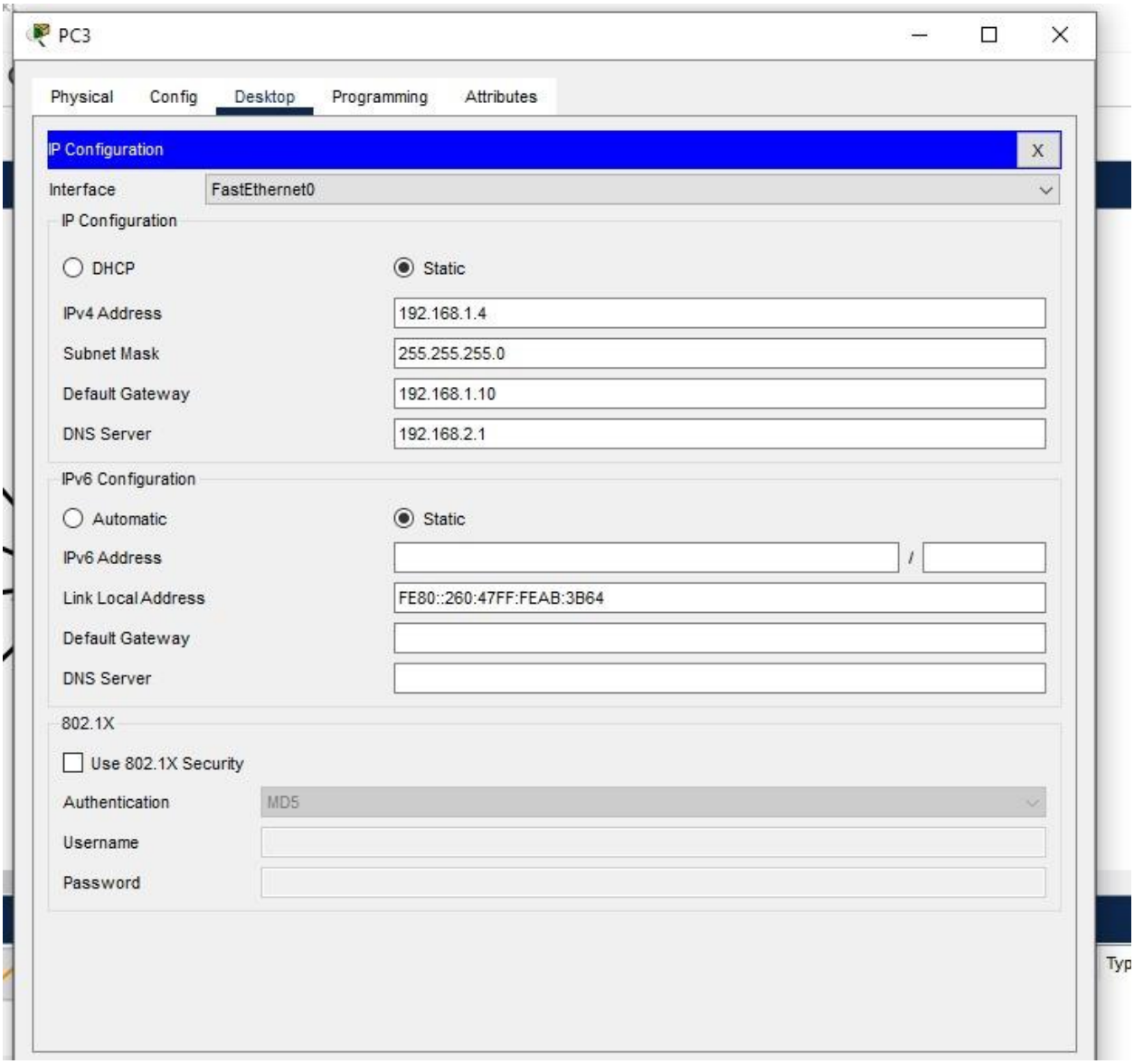
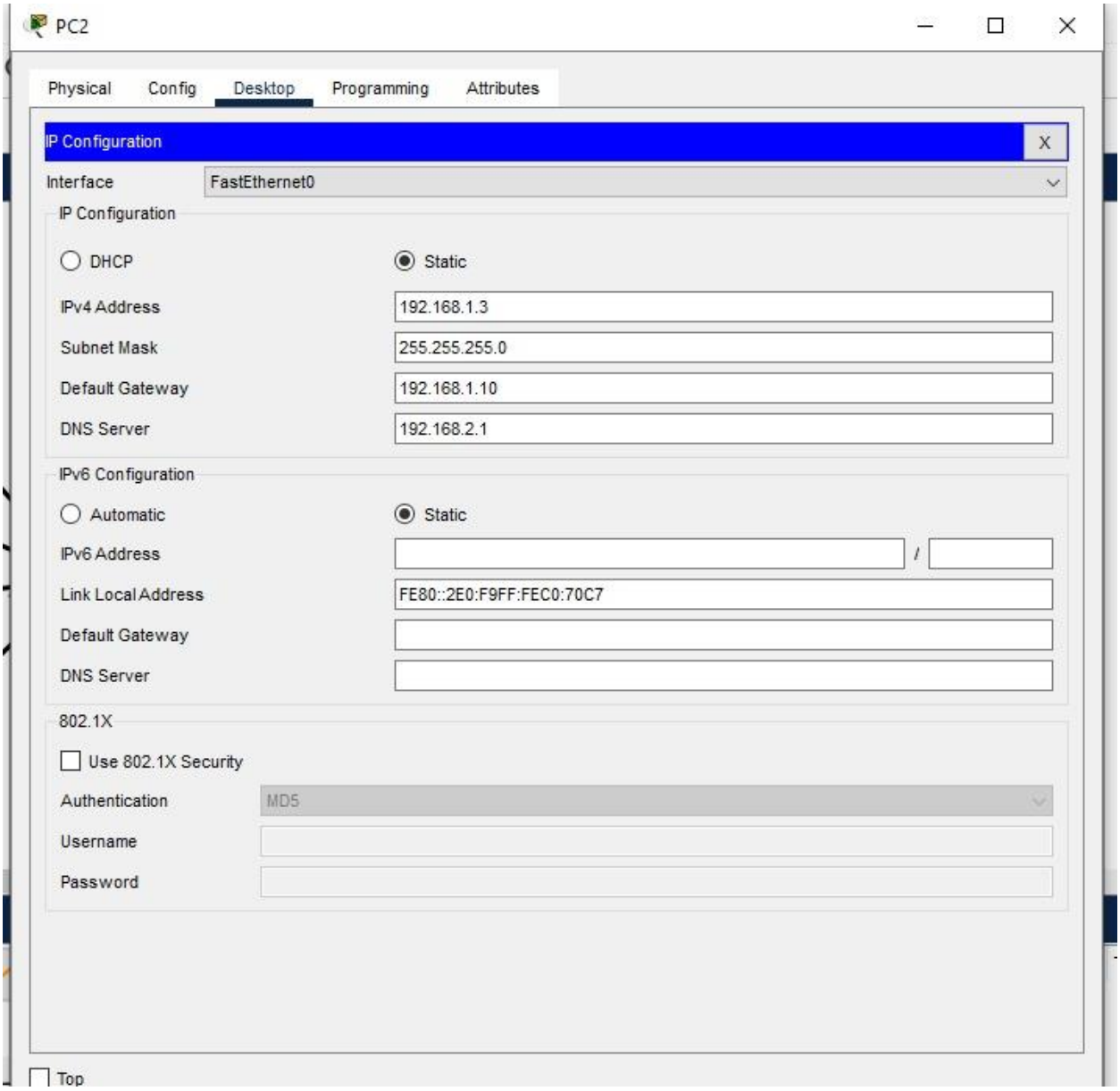
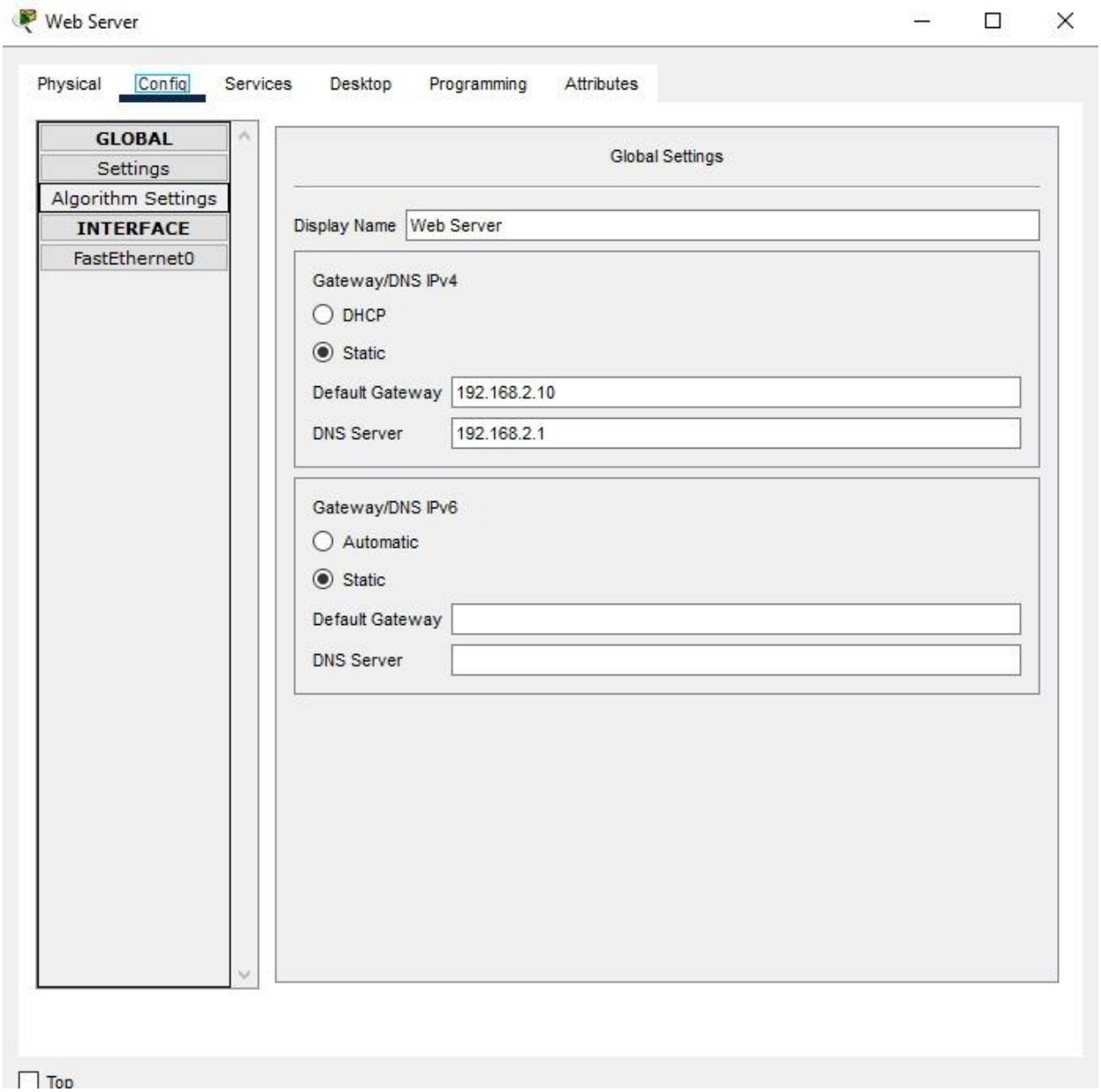
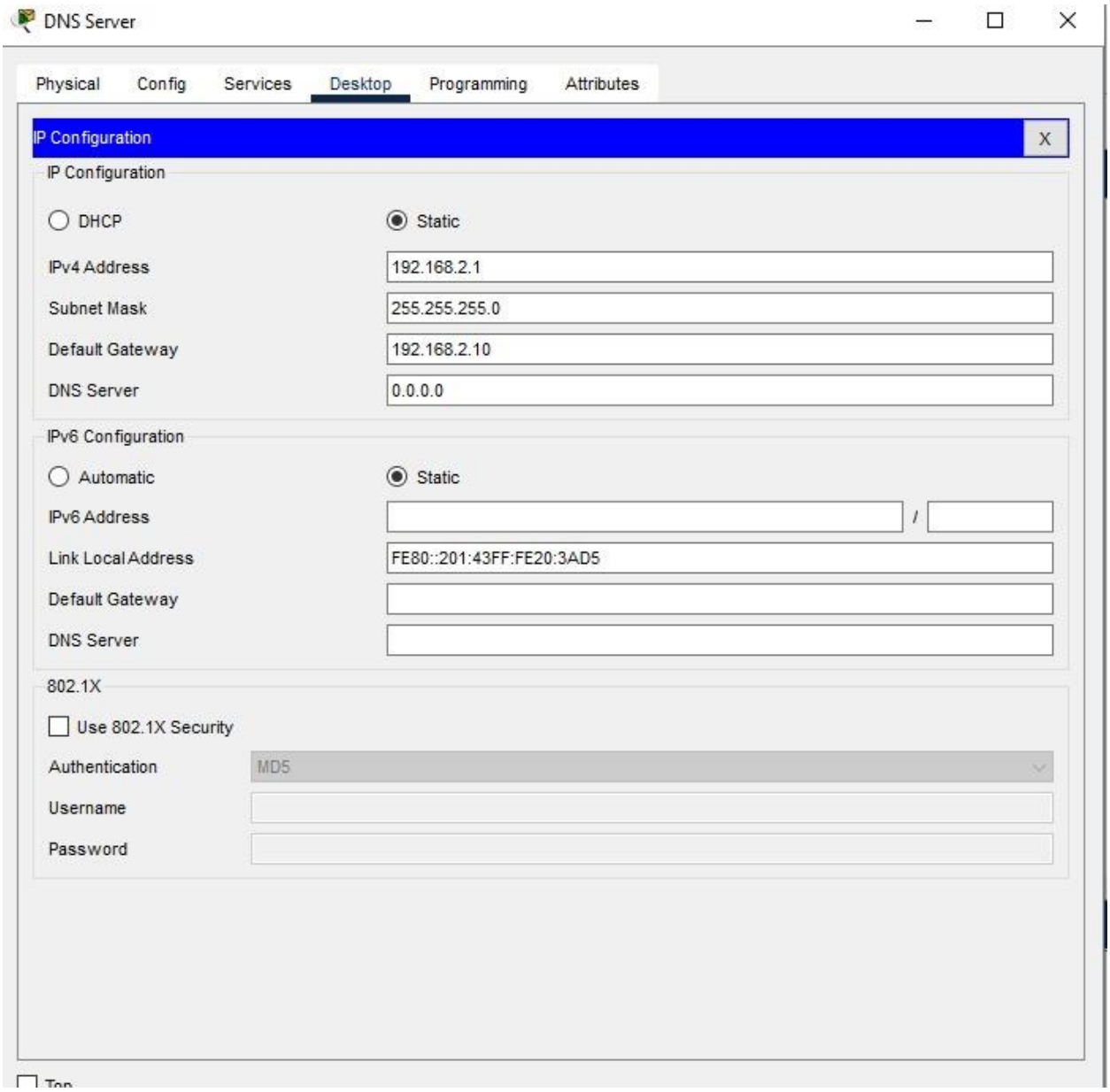
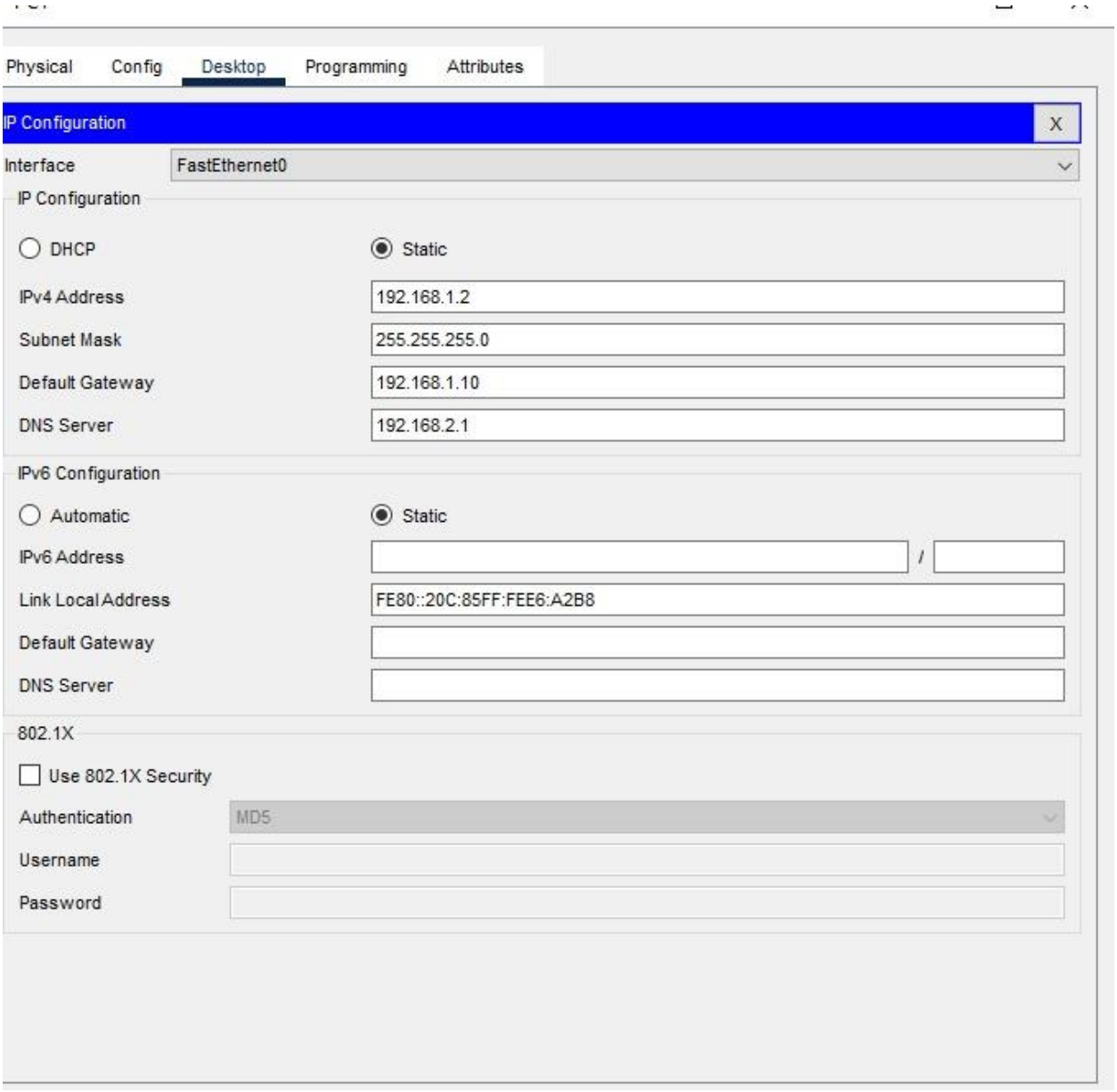
I used Cisco Packet Tracer to set up a basic network simulation involving four PCs and two servers. The goal was to configure a working network in which the PCs could communicate with the servers—specifically, a DNS server and a web server—through a central router. I started by connecting the four PCs on one side and the two servers on the other side, with the router placed in the center. I used two router interfaces, one for each side, to connect the PCs and servers respectively.

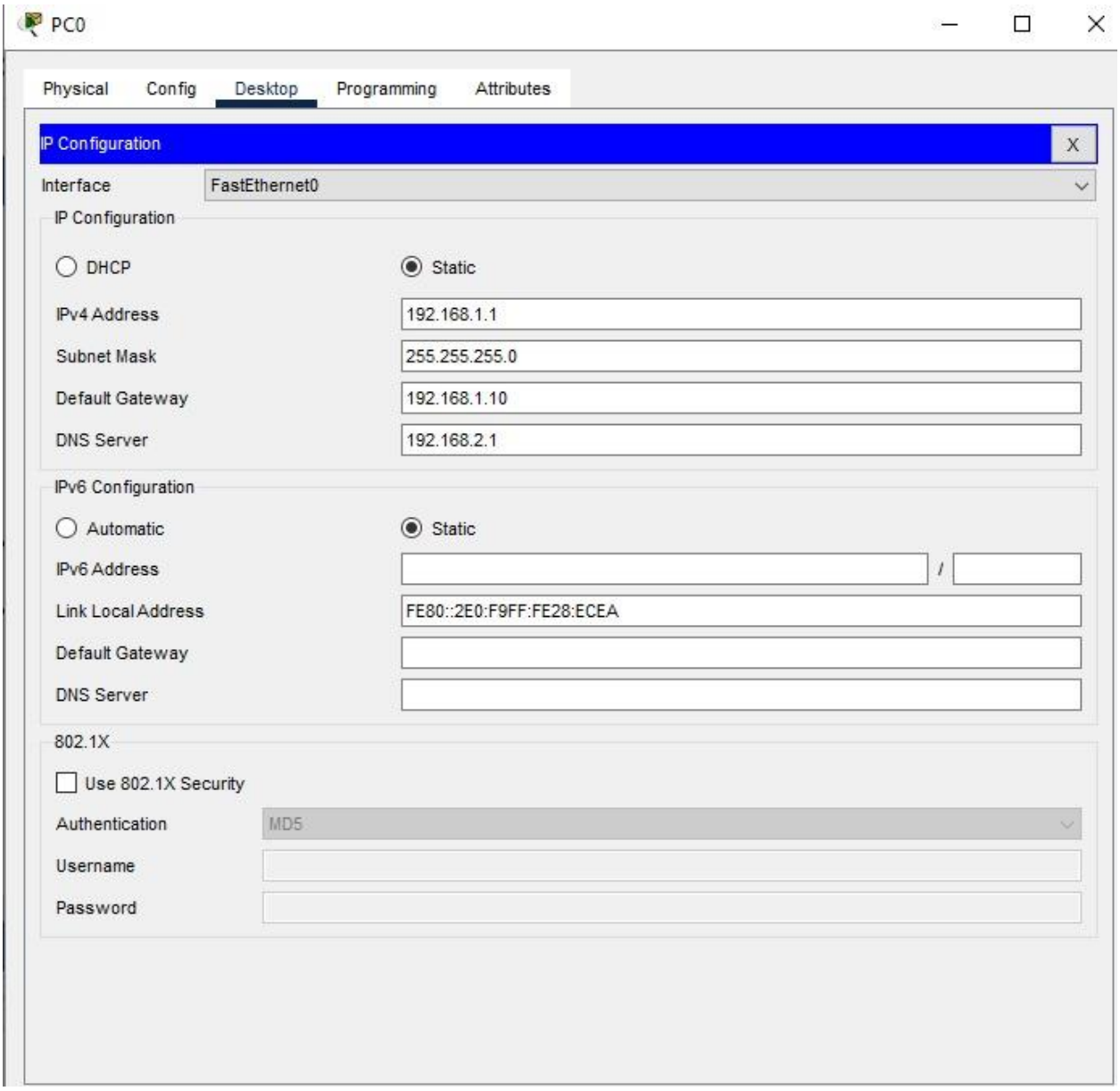

PC3
Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.4
Subnet Mask
255.255.255.0
Default Gateway
192.168.1.10
DNS Server
192.168.2.1
IPv6 Configuration
Automatic
Static
IPv6 Address
/
Link Local Address
FE80::260:47FF:FEAB:3B64
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password


PC2
Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.3
Subnet Mask
255.255.255.0
Default Gateway
192.168.1.10
DNS Server
192.168.2.1
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::2E0:F9FF:FEC0:70C7
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top

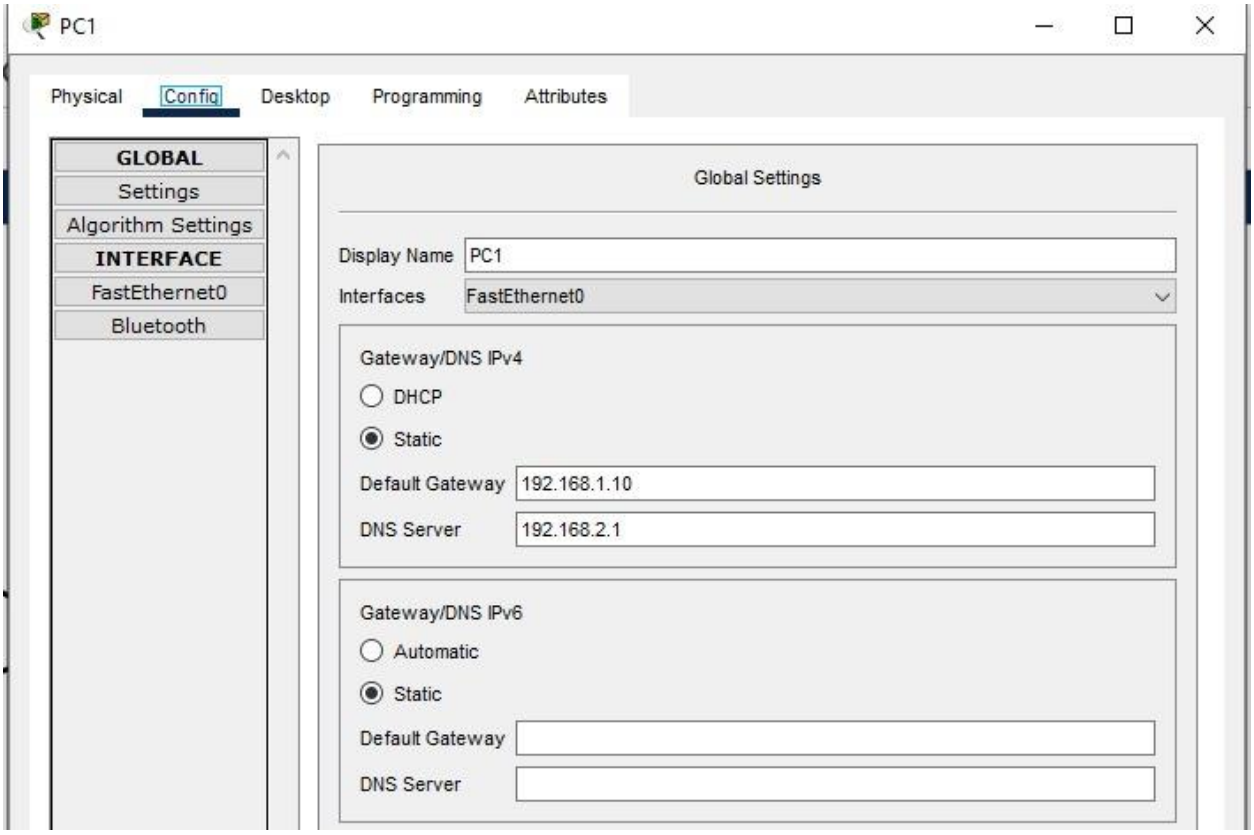

Web Server
Physical
Config
Services
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Global Settings
Display Name
Web Server
Gateway/DNS IPv4
DHCP
Static
Default Gateway
192.168.2.10
DNS Server
192.168.2.1
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
Top

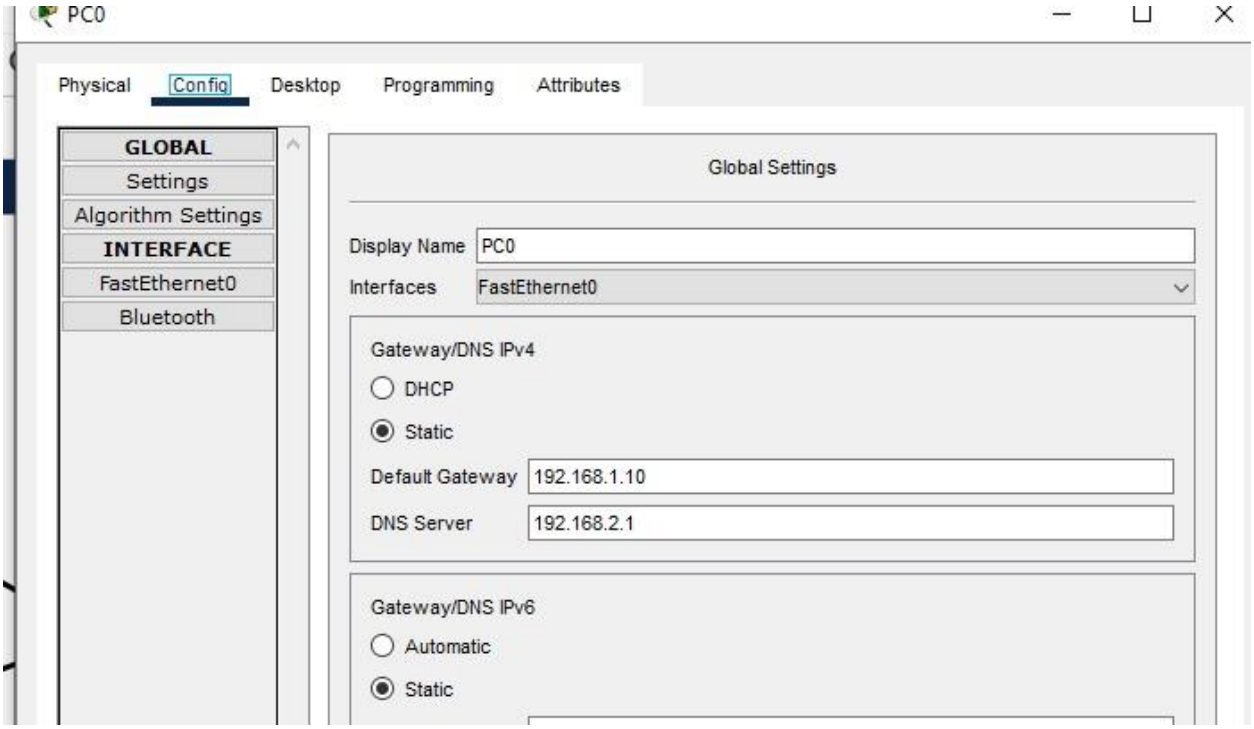

DNS Server
Physical
Config
Services
Desktop
Programming
Attributes
IP Configuration
X
IP Configuration
DHCP
Static
IPv4 Address
192.168.2.1
Subnet Mask
255.255.255.0
Default Gateway
192.168.2.10
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::201:43FF:FE20:3AD5
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top

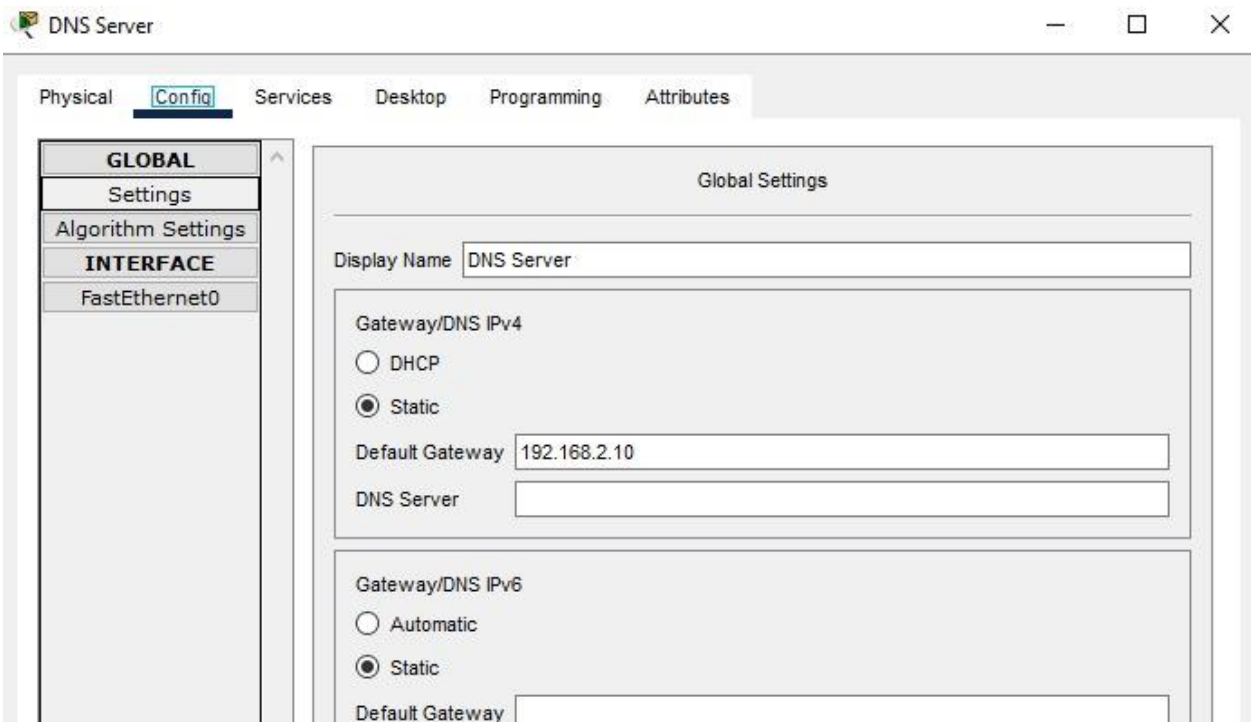

Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.2
Subnet Mask
255.255.255.0
Default Gateway
192.168.1.10
DNS Server
192.168.2.1
IPv6 Configuration
Automatic
Static
IPv6 Address
/
Link Local Address
FE80::20C:85FF:FEE6:A2B8
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password

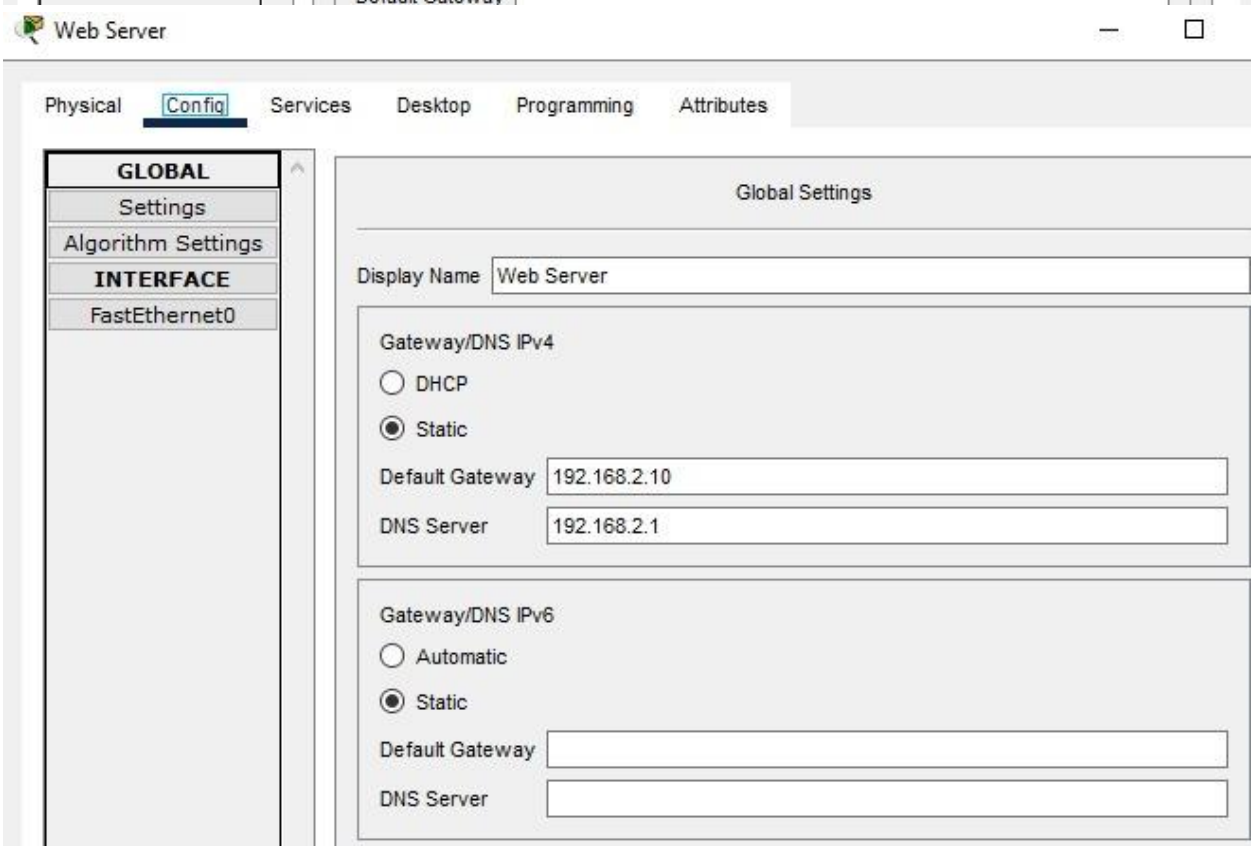


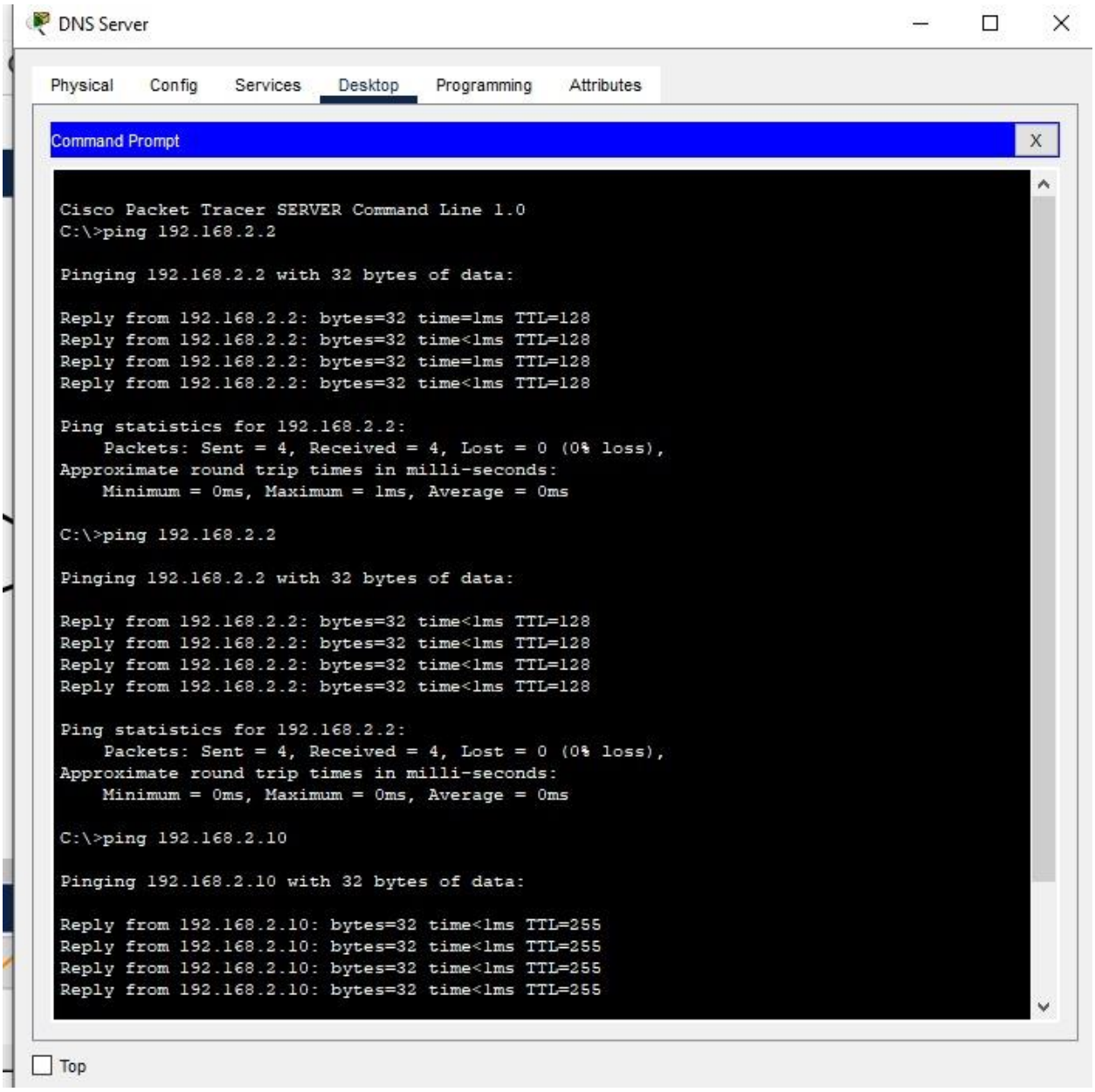
After setting up the physical connections, I configured static IP addresses for all the PCs and servers to ensure proper communication. I then accessed the router's configuration interface (possibly through CLI or GUI, such as the CLI or ELU/ULU settings), where I set IP addresses on both router interfaces to act as gateways for each network segment. These gateway addresses were then set as the default gateways in the network settings of the PCs and servers, matching the respective sides of the router they were connected to.

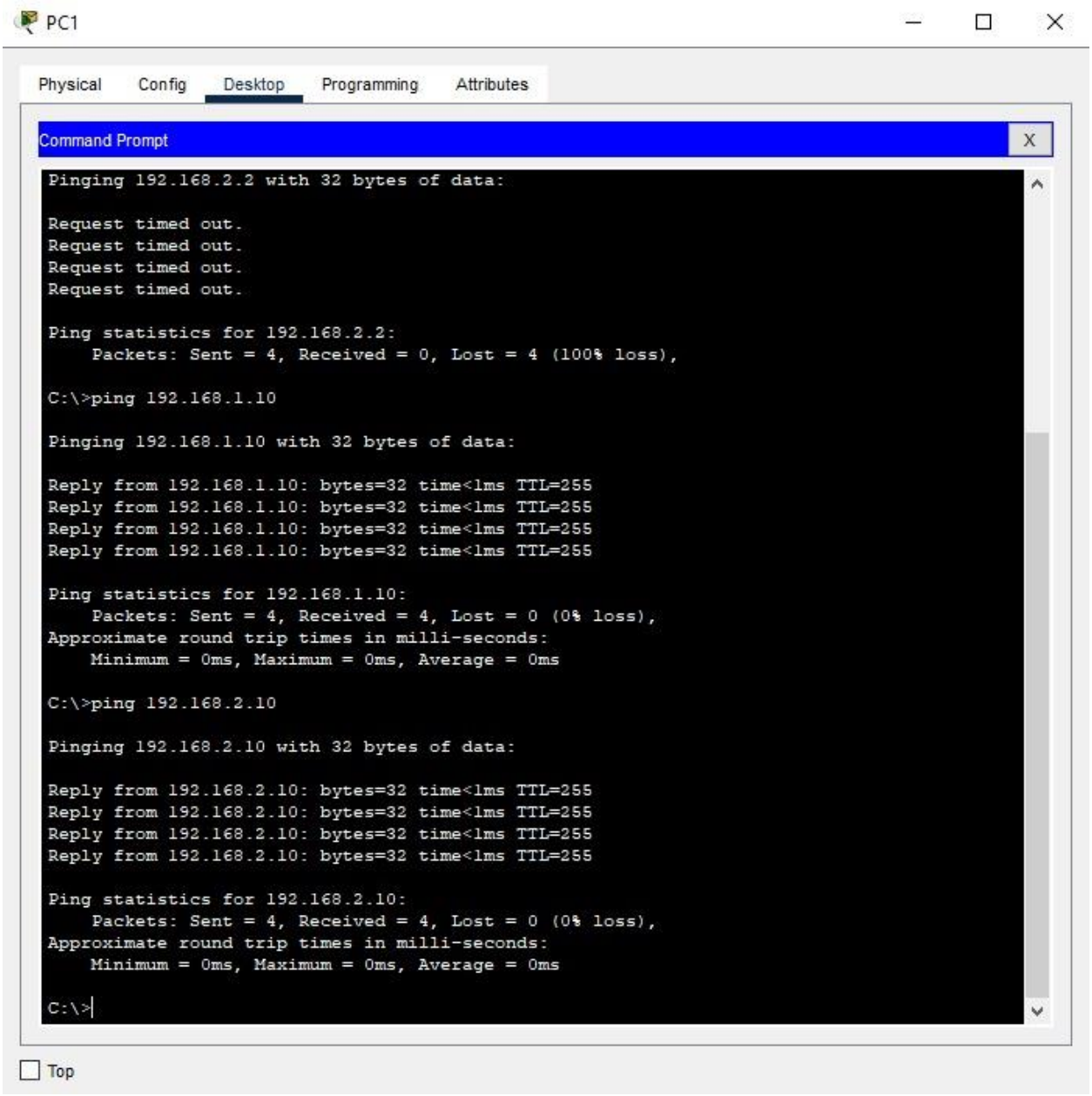

PC1
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
Global Settings
Display Name
PC1
Interfaces
FastEthernet0
Gateway/DNS IPv4
DHCP
Static
Default Gateway
192.168.1.10
DNS Server
192.168.2.1
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server

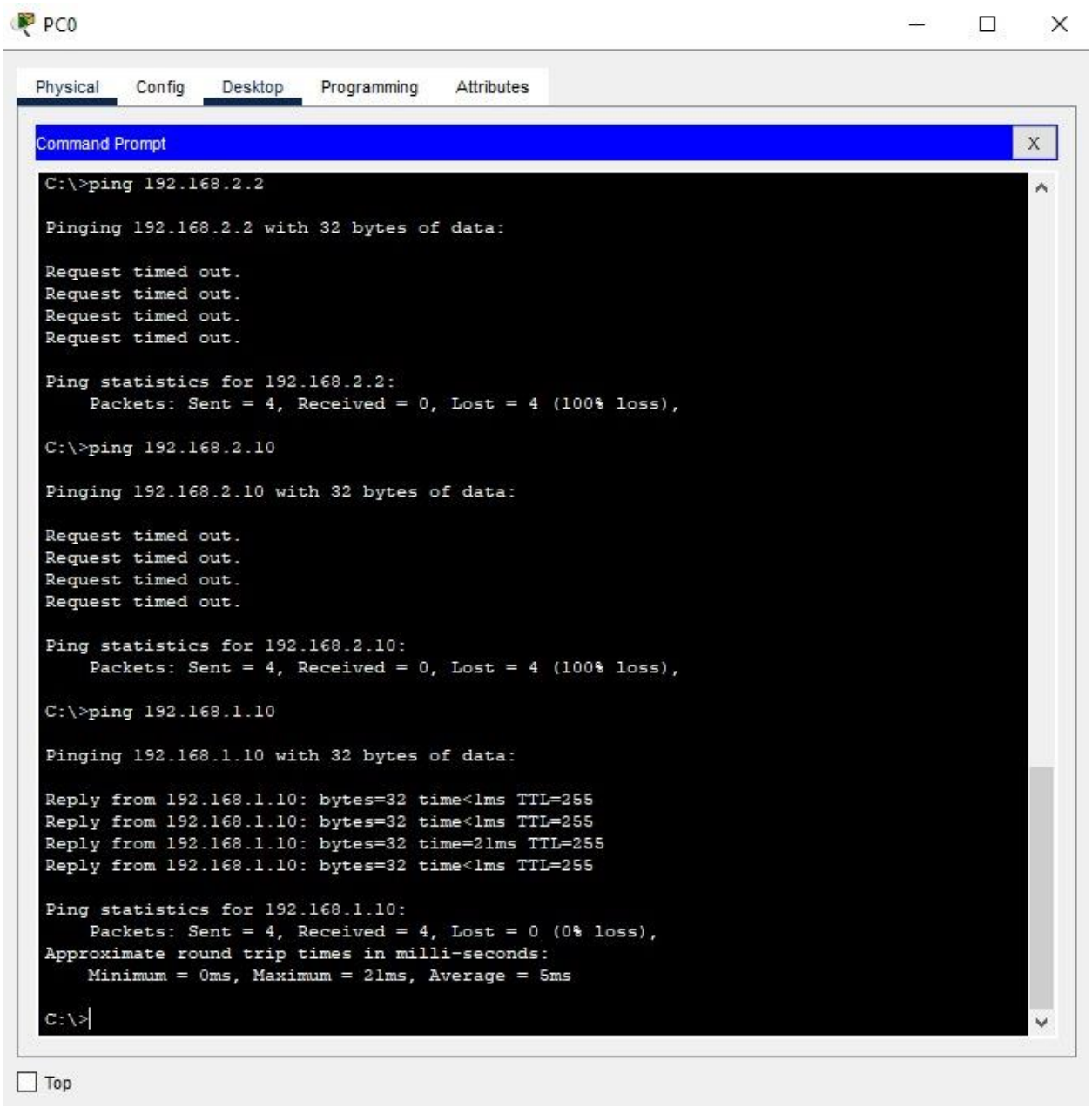

PC0
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
Global Settings
Display Name
PC0
Interfaces
FastEthernet0
Gateway/DNS IPv4
DHCP
Static
Default Gateway
192.168.1.10
DNS Server
192.168.2.1
Gateway/DNS IPv6
Automatic
Static

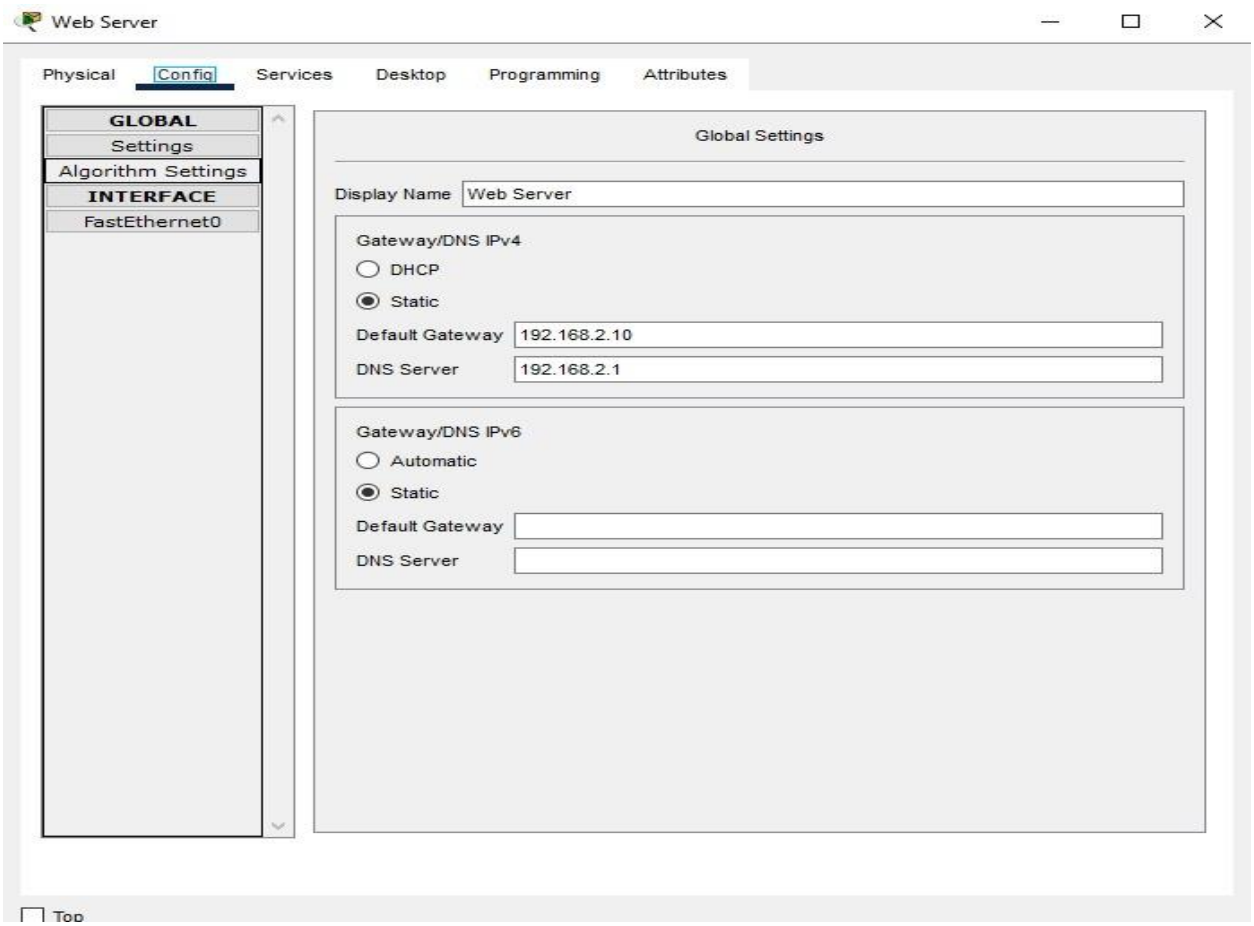

DNS Server
Physical
Config
Services
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Global Settings
Display Name
DNS Server
Gateway/DNS IPv4
DHCP
Static
Default Gateway
192.168.2.10
DNS Server
Gateway/DNS IPv6
Automatic
Static
Default Gateway


Web Server
Physical
Config
Services
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Global Settings
Display Name
Web Server
Gateway/DNS IPv4
DHCP
Static
Default Gateway
192.168.2.10
DNS Server
192.168.2.1
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server


DNS Server
Physical
Config
Services
Desktop
Programming
Attributes
Command Prompt
X
Cisco Packet Tracer SERVER Command Line 1.0
C:\>ping 192.168.2.2
Pinging 192.168.2.2 with 32 bytes of data:
Reply from 192.168.2.2: bytes=32 time=1ms TTL=128
Reply from 192.168.2.2: bytes=32 time<1ms TTL=128
Reply from 192.168.2.2: bytes=32 time=1ms TTL=128
Reply from 192.168.2.2: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.2.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 192.168.2.2
Pinging 192.168.2.2 with 32 bytes of data:
Reply from 192.168.2.2: bytes=32 time<1ms TTL=128
Reply from 192.168.2.2: bytes=32 time<1ms TTL=128
Reply from 192.168.2.2: bytes=32 time<1ms TTL=128
Reply from 192.168.2.2: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.2.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 192.168.2.10
Pinging 192.168.2.10 with 32 bytes of data:
Reply from 192.168.2.10: bytes=32 time<1ms TTL=255
Reply from 192.168.2.10: bytes=32 time<1ms TTL=255
Reply from 192.168.2.10: bytes=32 time<1ms TTL=255
Reply from 192.168.2.10: bytes=32 time<1ms TTL=255
Top

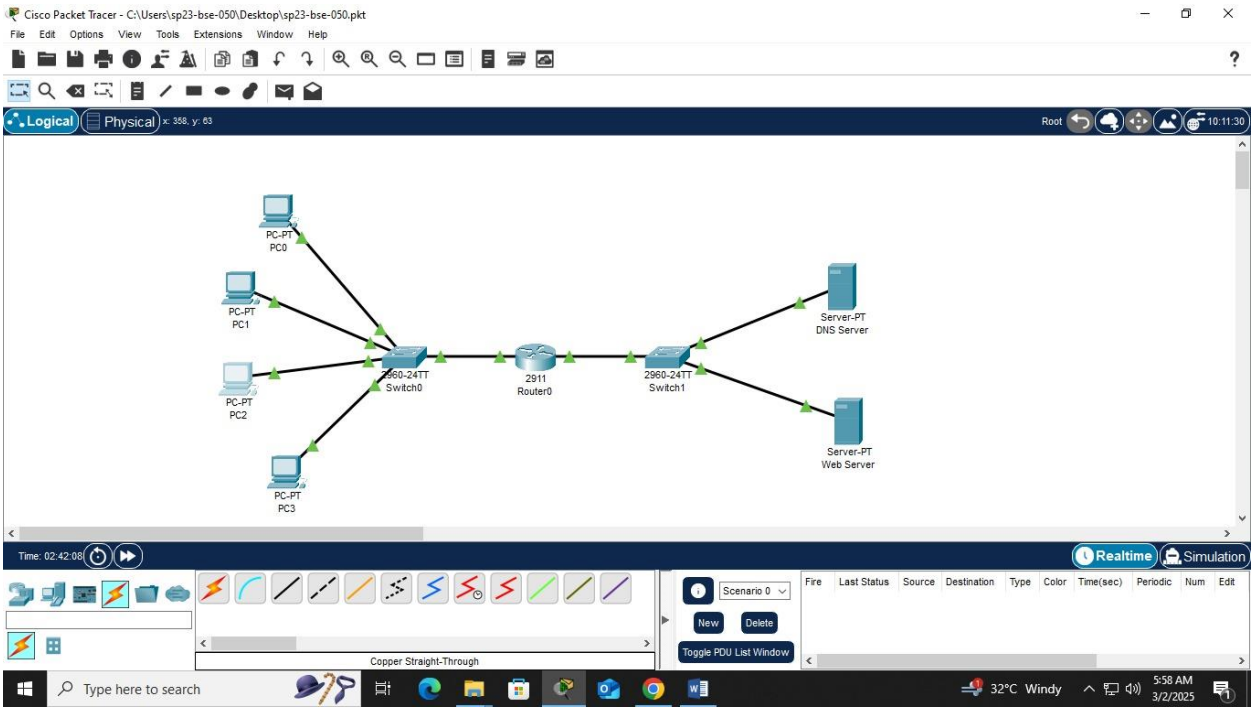

PC1
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Pinging 192.168.2.2 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 192.168.2.2:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>ping 192.168.1.10
Pinging 192.168.1.10 with 32 bytes of data:
Reply from 192.168.1.10: bytes=32 time<1ms TTL=255
Reply from 192.168.1.10: bytes=32 time<1ms TTL=255
Reply from 192.168.1.10: bytes=32 time<1ms TTL=255
Reply from 192.168.1.10: bytes=32 time<1ms TTL=255
Ping statistics for 192.168.1.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 192.168.2.10
Pinging 192.168.2.10 with 32 bytes of data:
Reply from 192.168.2.10: bytes=32 time<1ms TTL=255
Reply from 192.168.2.10: bytes=32 time<1ms TTL=255
Reply from 192.168.2.10: bytes=32 time<1ms TTL=255
Reply from 192.168.2.10: bytes=32 time<1ms TTL=255
Ping statistics for 192.168.2.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>
Top

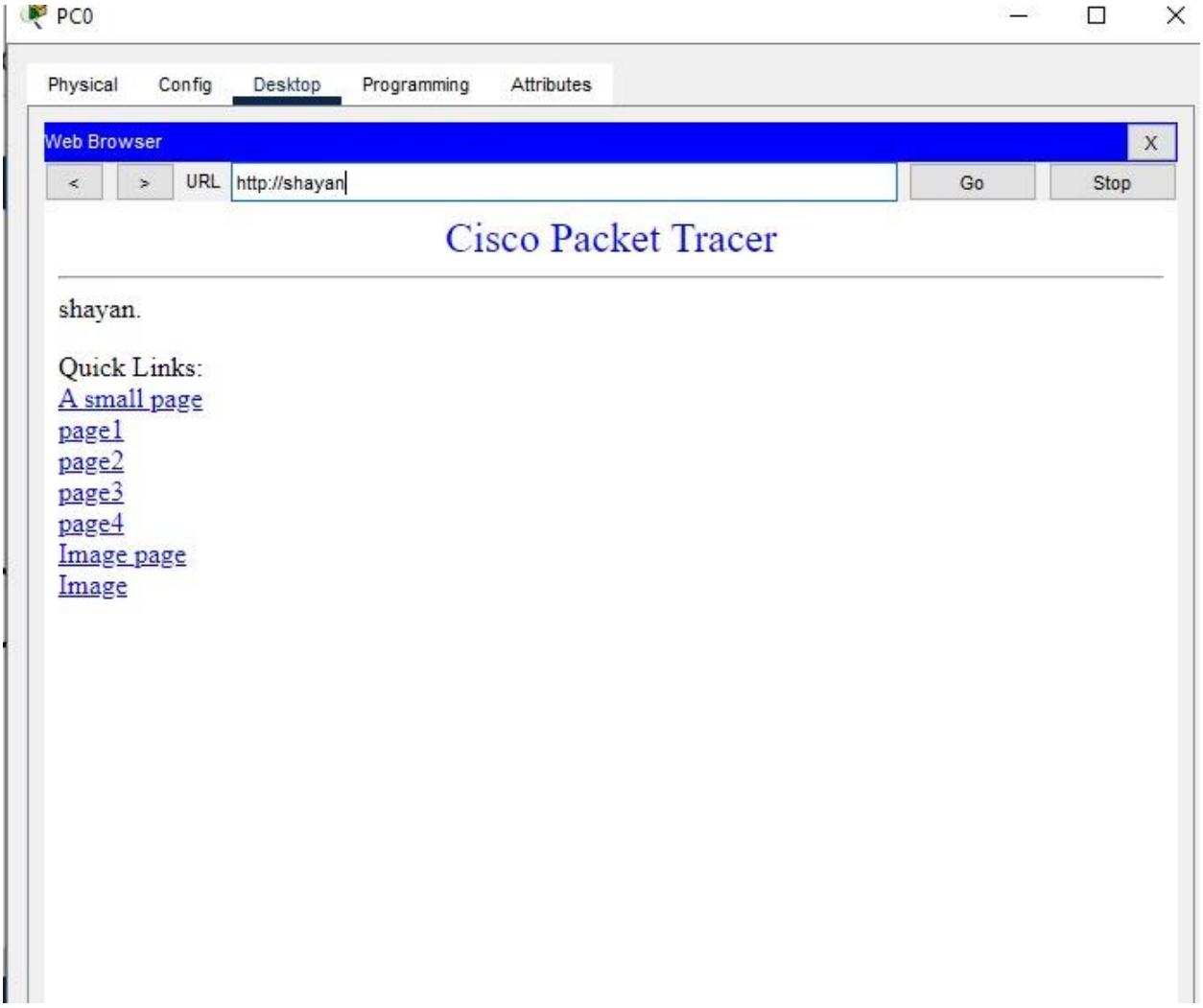

PC0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
C:\>ping 192.168.2.2
Pinging 192.168.2.2 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 192.168.2.2:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>ping 192.168.2.10
Pinging 192.168.2.10 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 192.168.2.10:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>ping 192.168.1.10
Pinging 192.168.1.10 with 32 bytes of data:
Reply from 192.168.1.10: bytes=32 time<1ms TTL=255
Reply from 192.168.1.10: bytes=32 time<1ms TTL=255
Reply from 192.168.1.10: bytes=32 time=21ms TTL=255
Reply from 192.168.1.10: bytes=32 time<1ms TTL=255
Ping statistics for 192.168.1.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 21ms, Average = 5ms
C:\>
Top



Once basic connectivity was established, I configured one server as a DNS server and the other as a web server. I added an entry in the DNS server linking a domain name to the IP address of the web server. On the web server, I created and stored simple HTML files. I then tested the network by pinging the web server from each PC to ensure successful communication. Finally, I opened a web browser on each PC and accessed the hosted website using the domain name set in the DNS server, successfully completing the simulation. This setup demonstrated the working of IP addressing, routing, DNS resolution, and web hosting in a local network environment.

MUHAMMAD SHAYAN MUGHAL SP23-BSE-050




PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
X
<
>
URL
http://shayan
Go
Stop
Cisco Packet Tracer
shayan.
Quick Links:
A small page
page1
page2
page3
page4
Image page
Image

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