

DHCP

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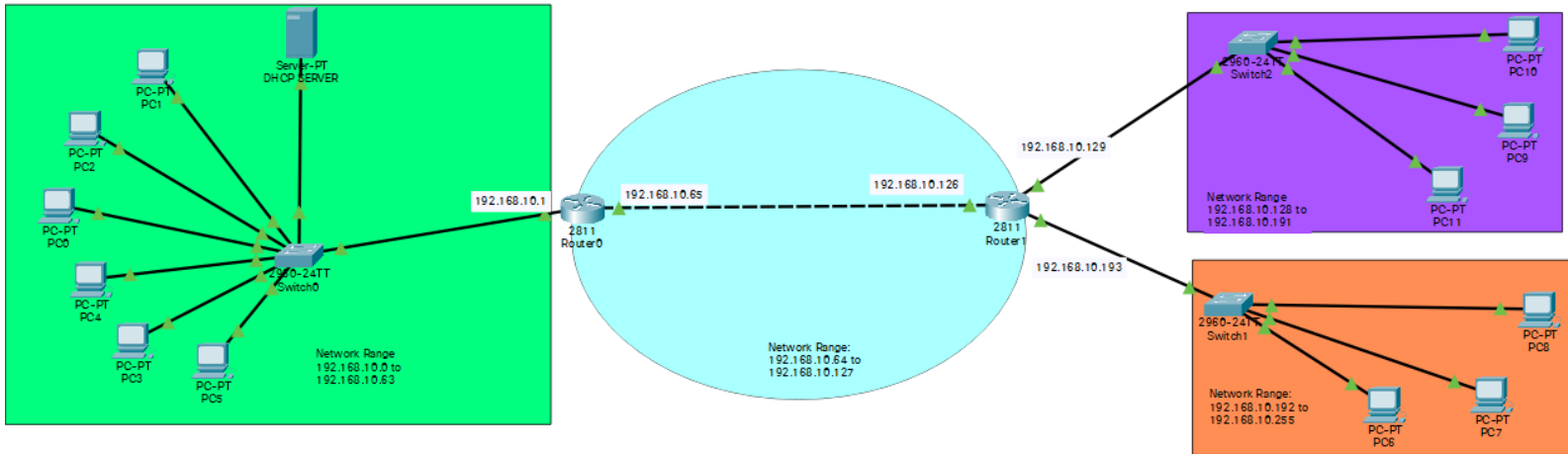
Course Code: Data Communication and Computer Networking

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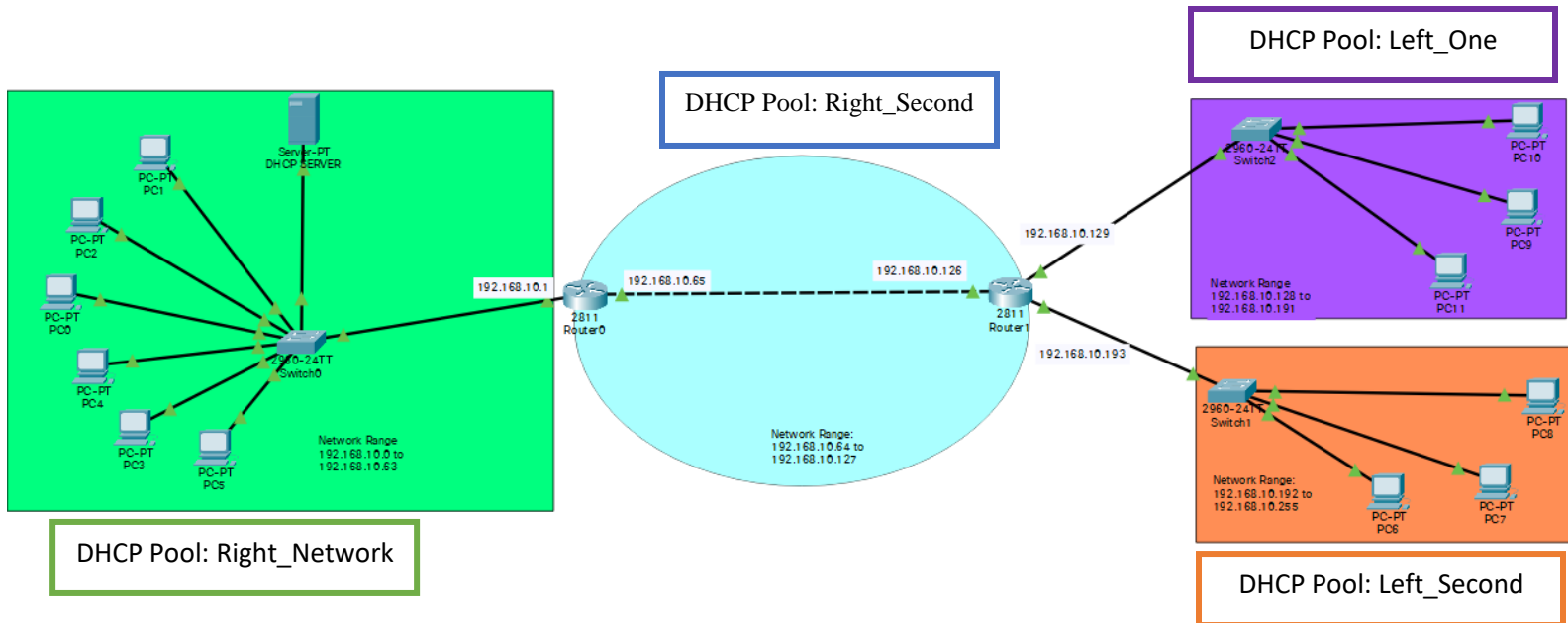
DHCP Assignment

Do the configuration of the DHCP server along with other devices as per the given networks.



In this whole topology, I have created four DHCP pool

1. Right_Network (IP Range: 192.168.10.1 – 192.168.10.62)
2. Right_Second (IP Range: 192.168.10.65 – 192.168.10.126)
3. Left_one (IP Range: 192.168.10.129 – 192.168.10.190)
4. Left_Second (IP Range: 192.168.10.193 – 192.168.10.254)



Router-0

Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>enable
Router#show ip dhcp pool Right_Network
Pool Right_Network :
  Utilization mark (high/low)      : 100 / 0
  Subnet size (first/next)         : 0 / 0
  Total addresses                   : 62
  Leased addresses                  : 6
  Excluded addresses                : 1
  Pending event                     : none

  1 subnet is currently in the pool
  Current index      IP address range      Leased/Excluded/Total
  192.168.10.1       192.168.10.1 - 192.168.10.62  6 / 1 / 62
Router#
```

Router-1

Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>enable
Router#show ip dhcp pool right_second
Pool right_second :
  Utilization mark (high/low)      : 100 / 0
  Subnet size (first/next)         : 0 / 0
  Total addresses                   : 62
  Leased addresses                  : 0
  Excluded addresses                : 3
  Pending event                     : none

  1 subnet is currently in the pool
  Current index      IP address range      Leased/Excluded/Total
  192.168.10.65       192.168.10.65 - 192.168.10.126  0 / 3 / 62
Router#show ip dhcp pool left_one
Pool left_one :
  Utilization mark (high/low)      : 100 / 0
  Subnet size (first/next)         : 0 / 0
  Total addresses                   : 62
  Leased addresses                  : 3
  Excluded addresses                : 3
  Pending event                     : none

  1 subnet is currently in the pool
  Current index      IP address range      Leased/Excluded/Total
  192.168.10.129      192.168.10.129 - 192.168.10.190  3 / 3 / 62
Router#show ip dhcp pool left_second
Pool left_second :
  Utilization mark (high/low)      : 100 / 0
  Subnet size (first/next)         : 0 / 0
  Total addresses                   : 62
  Leased addresses                  : 3
  Excluded addresses                : 3
  Pending event                     : none

  1 subnet is currently in the pool
  Current index      IP address range      Leased/Excluded/Total
  192.168.10.193      192.168.10.193 - 192.168.10.254  3 / 3 / 62
Router#
```

CLI Configuration Commands

Router-0 Configuration

Interface configuration

```
Router>enable
Router#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa0/1
Router(config-if)#ip address 192.168.10.65 255.255.255.192
Router(config-if)#no shutdown
```

```
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
```

```
Router(config-if)#exit
Router(config)#int fa0/0
Router(config-if)#ip address 192.168.10.2 255.255.255.192
Router(config-if)#no shutdown
```

```
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
```

```
Router(config-if)#exit
```

dhcp pool Right_Network

```
Router(config)#ip dhcp excluded 192.168.10.0 192.168.10.10
Router(config)#ip dhcp pool Right_Network
Router(dhcp-config)#default-router 192.168.10.2
Router(dhcp-config)#dns-server 192.168.10.3
Router(dhcp-config)#option 150 ip 192.168.10.4
Router(dhcp-config)#network 192.168.10.0 255.255.255.192
Router(dhcp-config)#exit
Router(config)#
```

Router-1 Configuration

Interface configuration

```
Router>enable
Router#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa0/1
Router(config-if)#ip address 192.168.10.126
% Incomplete command.
Router(config-if)#ip address 192.168.10.126 255.255.255.192
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

Router(config-if)#exit

Router(config)#int fa1/0
Router(config-if)#ip address 192.168.10.129 255.255.255.192
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

Router(config-if)#exit

Router(config)#int fa0/0
Router(config-if)#ip address 192.168.10.193 255.255.255.192
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
```

dhcp pool right_second

```
Router>enable
Router#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip dhcp excluded-address 192.168.10.65 192.168.10.70
Router(config)#ip dhcp pool right_second
Router(dhcp-config)#default-router 192.168.10.126
Router(dhcp-config)#network 192.168.10.71 255.255.255.192
Router(dhcp-config)#exit
```

dhcp pool left_one

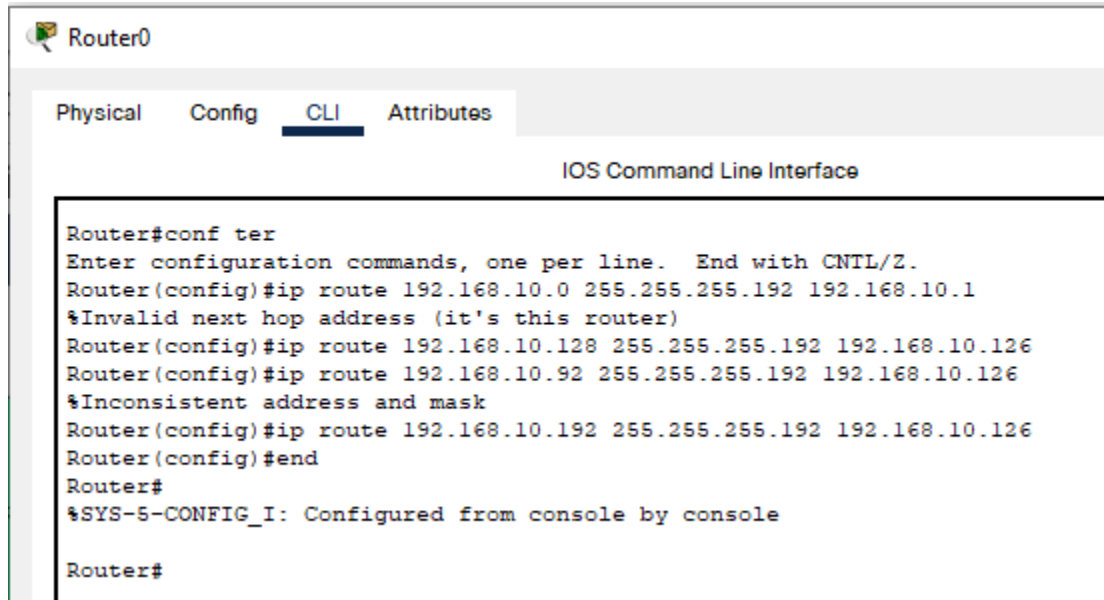
```
Router(config)#ip dhcp excluded-address 192.168.10.129 192.168.10.139
Router(config)#ip dhcp pool left_one
Router(dhcp-config)#default-router 192.168.10.129
Router(dhcp-config)#dns-server 192.168.10.130
Router(dhcp-config)#option 150 ip 192.168.10.131
Router(dhcp-config)#network 192.168.10.128 255.255.255.192
Router(dhcp-config)#exit
```

dhcp pool left_second

```
Router(config)#ip dhcp excluded-address 192.168.10.193 192.168.10.213
Router(config)#ip dhcp pool left_second
Router(dhcp-config)#default-router 192.168.10.193
Router(dhcp-config)#dns-server 192.168.10.194
Router(dhcp-config)#option 150 ip 192.168.10.195
Router(dhcp-config)#network 192.168.10.192 255.255.255.192
Router(dhcp-config)#exit
Router(config)#
```

Static Routing

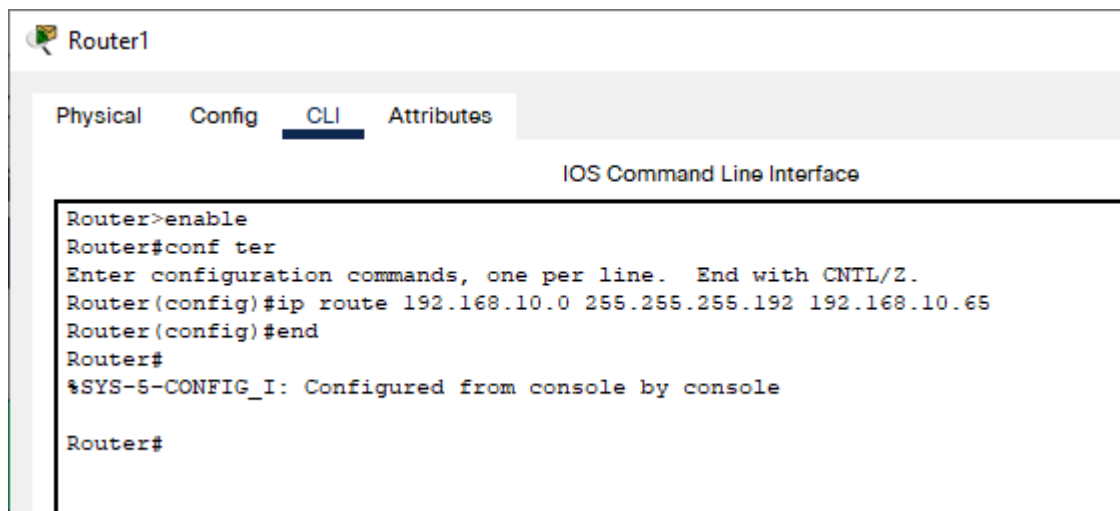
Router-0



The image shows the CLI interface of Router0. At the top, there are tabs for 'Physical', 'Config', 'CLI' (which is selected), and 'Attributes'. Below the tabs, the title 'IOS Command Line Interface' is displayed. The main area contains the following text:

```
Router0
Router#conf ter
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 192.168.10.0 255.255.255.192 192.168.10.1
%Invalid next hop address (it's this router)
Router(config)#ip route 192.168.10.128 255.255.255.192 192.168.10.126
Router(config)#ip route 192.168.10.92 255.255.255.192 192.168.10.126
%Inconsistent address and mask
Router(config)#ip route 192.168.10.192 255.255.255.192 192.168.10.126
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#
```

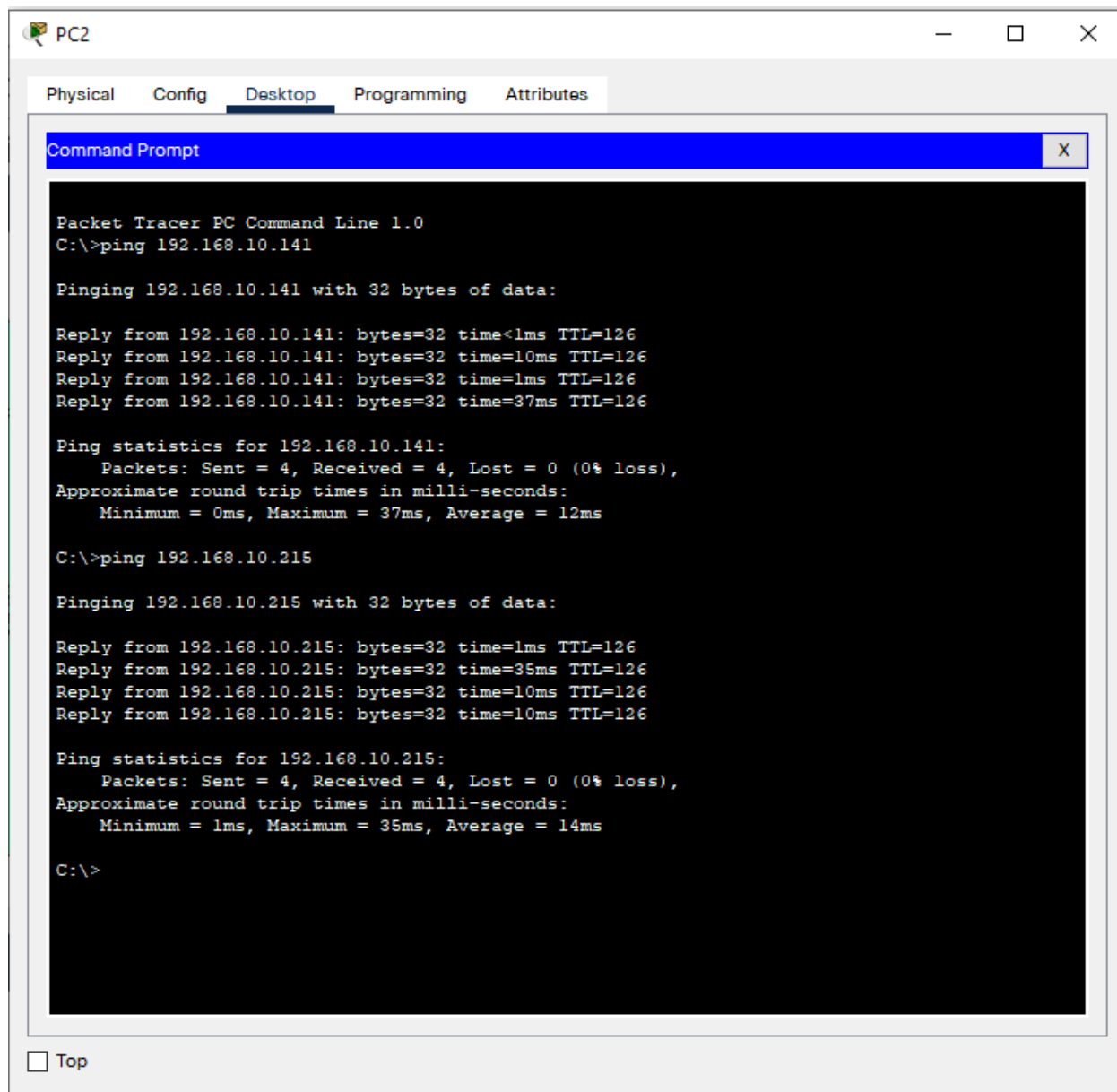
Router-1



The image shows the CLI interface of Router1. At the top, there are tabs for 'Physical', 'Config', 'CLI' (which is selected), and 'Attributes'. Below the tabs, the title 'IOS Command Line Interface' is displayed. The main area contains the following text:

```
Router1
Router>enable
Router#conf ter
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 192.168.10.0 255.255.255.192 192.168.10.65
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#
```

PING from PC2 (192.168.10.12) to
PC9 (192.168.10.141) and PC7 (192.168.10.215)



The screenshot shows a Packet Tracer interface for PC2. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The command prompt shows the execution of two ping commands: one to 192.168.10.141 and another to 192.168.10.215. Both commands succeed, showing four successful replies with varying round trip times and 0% loss. Ping statistics are also displayed for both destinations.

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.10.141

Pinging 192.168.10.141 with 32 bytes of data:

Reply from 192.168.10.141: bytes=32 time<1ms TTL=126
Reply from 192.168.10.141: bytes=32 time=10ms TTL=126
Reply from 192.168.10.141: bytes=32 time=1ms TTL=126
Reply from 192.168.10.141: bytes=32 time=37ms TTL=126

Ping statistics for 192.168.10.141:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 37ms, Average = 12ms

C:\>ping 192.168.10.215

Pinging 192.168.10.215 with 32 bytes of data:

Reply from 192.168.10.215: bytes=32 time=1ms TTL=126
Reply from 192.168.10.215: bytes=32 time=35ms TTL=126
Reply from 192.168.10.215: bytes=32 time=10ms TTL=126
Reply from 192.168.10.215: bytes=32 time=10ms TTL=126

Ping statistics for 192.168.10.215:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 35ms, Average = 14ms

C:\>
```

☐ Top

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