copper Straight-Through

Scenario 0 | New | Delete | Toggle PDU List Window

Fire | Last Statu | Sourc | Destinatic | Type | Colo | Time(s | Period | Num | Edit | Delete