Lab Exercise:

Note:

One VLAN number according to your roll no.
E.g: VLAN49(Your Rollno:22k4649)

Create four VLANs(CS, DS, EE, and AI), and assign PCs to those VLANs.
Connect the switches together using a **trunk port.**
Use a **router** (Router-on-a-Stick) to allow communication between different VLANs.

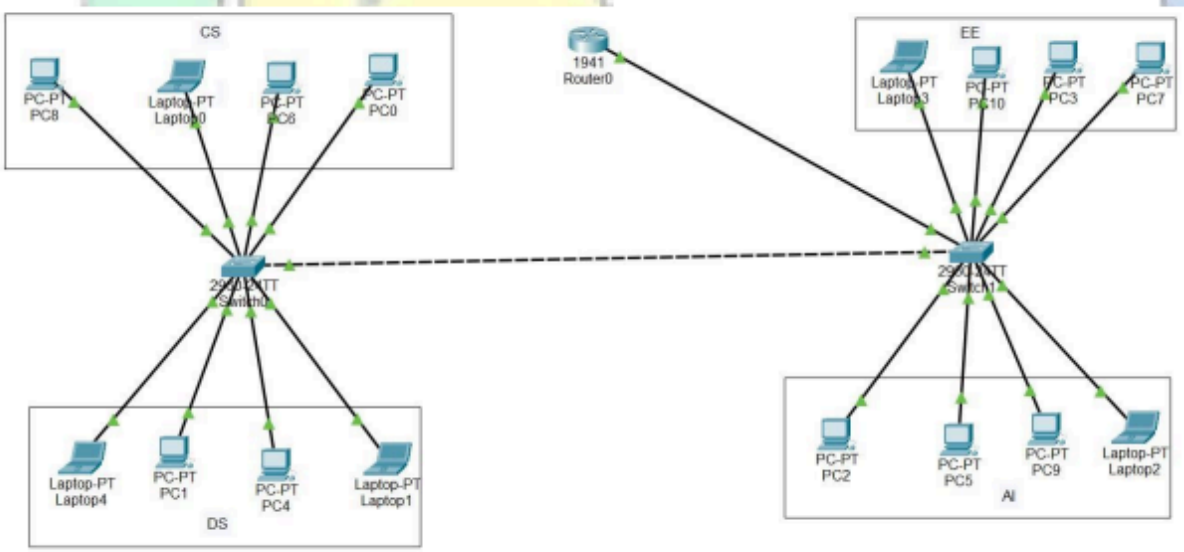
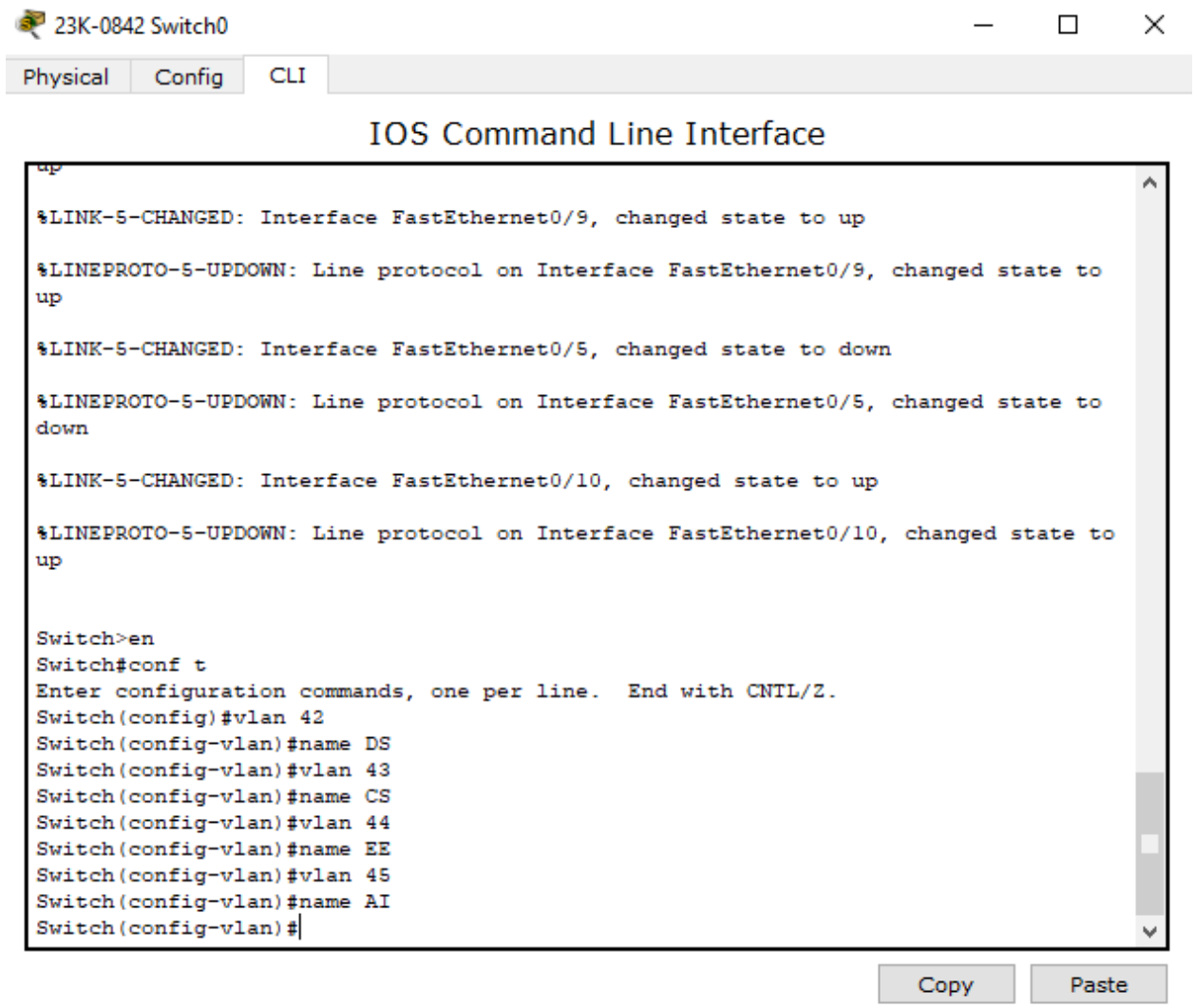
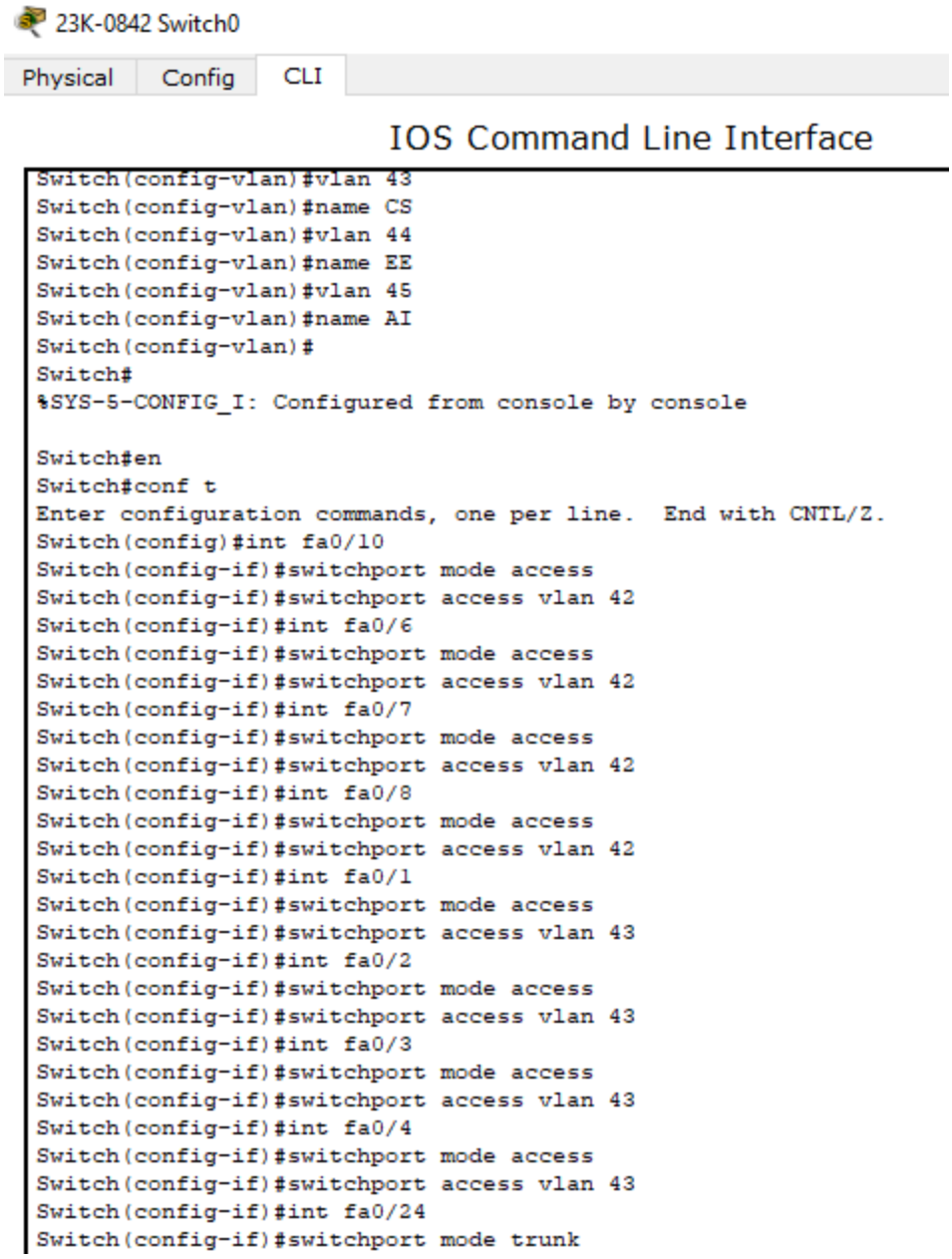


Figure 1



Switch(config)#vlan 42
Switch(config-vlan)#name DS
Switch(config-vlan)#vlan 43
Switch(config-vlan)#name CS
Switch(config-vlan)#vlan 44
Switch(config-vlan)#name EE
Switch(config-vlan)#vlan 45
Switch(config-vlan)#name AI

42 comes in my roll no.




```
Switch(config-vlan)#vlan 43
Switch(config-vlan)#name CS
Switch(config-vlan)#vlan 44
Switch(config-vlan)#name EE
Switch(config-vlan)#vlan 45
Switch(config-vlan)#name AI
Switch(config-vlan)#
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int fa0/10
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 42
Switch(config-if)#int fa0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 42
Switch(config-if)#int fa0/7
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 42
Switch(config-if)#int fa0/8
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 42
Switch(config-if)#int fa0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 43
Switch(config-if)#int fa0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 43
Switch(config-if)#int fa0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 43
Switch(config-if)#int fa0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 43
Switch(config-if)#int fa0/24
Switch(config-if)#switchport mode trunk
```

23K-0842 Switch1

Physical | Config | CLI

IOS Command Line

```
Switch(config)#vlan 42
Switch(config-vlan)#name DS
Switch(config-vlan)#vlan 43
Switch(config-vlan)#name CS
Switch(config-vlan)#vlan 44
Switch(config-vlan)#name EE
Switch(config-vlan)#vlan 45
Switch(config-vlan)#name AI
Switch(config-vlan)#int fa0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan45
```

23K-0842 Switch1

Physical | Config | CLI

IOS Command Line Interface

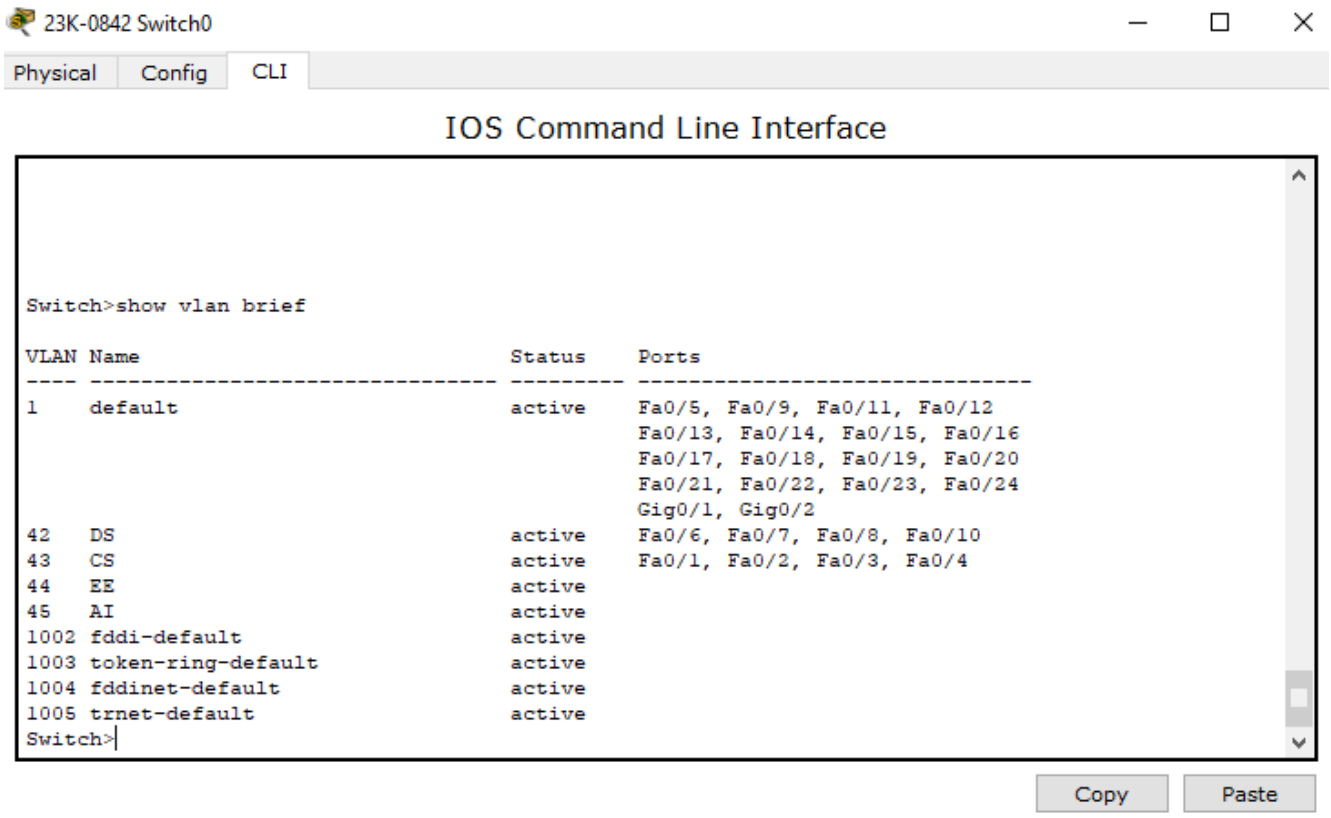
```
Switch(config-vlan)#int fa0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan45
                                         ^
% Invalid input detected at '^' marker.

Switch(config-if)#switchport access vlan 45
Switch(config-if)#int fa0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 45
Switch(config-if)#int fa0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 45
Switch(config-if)#int fa0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 45
```

23K-0842 Switch1

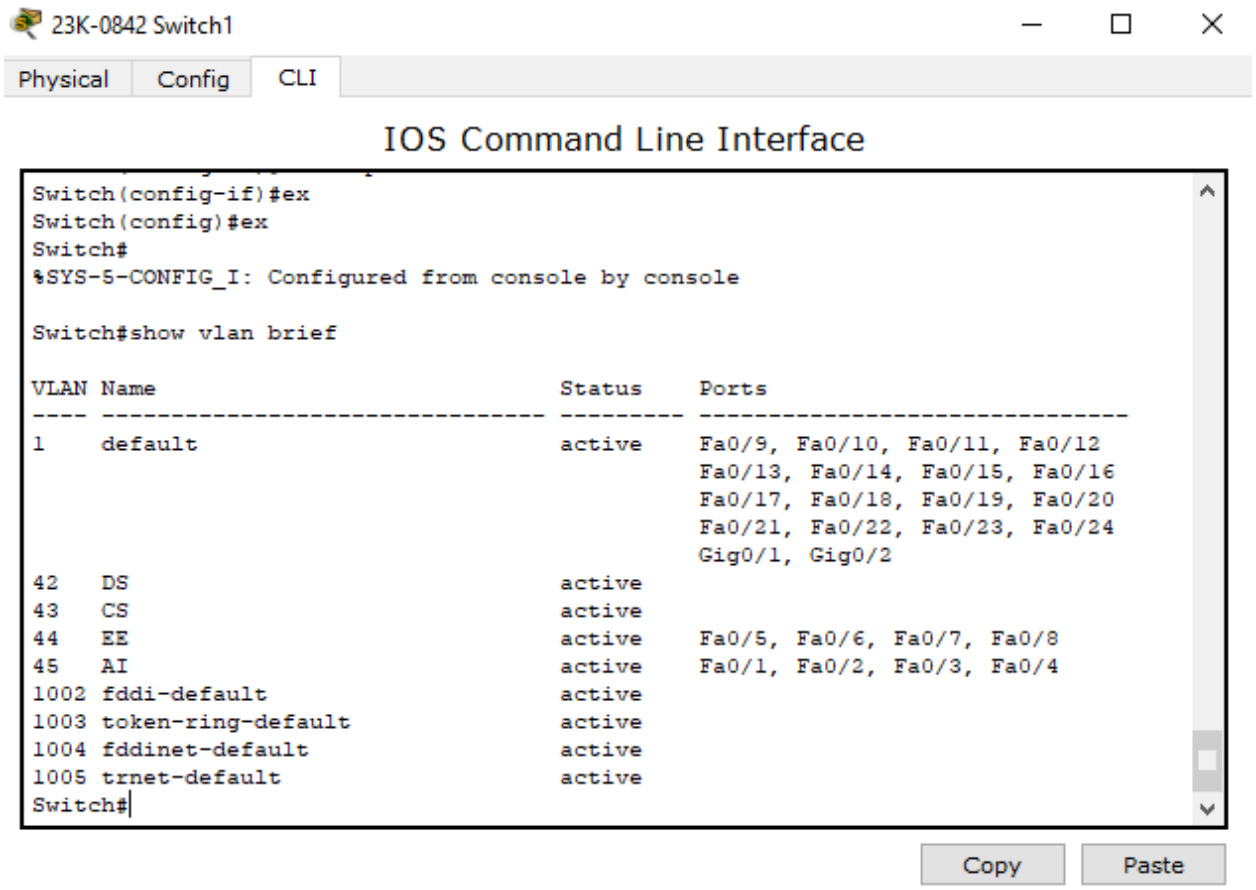
Physical | Config | CLI

IOS Command Line Inte

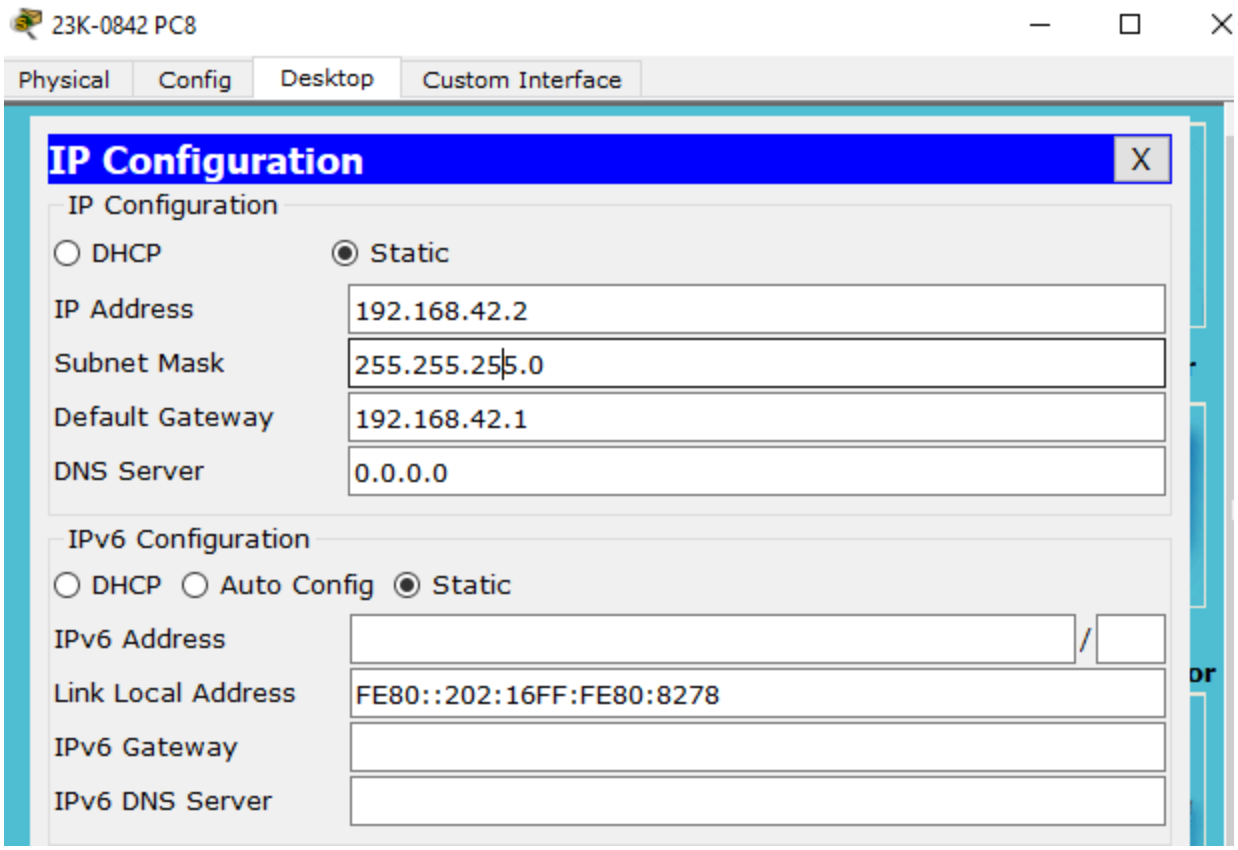
```
Switch(config)#int fa0/5
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 44
Switch(config-if)#int fa0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 44
Switch(config-if)#int fa0/7
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 44
Switch(config-if)#int fa0/8
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 44
Switch(config-if)#int fa0/24
Switch(config-if)#switchport mode access
Switch(config-if)#switchport mode trunk
```

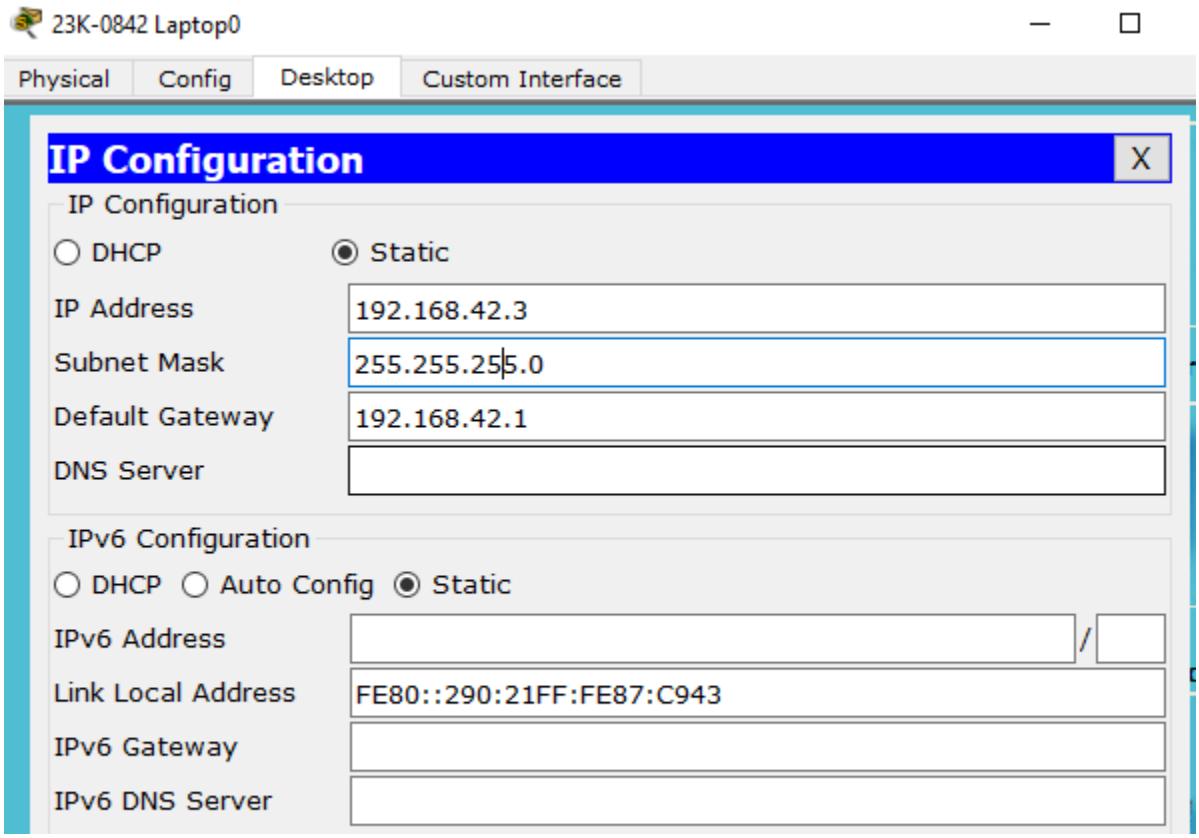


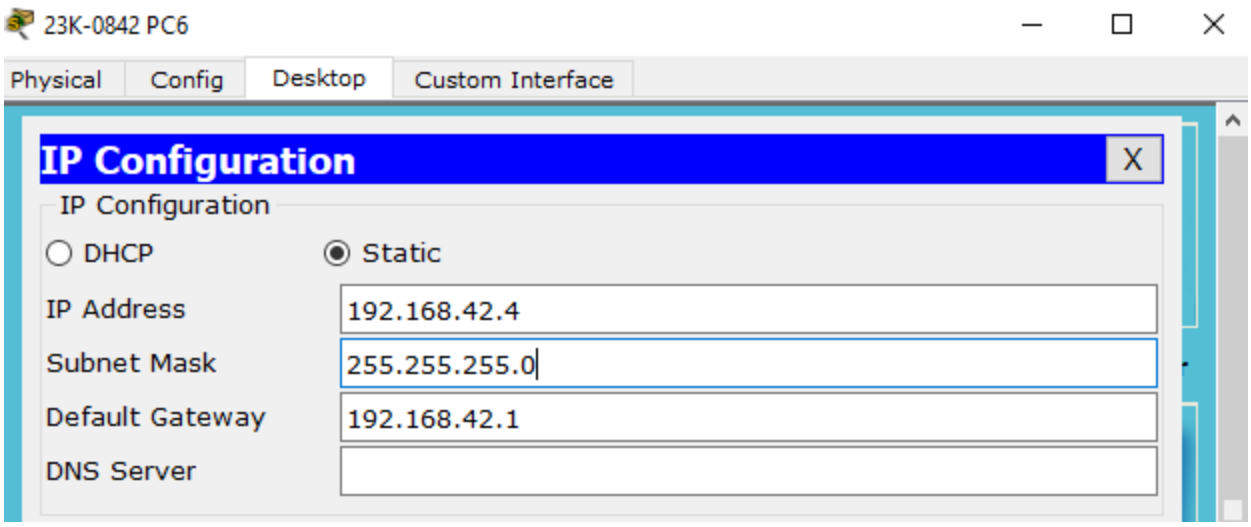
Switch>show vlan brief
VLAN Name Status Ports
---- -------------------------------- --------- -------------------------------
1 default active Fa0/5, Fa0/9, Fa0/11, Fa0/12
Fa0/13, Fa0/14, Fa0/15, Fa0/16
Fa0/17, Fa0/18, Fa0/19, Fa0/20
Fa0/21, Fa0/22, Fa0/23, Fa0/24
Gig0/1, Gig0/2
42 DS active Fa0/6, Fa0/7, Fa0/8, Fa0/10
43 CS active Fa0/1, Fa0/2, Fa0/3, Fa0/4
44 EE active
45 AI active
1002 fddi-default active
1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default active

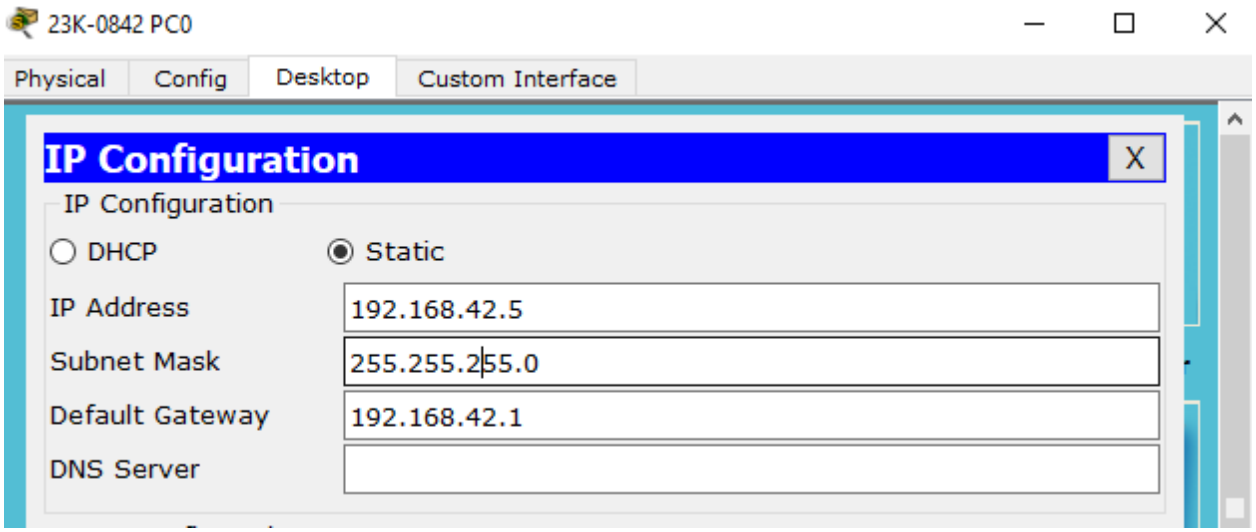


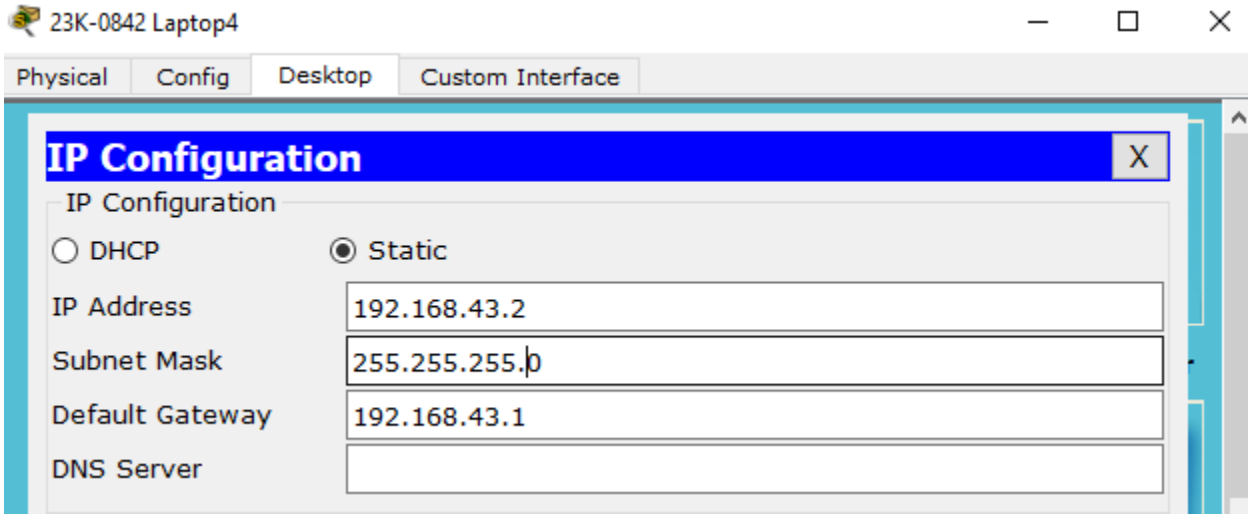
Switch#show vlan brief
VLAN Name Status Ports
---- -------------------------------- --------- -------------------------------
1 default active Fa0/9, Fa0/10, Fa0/11, Fa0/12
Fa0/13, Fa0/14, Fa0/15, Fa0/16
Fa0/17, Fa0/18, Fa0/19, Fa0/20
Fa0/21, Fa0/22, Fa0/23, Fa0/24
Gig0/1, Gig0/2
42 DS active
43 CS active
44 EE active Fa0/5, Fa0/6, Fa0/7, Fa0/8
45 AI active Fa0/1, Fa0/2, Fa0/3, Fa0/4
1002 fddi-default active
1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default active
Switch#

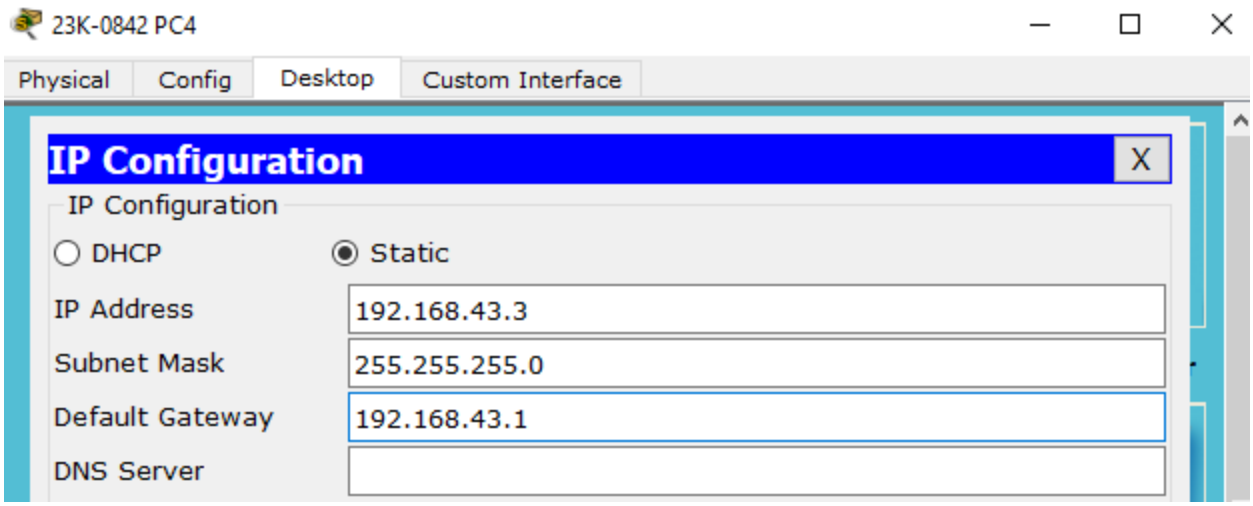

23K-0842 PC8
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.42.2
Subnet Mask
255.255.255.0
Default Gateway
192.168.42.1
DNS Server
0.0.0.0
IPv6 Configuration
DHCP
Auto Config
Static
IPv6 Address
Link Local Address
FE80::202:16FF:FE80:8278
IPv6 Gateway
IPv6 DNS Server

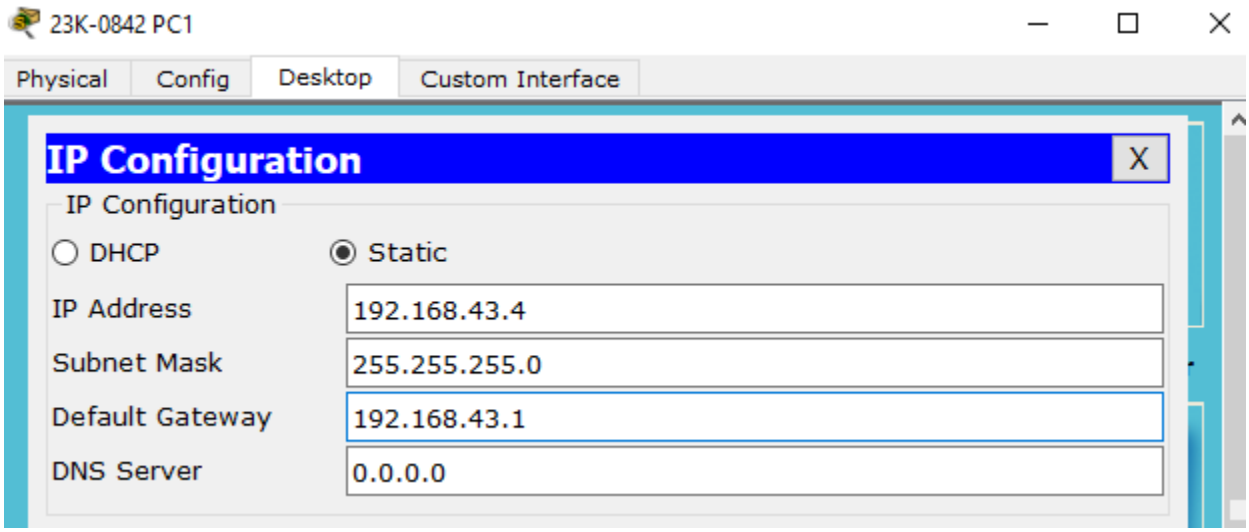

23K-0842 Laptop0
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.42.3
Subnet Mask
255.255.255.0
Default Gateway
192.168.42.1
DNS Server
IPv6 Configuration
DHCP
Auto Config
Static
IPv6 Address
Link Local Address
FE80::290:21FF:FE87:C943
IPv6 Gateway
IPv6 DNS Server

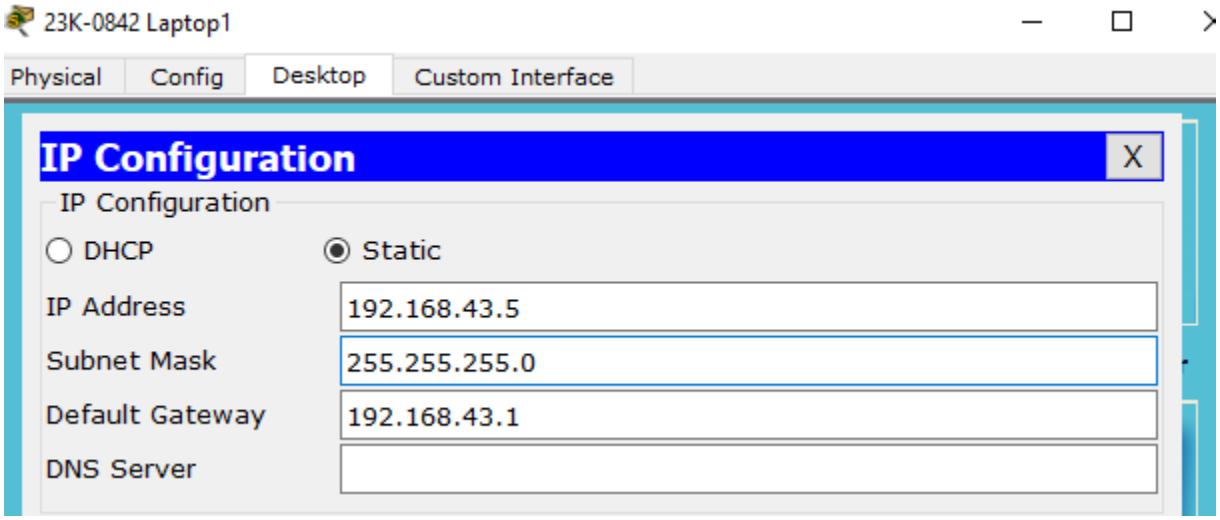

23K-0842 PC6
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.42.4
Subnet Mask
255.255.255.0
Default Gateway
192.168.42.1
DNS Server

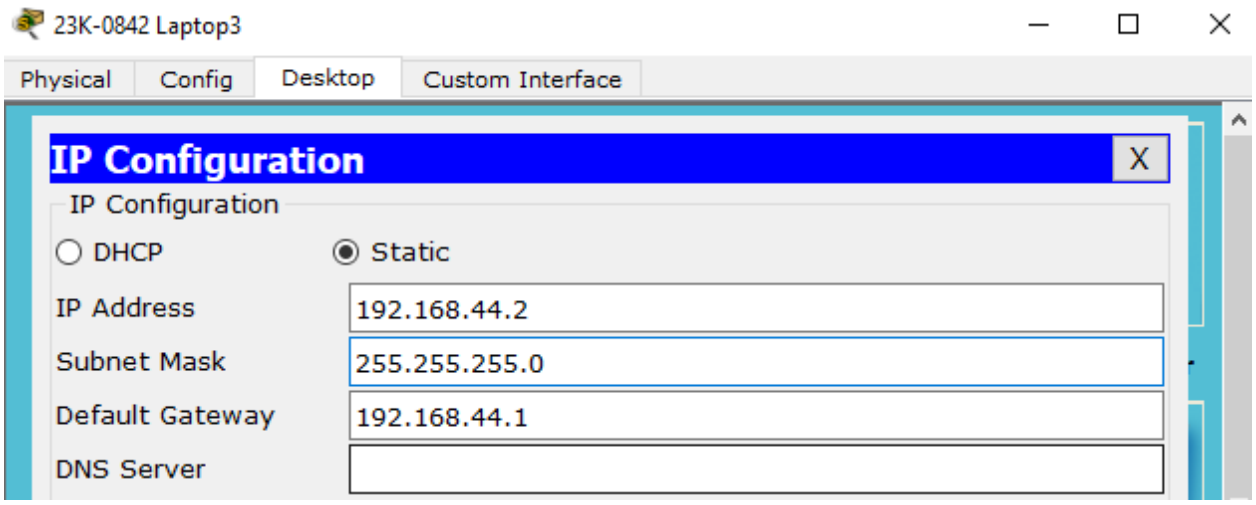

23K-0842 PC0
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.42.5
Subnet Mask
255.255.255.0
Default Gateway
192.168.42.1
DNS Server

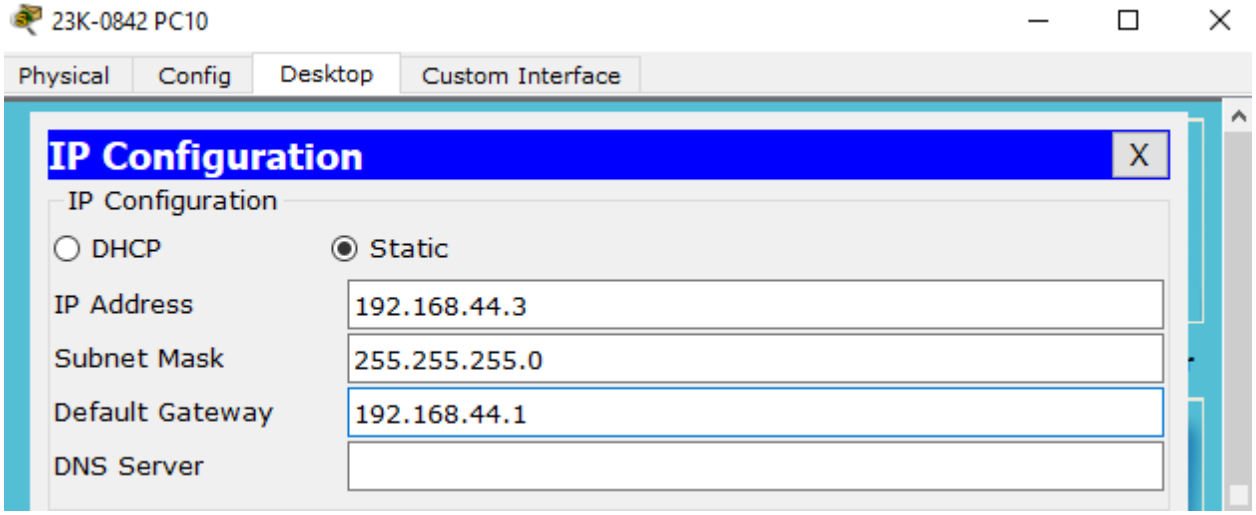

23K-0842 Laptop4
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.43.2
Subnet Mask
255.255.255.0
Default Gateway
192.168.43.1
DNS Server

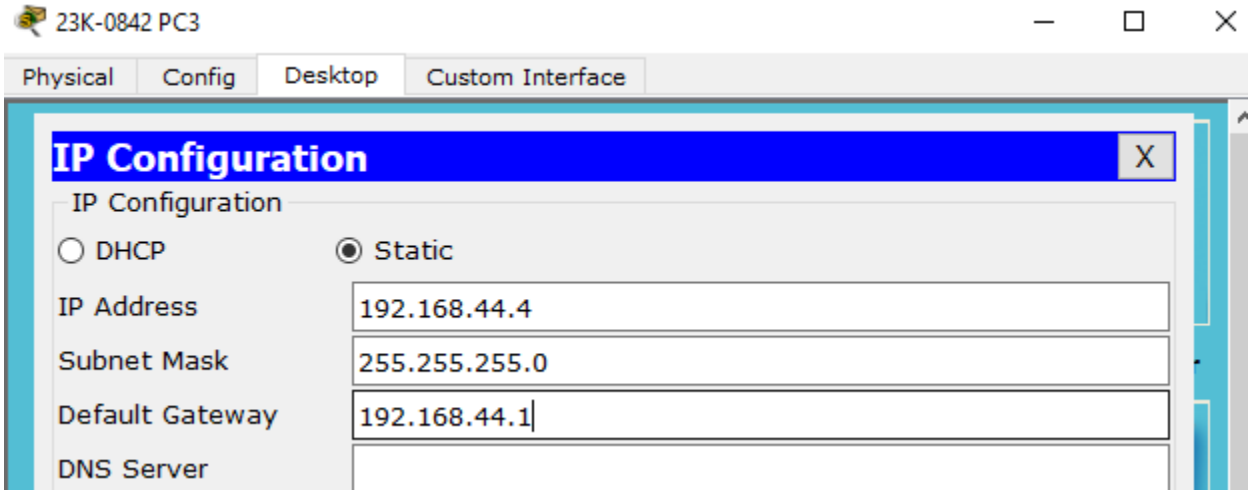

23K-0842 PC4
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.43.3
Subnet Mask
255.255.255.0
Default Gateway
192.168.43.1
DNS Server

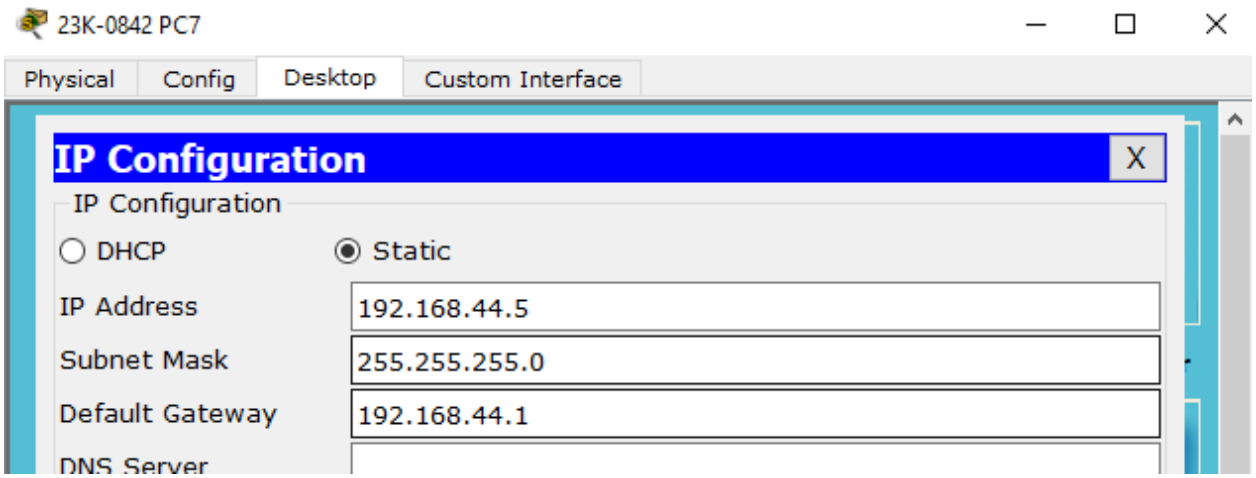

23K-0842 PC1
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.43.4
Subnet Mask
255.255.255.0
Default Gateway
192.168.43.1
DNS Server
0.0.0.0

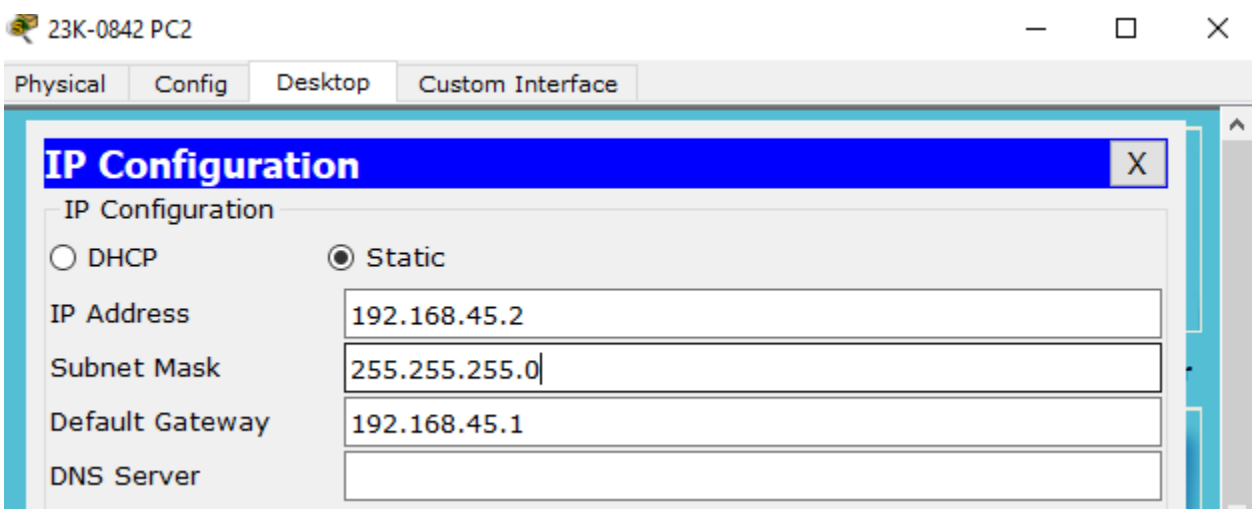

23K-0842 Laptop1
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.43.5
Subnet Mask
255.255.255.0
Default Gateway
192.168.43.1
DNS Server

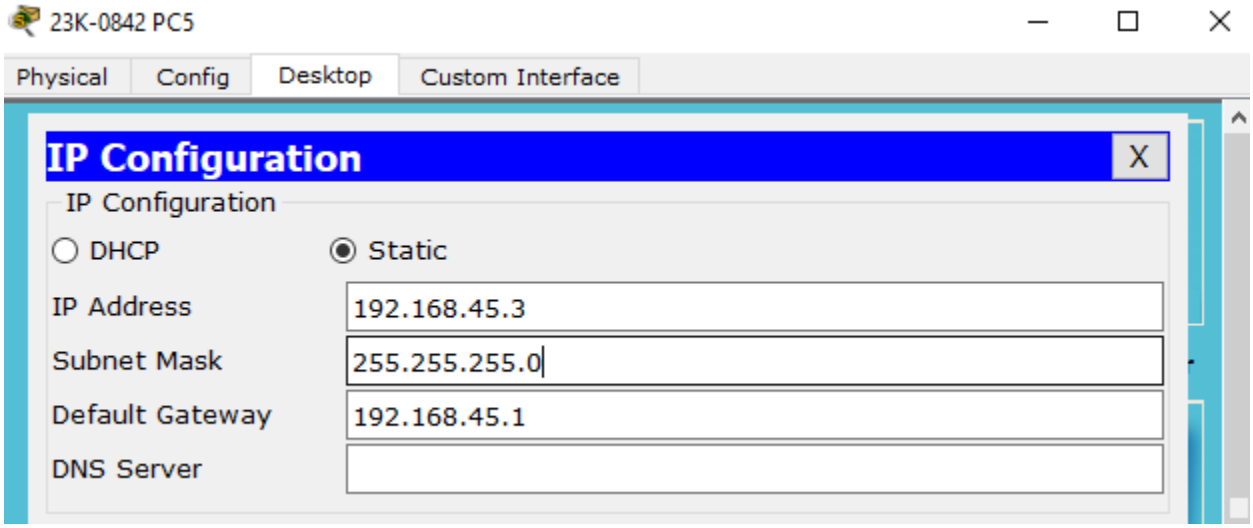

23K-0842 Laptop3
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.44.2
Subnet Mask
255.255.255.0
Default Gateway
192.168.44.1
DNS Server

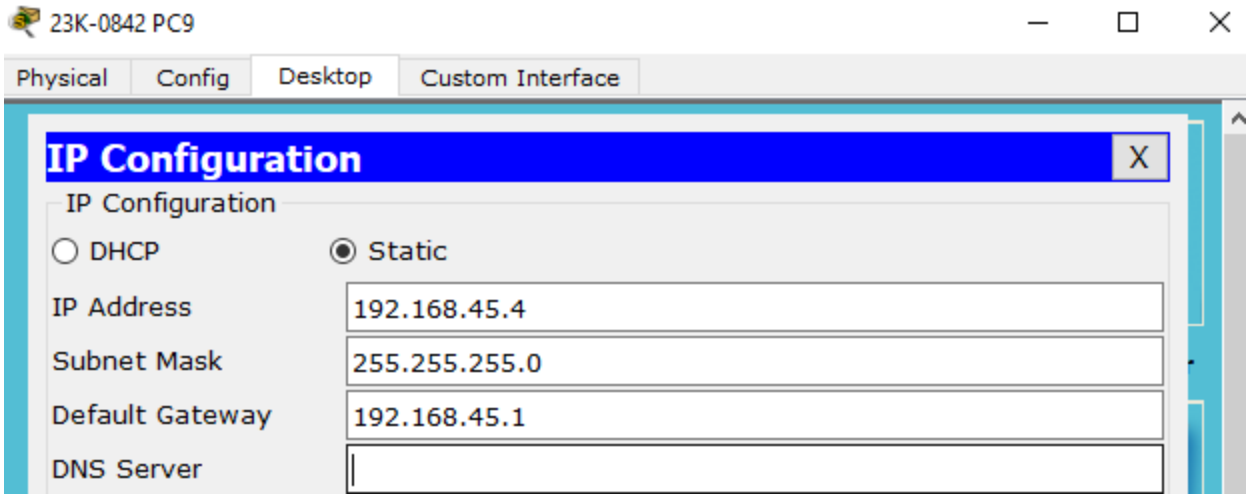

23K-0842 PC10
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.44.3
Subnet Mask
255.255.255.0
Default Gateway
192.168.44.1
DNS Server

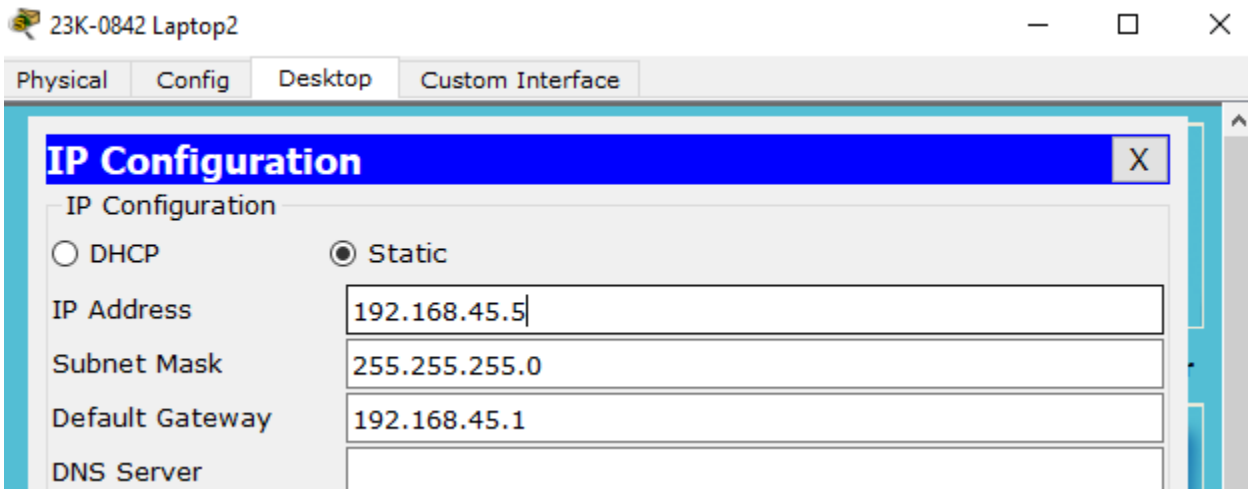

23K-0842 PC3
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.44.4
Subnet Mask
255.255.255.0
Default Gateway
192.168.44.1
DNS Server

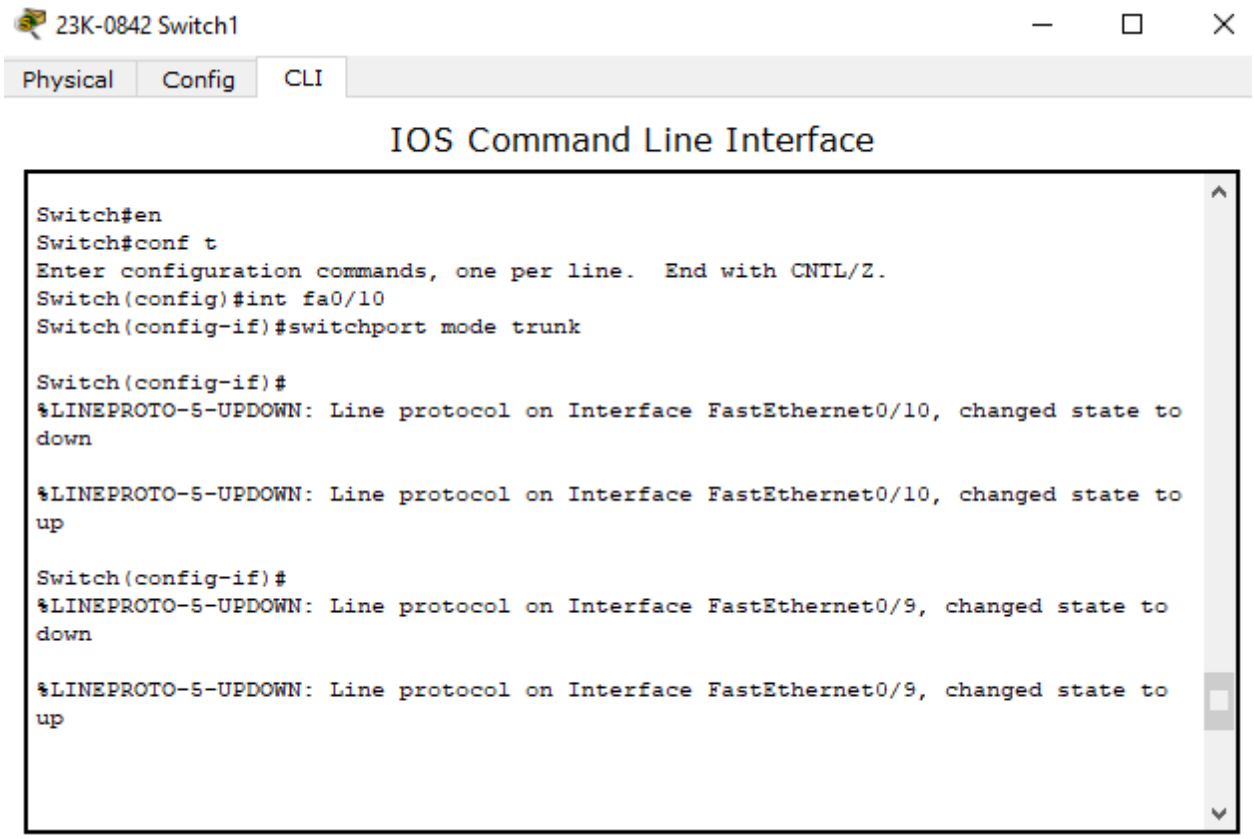

23K-0842 PC7
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.44.5
Subnet Mask
255.255.255.0
Default Gateway
192.168.44.1
DNS Server

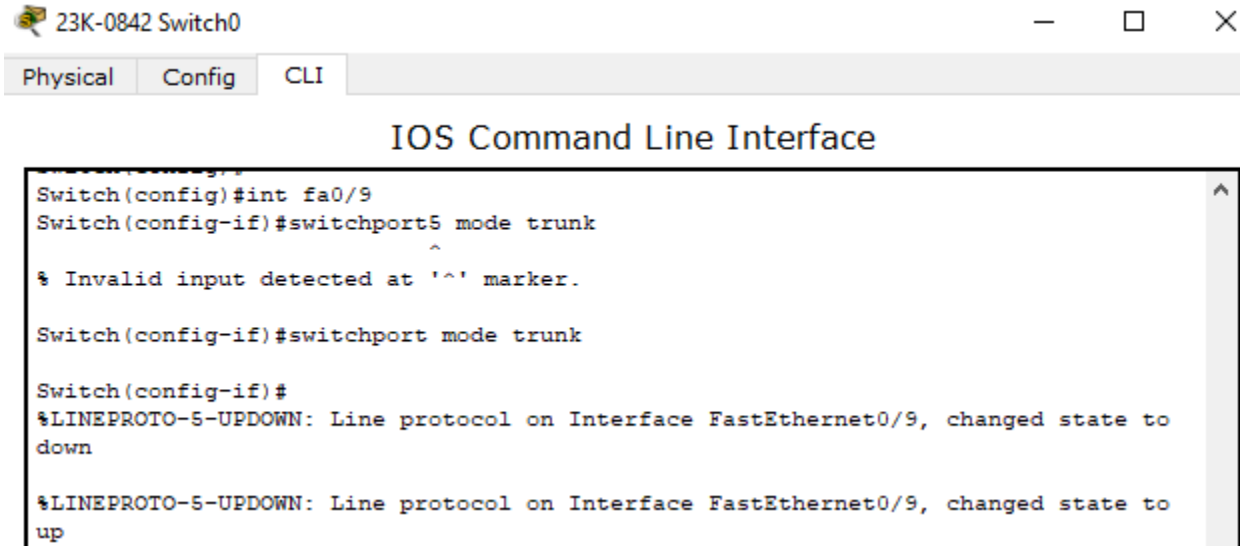

23K-0842 PC2
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.45.2
Subnet Mask
255.255.255.0
Default Gateway
192.168.45.1
DNS Server

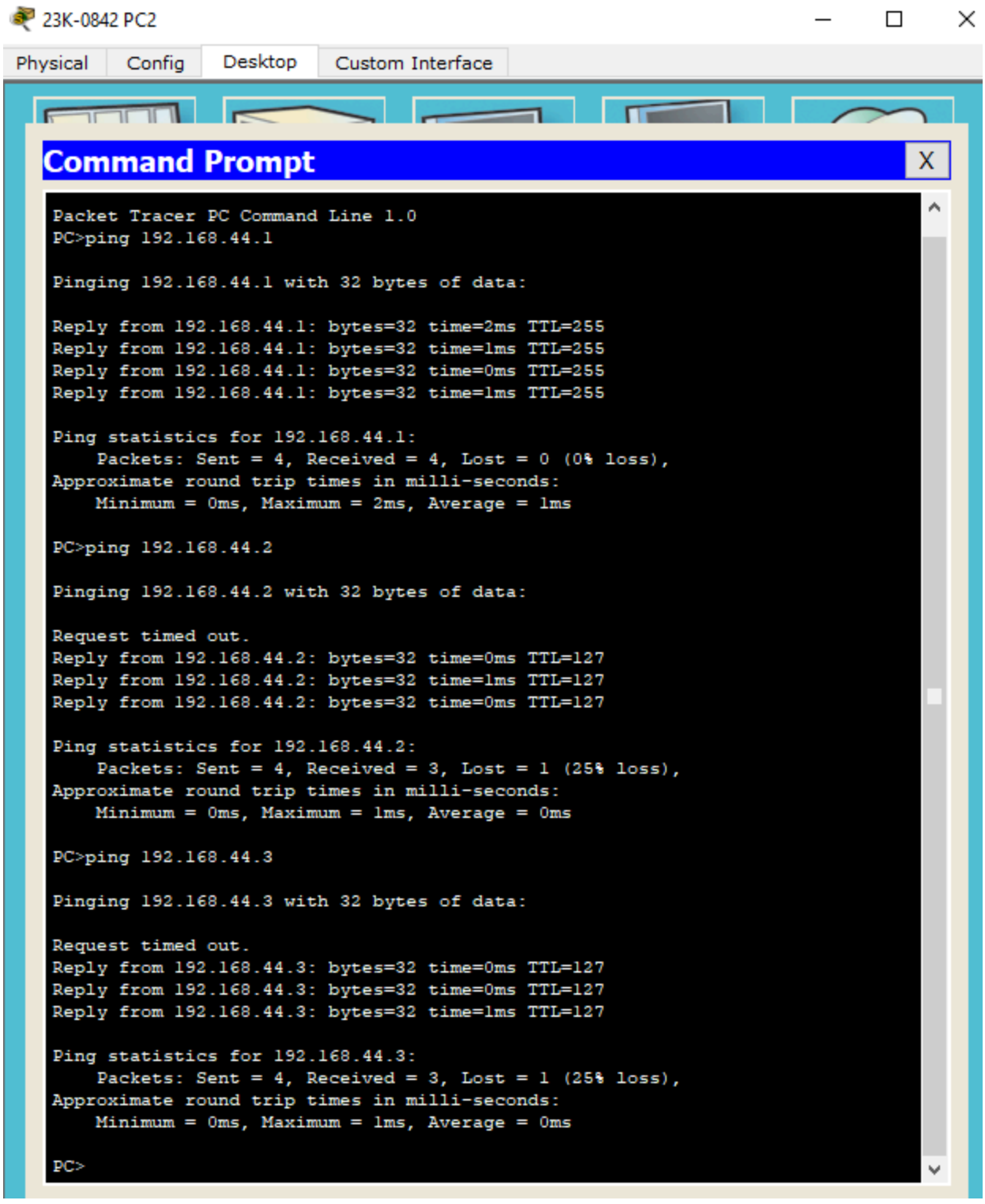

23K-0842 PC5
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.45.3
Subnet Mask
255.255.255.0
Default Gateway
192.168.45.1
DNS Server

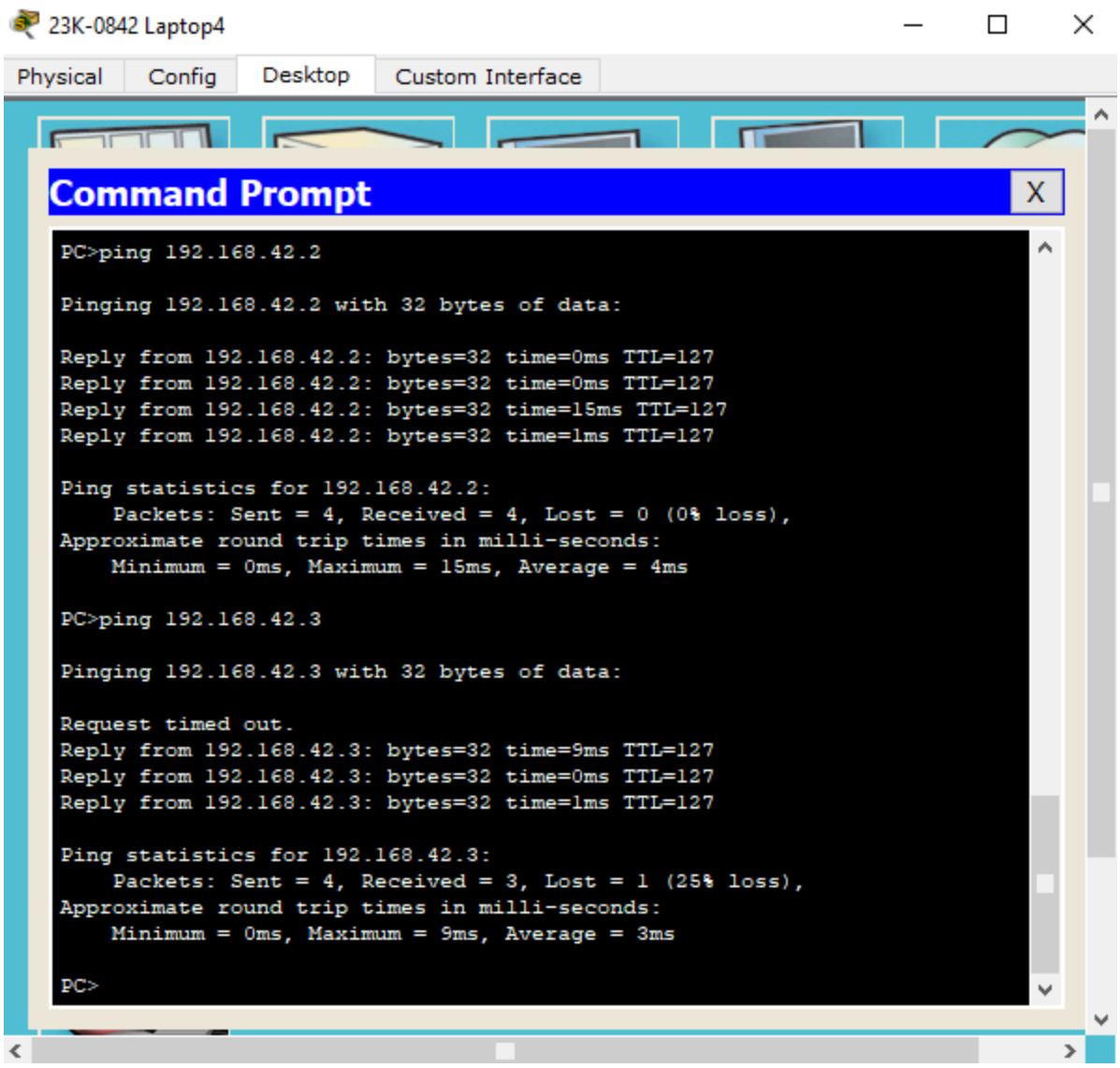

23K-0842 PC9
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.45.4
Subnet Mask
255.255.255.0
Default Gateway
192.168.45.1
DNS Server

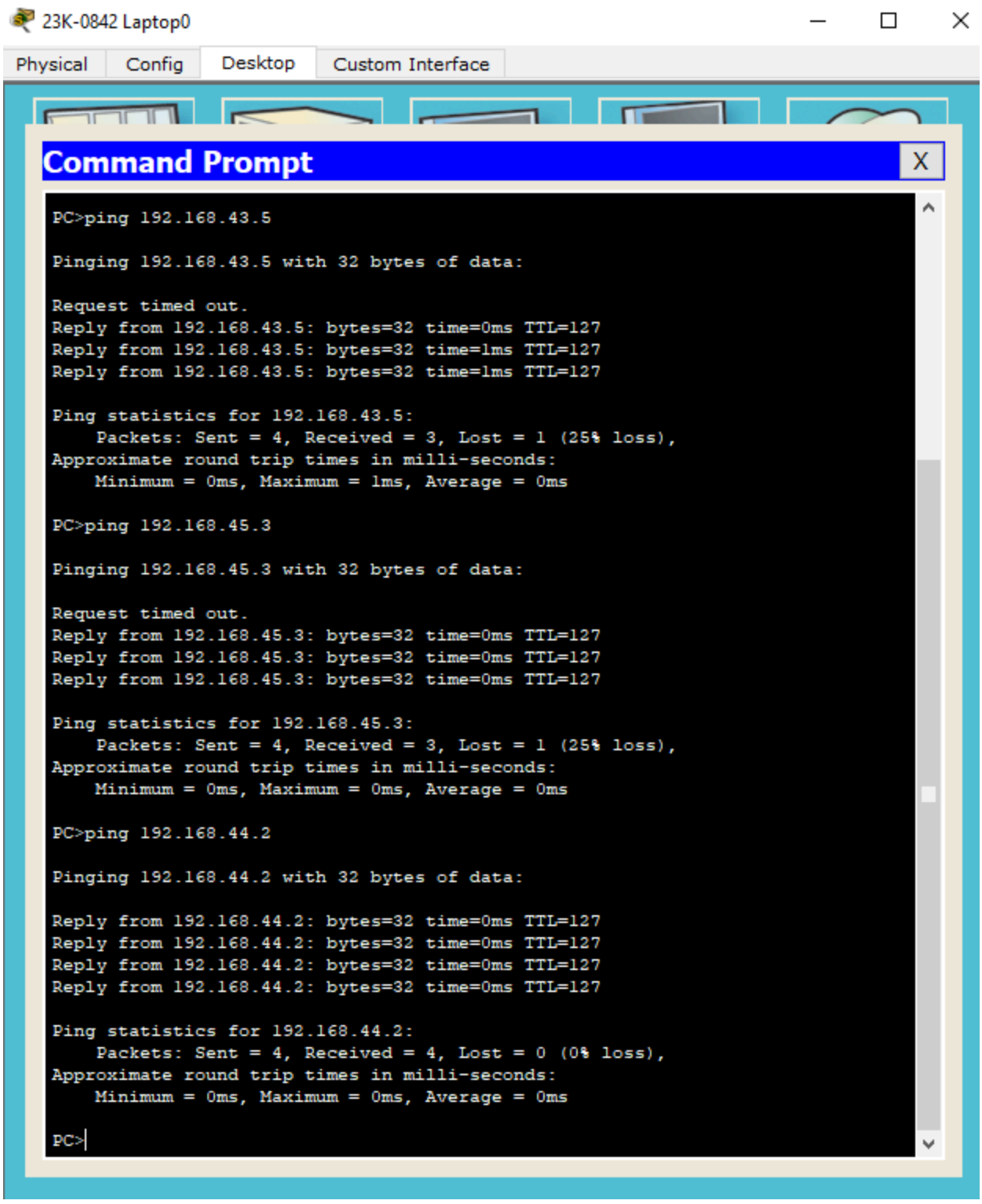

23K-0842 Laptop2
Physical
Config
Desktop
Custom Interface
IP Configuration
X
IP Configuration
DHCP
Static
IP Address
192.168.45.5
Subnet Mask
255.255.255.0
Default Gateway
192.168.45.1
DNS Server

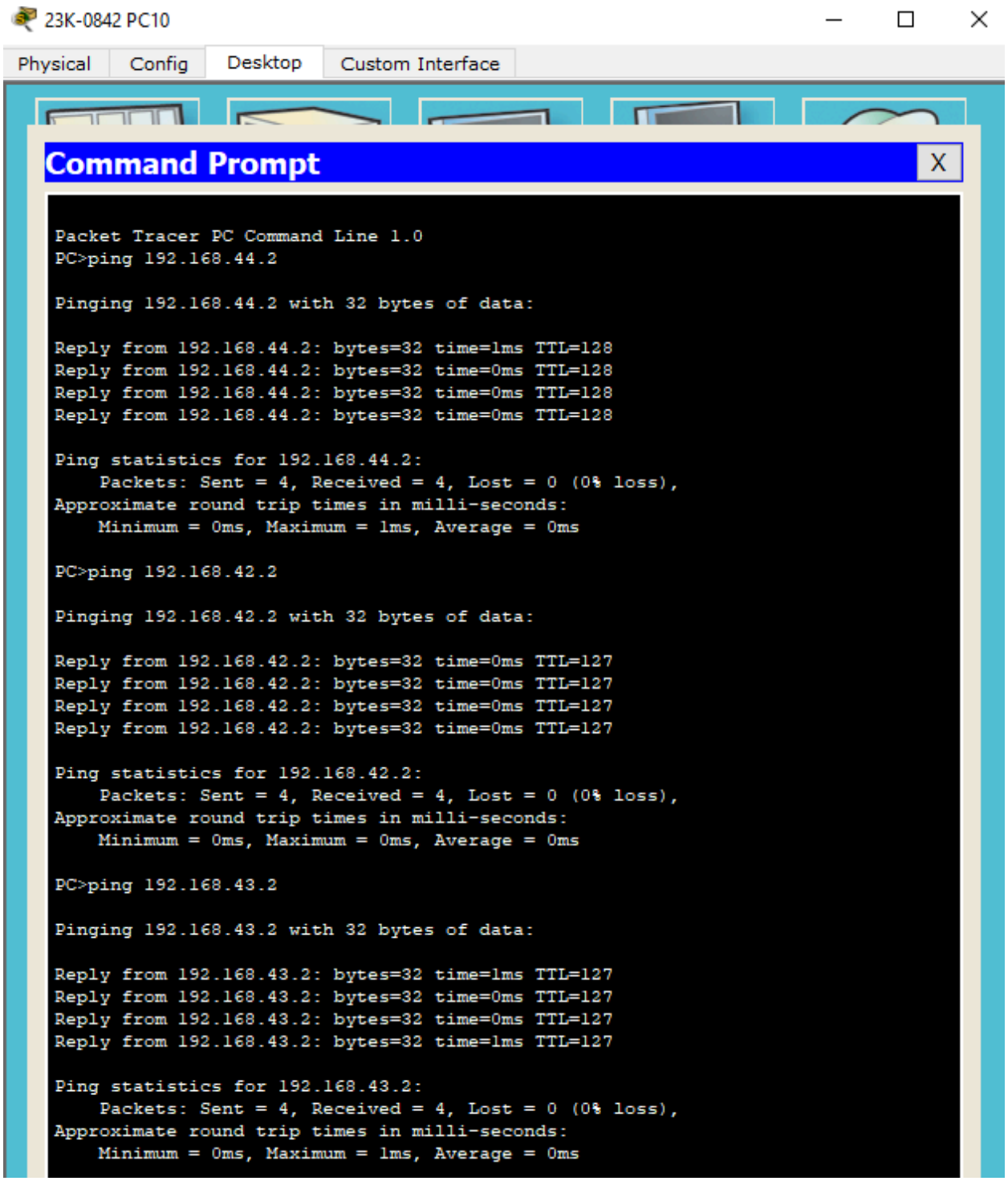

23K-0842 Switch1
Physical
Config
CLI
IOS Command Line Interface
Switch#en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#int fa0/10
Switch(config-if)#switchport mode trunk
Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/10, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/10, changed state to up
Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/9, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/9, changed state to up

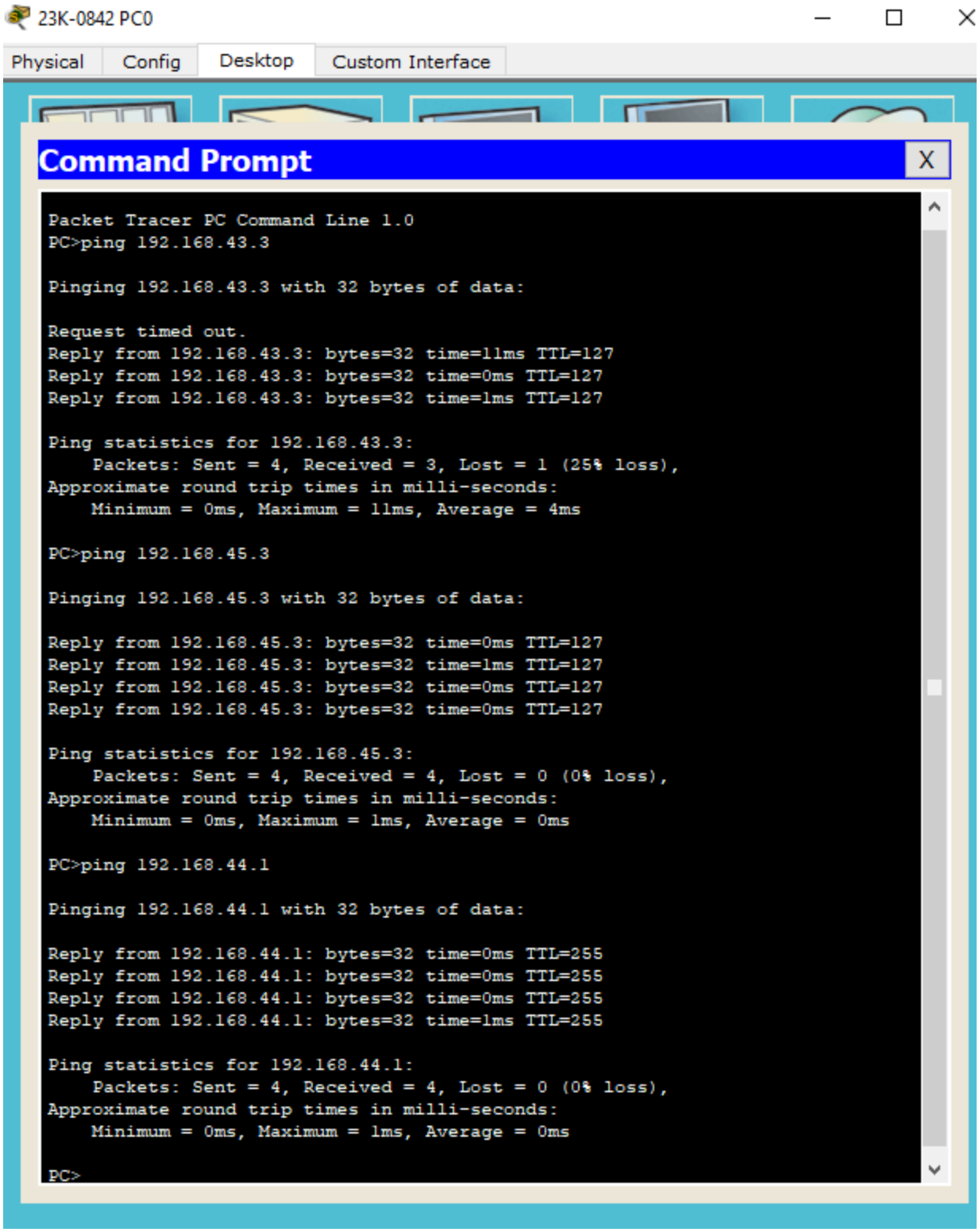

23K-0842 Switch0
Physical
Config
CLI
IOS Command Line Interface
Switch(config)#int fa0/9
Switch(config-if)#switchport5 mode trunk
% Invalid input detected at '^' marker.
Switch(config-if)#switchport mode trunk
Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/9, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/9, changed state to up


23K-0842 PC2
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>ping 192.168.44.1
Pinging 192.168.44.1 with 32 bytes of data:
Reply from 192.168.44.1: bytes=32 time=2ms TTL=255
Reply from 192.168.44.1: bytes=32 time=1ms TTL=255
Reply from 192.168.44.1: bytes=32 time=0ms TTL=255
Reply from 192.168.44.1: bytes=32 time=1ms TTL=255
Ping statistics for 192.168.44.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 2ms, Average = 1ms
PC>ping 192.168.44.2
Pinging 192.168.44.2 with 32 bytes of data:
Request timed out.
Reply from 192.168.44.2: bytes=32 time=0ms TTL=127
Reply from 192.168.44.2: bytes=32 time=1ms TTL=127
Reply from 192.168.44.2: bytes=32 time=0ms TTL=127
Ping statistics for 192.168.44.2:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
PC>ping 192.168.44.3
Pinging 192.168.44.3 with 32 bytes of data:
Request timed out.
Reply from 192.168.44.3: bytes=32 time=0ms TTL=127
Reply from 192.168.44.3: bytes=32 time=0ms TTL=127
Reply from 192.168.44.3: bytes=32 time=1ms TTL=127
Ping statistics for 192.168.44.3:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
PC>


23K-0842 Laptop4
Physical
Config
Desktop
Custom Interface
Command Prompt
X
PC>ping 192.168.42.2
Pinging 192.168.42.2 with 32 bytes of data:
Reply from 192.168.42.2: bytes=32 time=0ms TTL=127
Reply from 192.168.42.2: bytes=32 time=0ms TTL=127
Reply from 192.168.42.2: bytes=32 time=15ms TTL=127
Reply from 192.168.42.2: bytes=32 time=1ms TTL=127
Ping statistics for 192.168.42.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 15ms, Average = 4ms
PC>ping 192.168.42.3
Pinging 192.168.42.3 with 32 bytes of data:
Request timed out.
Reply from 192.168.42.3: bytes=32 time=9ms TTL=127
Reply from 192.168.42.3: bytes=32 time=0ms TTL=127
Reply from 192.168.42.3: bytes=32 time=1ms TTL=127
Ping statistics for 192.168.42.3:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 9ms, Average = 3ms
PC>


23K-0842 Laptop0
Physical
Config
Desktop
Custom Interface
Command Prompt
X
PC>ping 192.168.43.5
Pinging 192.168.43.5 with 32 bytes of data:
Request timed out.
Reply from 192.168.43.5: bytes=32 time=0ms TTL=127
Reply from 192.168.43.5: bytes=32 time=1ms TTL=127
Reply from 192.168.43.5: bytes=32 time=1ms TTL=127
Ping statistics for 192.168.43.5:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
PC>ping 192.168.45.3
Pinging 192.168.45.3 with 32 bytes of data:
Request timed out.
Reply from 192.168.45.3: bytes=32 time=0ms TTL=127
Reply from 192.168.45.3: bytes=32 time=0ms TTL=127
Reply from 192.168.45.3: bytes=32 time=0ms TTL=127
Ping statistics for 192.168.45.3:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>ping 192.168.44.2
Pinging 192.168.44.2 with 32 bytes of data:
Reply from 192.168.44.2: bytes=32 time=0ms TTL=127
Reply from 192.168.44.2: bytes=32 time=0ms TTL=127
Reply from 192.168.44.2: bytes=32 time=0ms TTL=127
Reply from 192.168.44.2: bytes=32 time=0ms TTL=127
Ping statistics for 192.168.44.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>


23K-0842 PC10
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>ping 192.168.44.2
Pinging 192.168.44.2 with 32 bytes of data:
Reply from 192.168.44.2: bytes=32 time=1ms TTL=128
Reply from 192.168.44.2: bytes=32 time=0ms TTL=128
Reply from 192.168.44.2: bytes=32 time=0ms TTL=128
Reply from 192.168.44.2: bytes=32 time=0ms TTL=128
Ping statistics for 192.168.44.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
PC>ping 192.168.42.2
Pinging 192.168.42.2 with 32 bytes of data:
Reply from 192.168.42.2: bytes=32 time=0ms TTL=127
Reply from 192.168.42.2: bytes=32 time=0ms TTL=127
Reply from 192.168.42.2: bytes=32 time=0ms TTL=127
Reply from 192.168.42.2: bytes=32 time=0ms TTL=127
Ping statistics for 192.168.42.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>ping 192.168.43.2
Pinging 192.168.43.2 with 32 bytes of data:
Reply from 192.168.43.2: bytes=32 time=1ms TTL=127
Reply from 192.168.43.2: bytes=32 time=0ms TTL=127
Reply from 192.168.43.2: bytes=32 time=0ms TTL=127
Reply from 192.168.43.2: bytes=32 time=1ms TTL=127
Ping statistics for 192.168.43.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms


23K-0842 PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>ping 192.168.43.3
Pinging 192.168.43.3 with 32 bytes of data:
Request timed out.
Reply from 192.168.43.3: bytes=32 time=11ms TTL=127
Reply from 192.168.43.3: bytes=32 time=0ms TTL=127
Reply from 192.168.43.3: bytes=32 time=1ms TTL=127
Ping statistics for 192.168.43.3:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 11ms, Average = 4ms
PC>ping 192.168.45.3
Pinging 192.168.45.3 with 32 bytes of data:
Reply from 192.168.45.3: bytes=32 time=0ms TTL=127
Reply from 192.168.45.3: bytes=32 time=1ms TTL=127
Reply from 192.168.45.3: bytes=32 time=0ms TTL=127
Reply from 192.168.45.3: bytes=32 time=0ms TTL=127
Ping statistics for 192.168.45.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
PC>ping 192.168.44.1
Pinging 192.168.44.1 with 32 bytes of data:
Reply from 192.168.44.1: bytes=32 time=0ms TTL=255
Reply from 192.168.44.1: bytes=32 time=0ms TTL=255
Reply from 192.168.44.1: bytes=32 time=0ms TTL=255
Reply from 192.168.44.1: bytes=32 time=1ms TTL=255
Ping statistics for 192.168.44.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
PC>

PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	23K-0842 PC7	23K-0842 Laptop2	ICMP		0.000	N	1	(edit)
	Successful	23K-0842 PC3	23K-0842 Laptop2	ICMP		0.000	N	2	(edit)
	Successful	23K-0842 PC0	23K-0842 PC5	ICMP		0.000	N	3	(edit)
	Successful	23K-0842 Laptop1	23K-0842 PC2	ICMP		0.000	N	4	(edit)
	Successful	23K-0842 PC1	23K-0842 PC10	ICMP		0.000	N	5	(edit)
	Successful	23K-0842 PC0	23K-0842 Laptop4	ICMP		0.000	N	6	(edit)
	Successful	23K-0842 PC3	23K-0842 Laptop0	ICMP		0.000	N	7	(edit)
	Successful	23K-0842 PC9	23K-0842 Laptop3	ICMP		0.000	N	8	(edit)
	Successful	23K-0842 Laptop3	23K-0842 PC8	ICMP		0.000	N	9	(edit)