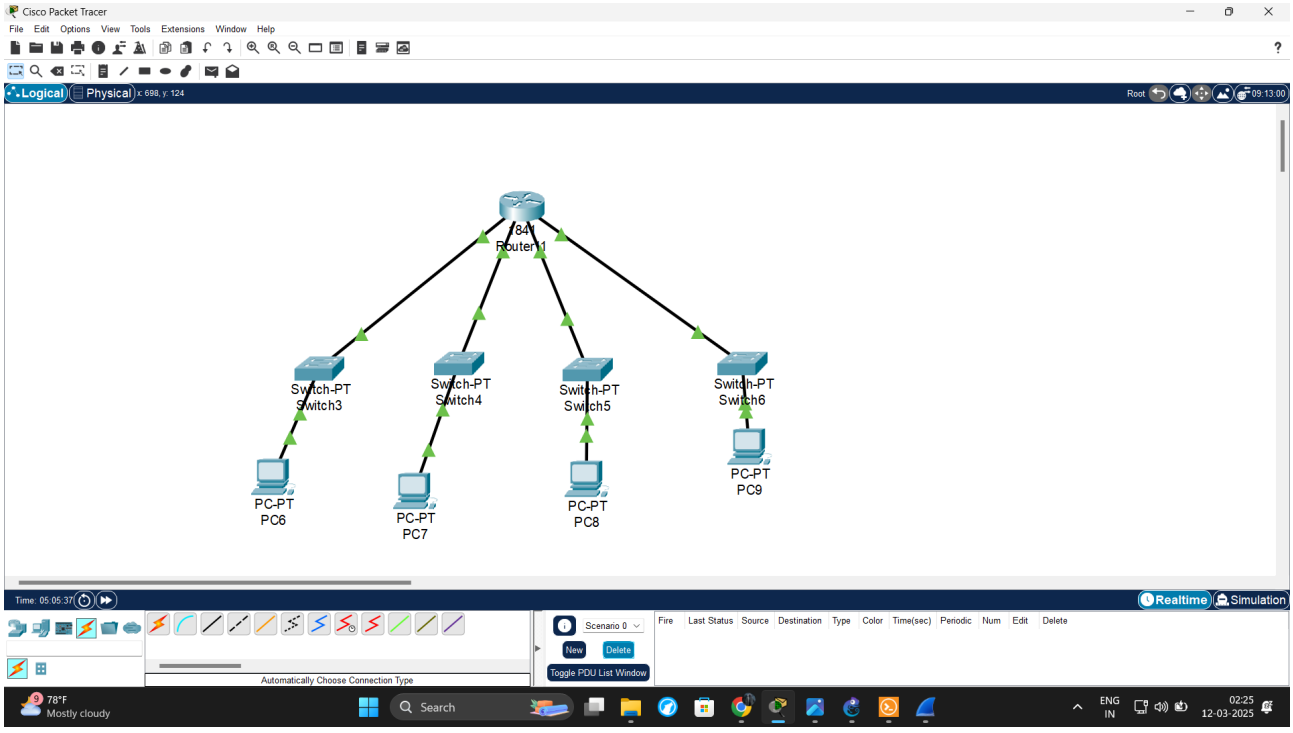
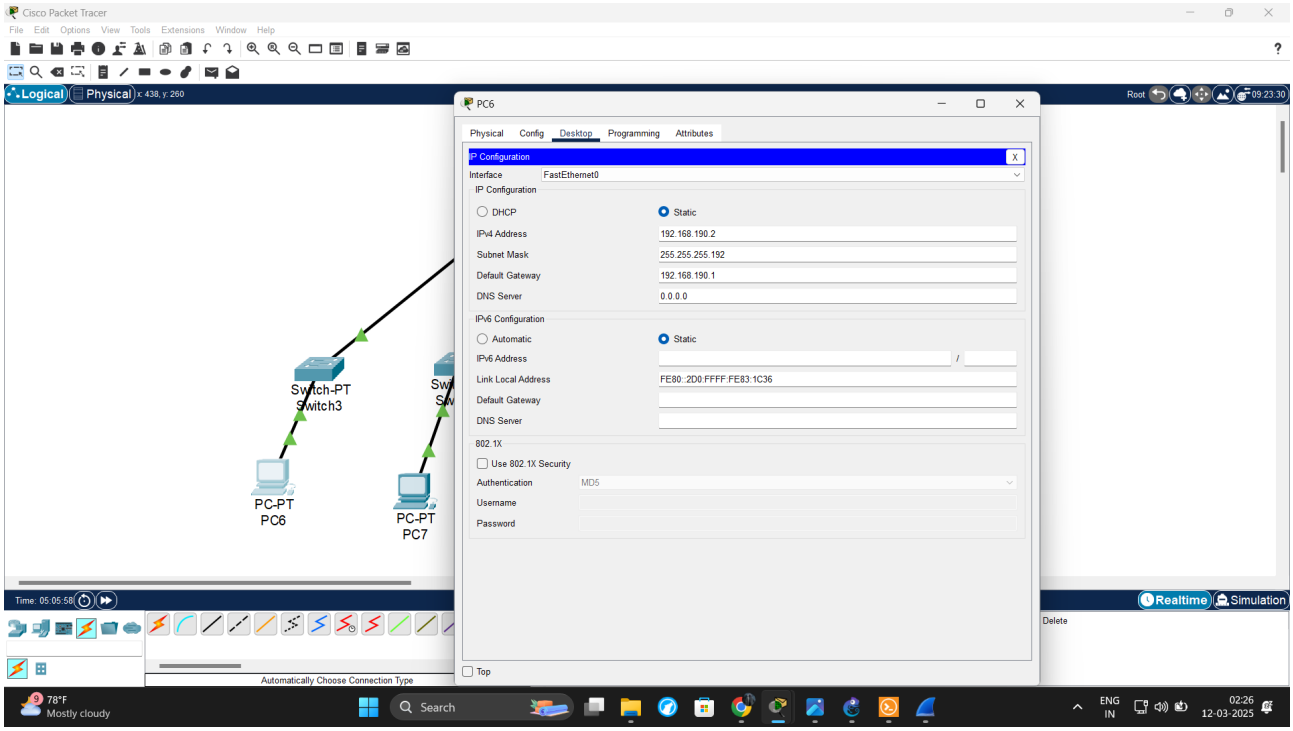
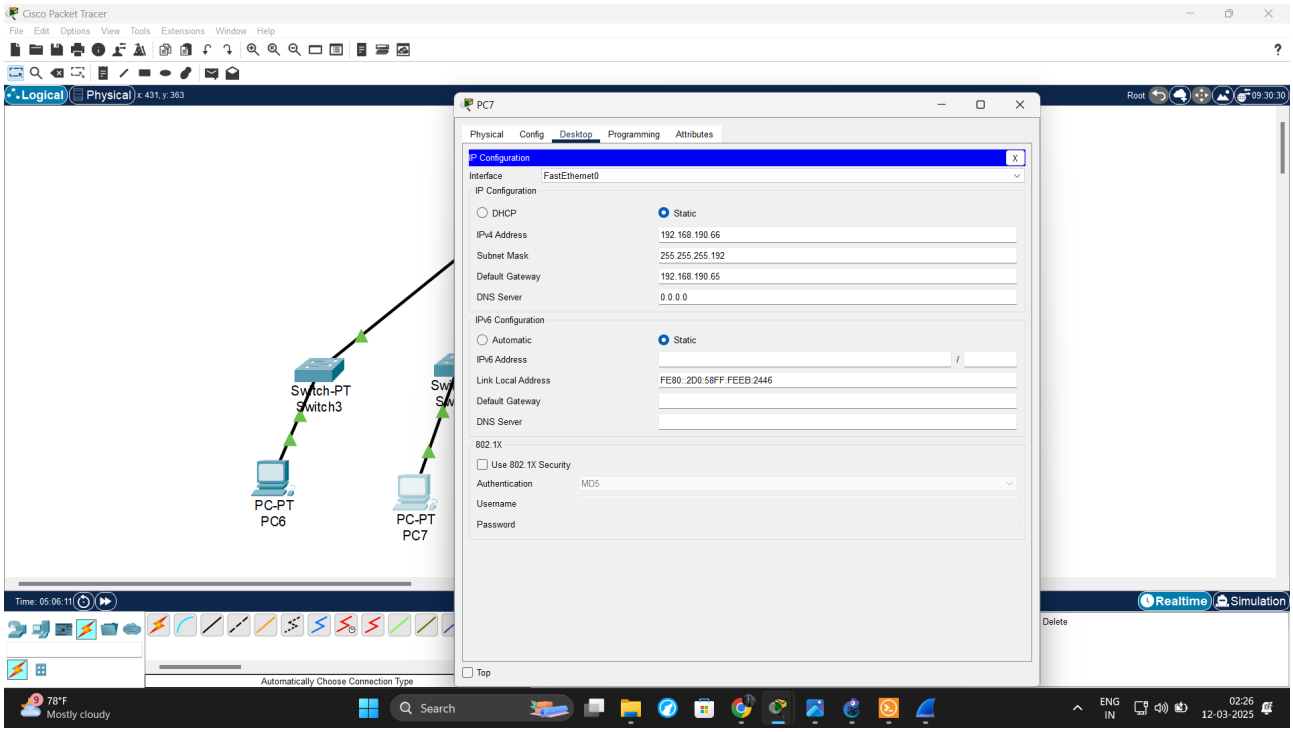
Subnetting is the process of dividing a large network into smaller networks called subnets. Subnets provide each group of devices a space to communicate with each other.

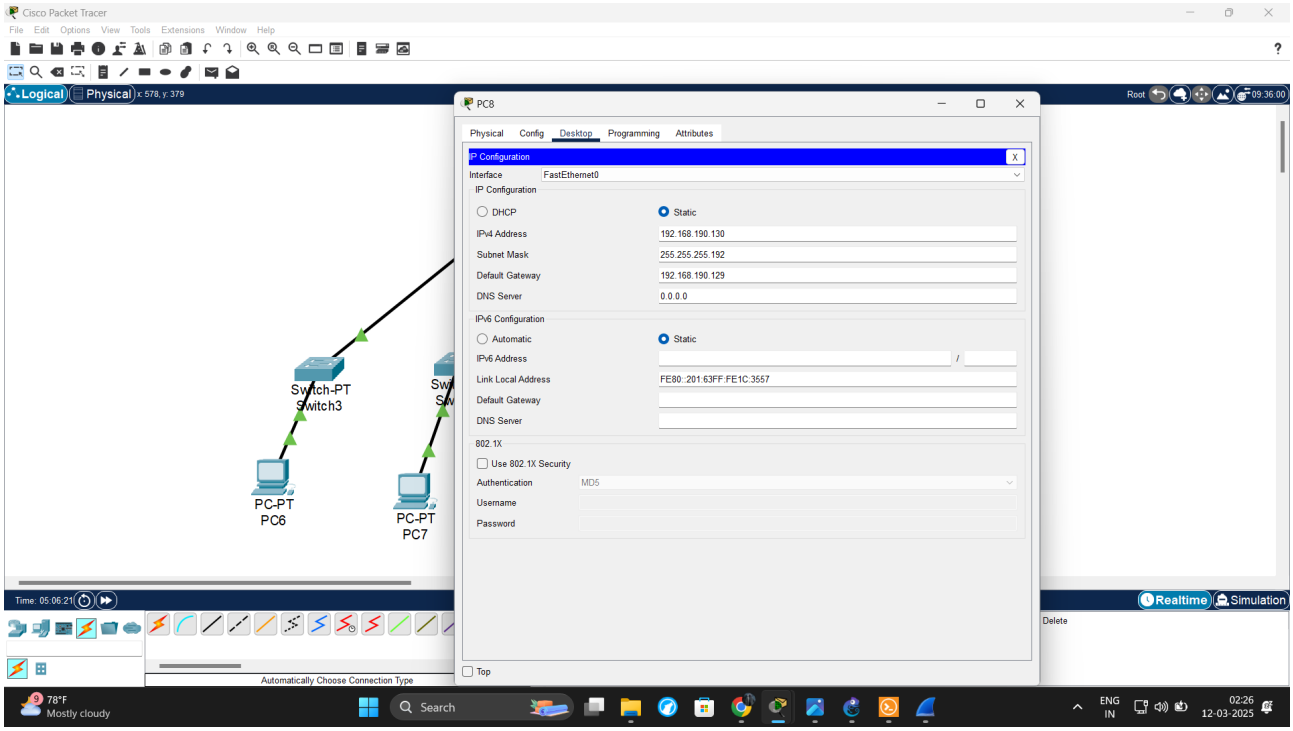
Given IP range – 192.168.1.0-255/24
No of subnets – 4 = 2^2
Subnet 1 range – 192.168.1.0-63/26
Subnet 2 range – 192.168.1.64-127/26
Subnet 3 range – 192.168.1.128-191/26
Subnet 4 range – 192.168.1.192-255/26

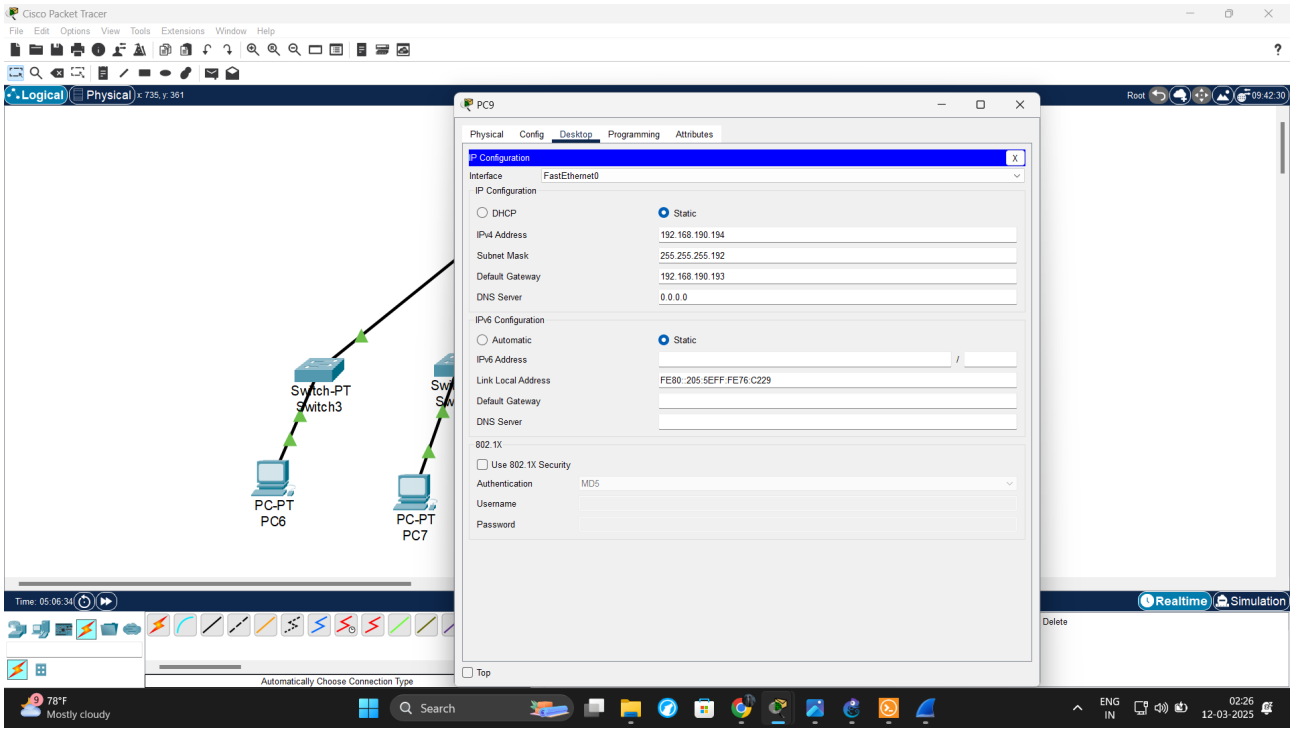
Subnet Mask – 255.255.255.192

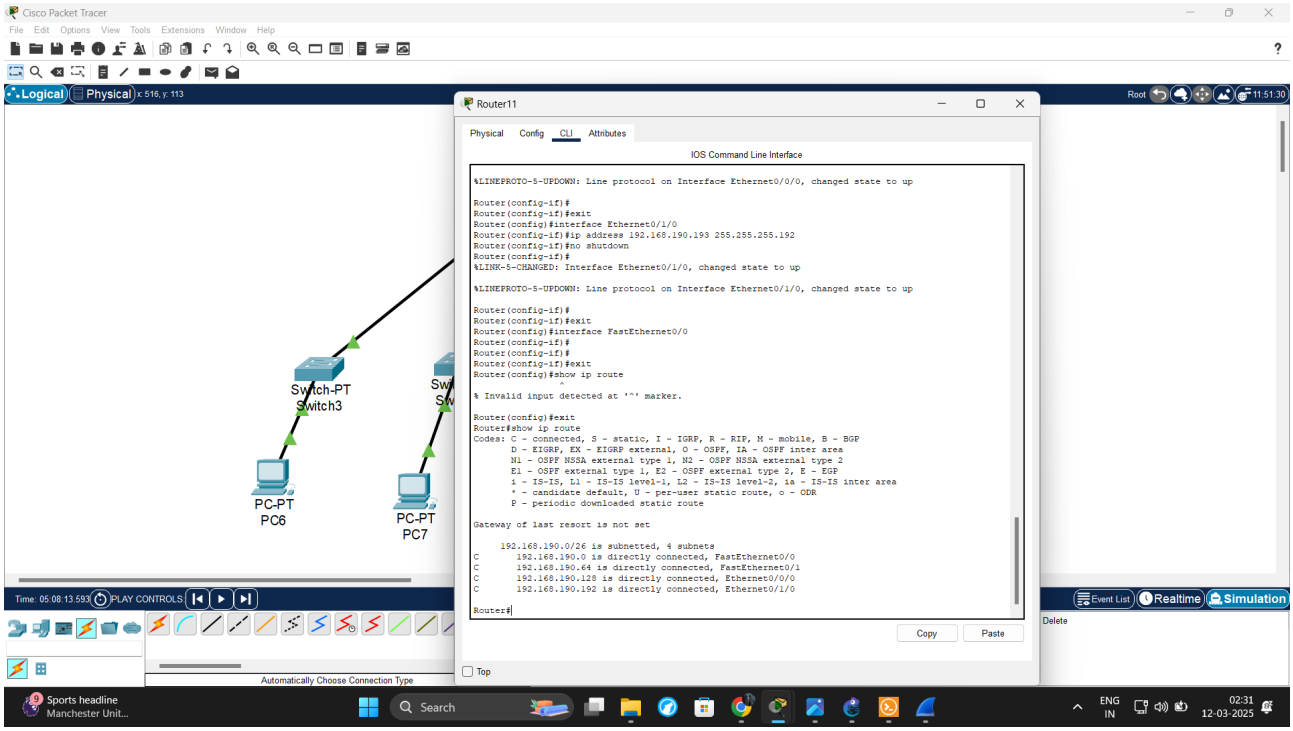


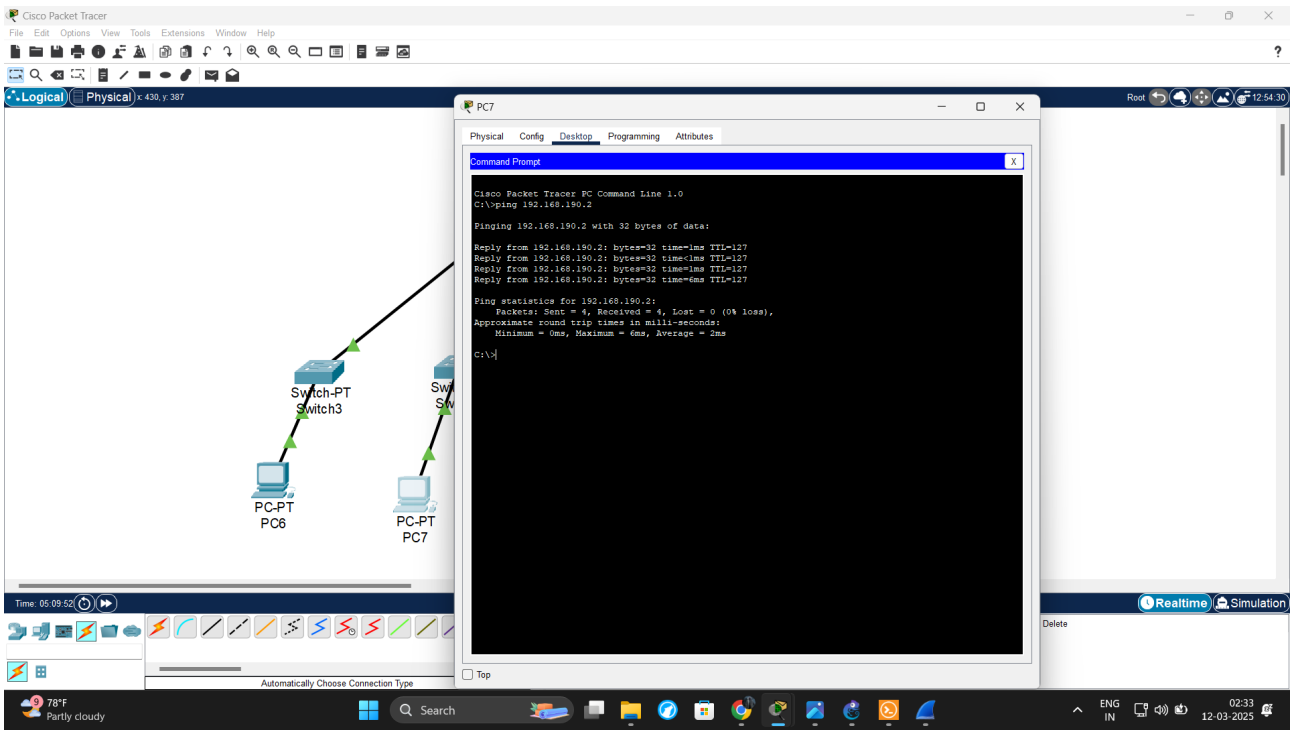

Cisco Packet Tracer
PC6
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
DHCP
Static
IPv4 Address
192.168.190.2
Subnet Mask
255.255.255.192
Default Gateway
192.168.190.1
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::2D0:FFFF:FE83:1C36
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top
Switch-PT
Switch3
PC-PT
PC6
PC-PT
PC7
Realtime
Simulation
Delete
Automatically Choose Connection Type
Search
ENG
IN
02:26
12-03-2025

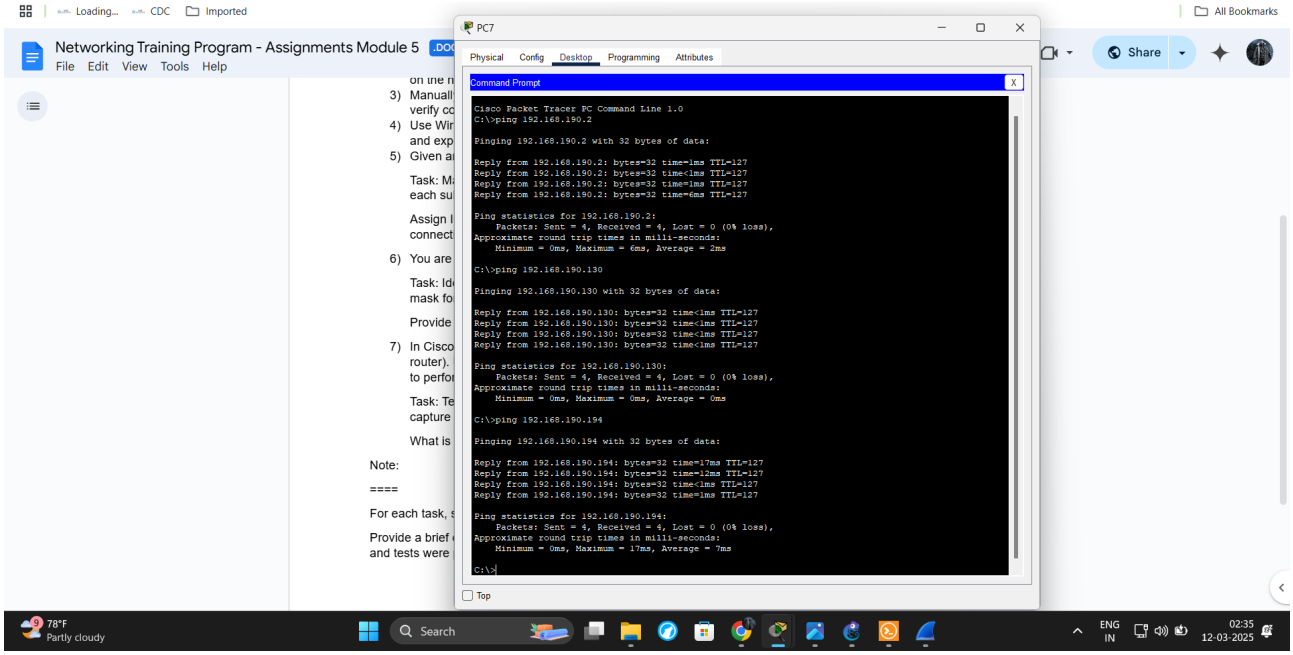

Cisco Packet Tracer
PC7
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
DHCP
Static
IPv4 Address
192.168.190.66
Subnet Mask
255.255.255.192
Default Gateway
192.168.190.65
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::2D0:58FF:FEEB:2446
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top
Switch-PT
Switch3
PC-PT
PC6
PC-PT
PC7
Realtime
Simulation
Delete
Automatically Choose Connection Type
Search
ENG
IN
02:26
12-03-2025


Cisco Packet Tracer
PC8
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
DHCP
Static
IPv4 Address
192.168.190.130
Subnet Mask
255.255.255.192
Default Gateway
192.168.190.129
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::201:63FF:FE1C:3557
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top
Switch-PT
Switch3
PC-PT
PC6
PC-PT
PC7
Logical
Physical
Realtime
Simulation
Delete
Automatically Choose Connection Type
78°F
Mostly cloudy
Search
ENG
IN
02:26
12-03-2025


Cisco Packet Tracer
PC9
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
DHCP
Static
IPv4 Address
192.168.190.194
Subnet Mask
255.255.255.192
Default Gateway
192.168.190.193
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::205:5EFF:FE76:C229
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top
Switch-PT
Switch3
PC-PT
PC6
PC-PT
PC7
Logical
Physical
Realtime
Simulation
Delete
Automatically Choose Connection Type
78°F
Mostly cloudy
Search
ENG
IN
02:26
12-03-2025


Cisco Packet Tracer
Router11
Physical
Config
CLI
Attributes
IOS Command Line Interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface Ethernet0/0/0, changed state to up
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Ethernet0/1/0
Router(config-if)#ip address 192.168.190.193 255.255.255.192
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface Ethernet0/1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Ethernet0/1/0, changed state to up
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#show ip route
% Invalid input detected at '^' marker.
Router(config)#exit
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
192.168.190.0/26 is subnetted, 4 subnets
C 192.168.190.0 is directly connected, FastEthernet0/0
C 192.168.190.64 is directly connected, FastEthernet0/1
C 192.168.190.128 is directly connected, Ethernet0/0/0
C 192.168.190.192 is directly connected, Ethernet0/1/0
Router#
Copy
Paste
Top
Switch-PT
Switch3
PC-PT
PC6
PC-PT
PC7
Logical
Physical
Root
Realtime
Simulation
Event List
Delete
Automatically Choose Connection Type
Search
ENG
IN
02:31
12-03-2025


Cisco Packet Tracer
PC7
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.190.2
Pinging 192.168.190.2 with 32 bytes of data:
Reply from 192.168.190.2: bytes=32 time=1ms TTL=127
Reply from 192.168.190.2: bytes=32 time<1ms TTL=127
Reply from 192.168.190.2: bytes=32 time=1ms TTL=127
Reply from 192.168.190.2: bytes=32 time=6ms TTL=127
Ping statistics for 192.168.190.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 6ms, Average = 2ms
C:\>
Top
Switch-PT
Switch3
PC-PT
PC6
PC-PT
PC7
Logical
Physical
Root
Realtime
Simulation
Delete
Automatically Choose Connection Type
Search
ENG
IN
02:33
12-03-2025


Networking Training Program - Assignments Module 5
File Edit View Tools Help
Share
PC7
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.190.2
Pinging 192.168.190.2 with 32 bytes of data:
Reply from 192.168.190.2: bytes=32 time=1ms TTL=127
Reply from 192.168.190.2: bytes=32 time<1ms TTL=127
Reply from 192.168.190.2: bytes=32 time=1ms TTL=127
Reply from 192.168.190.2: bytes=32 time=6ms TTL=127
Ping statistics for 192.168.190.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 6ms, Average = 2ms
C:\>ping 192.168.190.130
Pinging 192.168.190.130 with 32 bytes of data:
Reply from 192.168.190.130: bytes=32 time<1ms TTL=127
Reply from 192.168.190.130: bytes=32 time<1ms TTL=127
Reply from 192.168.190.130: bytes=32 time<1ms TTL=127
Reply from 192.168.190.130: bytes=32 time<1ms TTL=127
Ping statistics for 192.168.190.130:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 192.168.190.194
Pinging 192.168.190.194 with 32 bytes of data:
Reply from 192.168.190.194: bytes=32 time=17ms TTL=127
Reply from 192.168.190.194: bytes=32 time=12ms TTL=127
Reply from 192.168.190.194: bytes=32 time<1ms TTL=127
Reply from 192.168.190.194: bytes=32 time=1ms TTL=127
Ping statistics for 192.168.190.194:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 17ms, Average = 7ms
C:\>
Top
78°F Partly cloudy
Search
ENG IN
02:35 12-03-2025