

Network Configuration with Packet Tracer - Lab 3

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Q2

Changing the hostname of a device is done in the CLI using the following command:

```
Switch(config)# hostname SWX
```

Here, we changed the name of the root bridge switch to SWX. The same idea applies for all other devices.

Q3

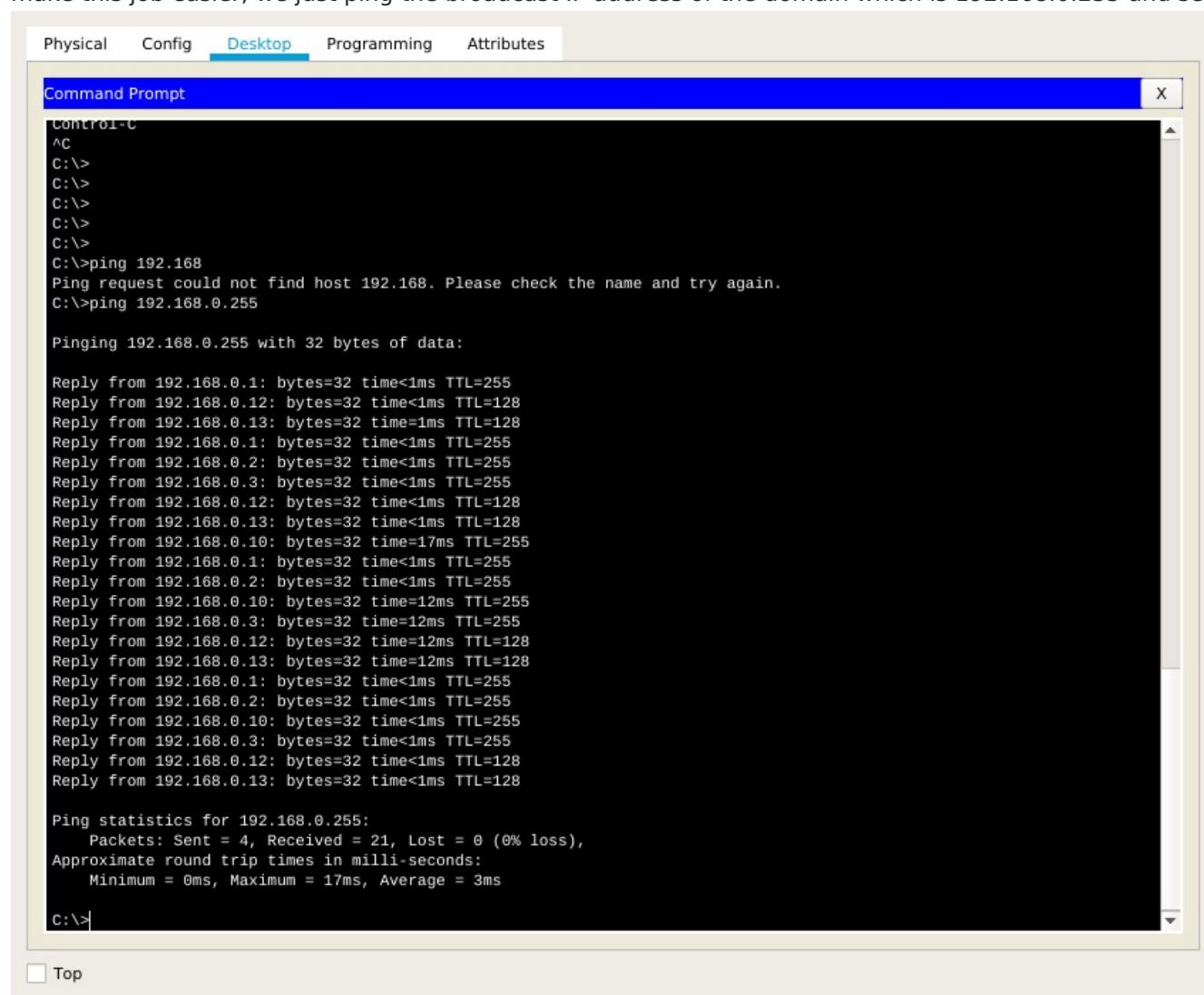
To configure a switch interface:

```
Switch(config)#interface Vlan 1  
Switch(config-if)#ip address 192.168.0.2 255.255.255.0  
Switch(config-if)#no shutdown
```

In this example, we configured SWX2 but the same principle applies for all the other switches. Now to configure a PC, we just use the graphical interface. Since it has already been done in the first two labs, it is not necessary to go into any deeper into the configuration process.

Q4

Now that we connected all of the devices and distributed IP addresses, we can try an ping each and everyone of them. To make this job easier, we just ping the broadcast IP address of the domain which is 192.168.0.255 and see who responds.



```
Physical  Config  Desktop  Programming  Attributes
Command Prompt
Control-C
^C
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>ping 192.168
Ping request could not find host 192.168. Please check the name and try again.
C:\>ping 192.168.0.255

Pinging 192.168.0.255 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time<1ms TTL=255
Reply from 192.168.0.12: bytes=32 time<1ms TTL=128
Reply from 192.168.0.13: bytes=32 time=1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=255
Reply from 192.168.0.2: bytes=32 time<1ms TTL=255
Reply from 192.168.0.3: bytes=32 time<1ms TTL=255
Reply from 192.168.0.12: bytes=32 time<1ms TTL=128
Reply from 192.168.0.13: bytes=32 time<1ms TTL=128
Reply from 192.168.0.10: bytes=32 time=17ms TTL=255
Reply from 192.168.0.1: bytes=32 time<1ms TTL=255
Reply from 192.168.0.2: bytes=32 time<1ms TTL=255
Reply from 192.168.0.10: bytes=32 time=12ms TTL=255
Reply from 192.168.0.3: bytes=32 time=12ms TTL=255
Reply from 192.168.0.12: bytes=32 time=12ms TTL=128
Reply from 192.168.0.13: bytes=32 time=12ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=255
Reply from 192.168.0.2: bytes=32 time<1ms TTL=255
Reply from 192.168.0.10: bytes=32 time<1ms TTL=255
Reply from 192.168.0.3: bytes=32 time<1ms TTL=255
Reply from 192.168.0.12: bytes=32 time<1ms TTL=128
Reply from 192.168.0.13: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.255:
    Packets: Sent = 4, Received = 21, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 17ms, Average = 3ms

C:\>
```

As can be observed, all of the devices we configured responded to the ICMP echo request successfully.

Q5

The Root bridge switch is a special bridge at the top of the Spanning Tree. The branches (Ethernet connections) are then branched out from the root switch, connecting to other switches in the Local Area Network (LAN). In this configuration, the root bridge switch is SWX.

Q6

When an administrator wants a specific switch to become a root bridge, the bridge priority value must be adjusted to ensure that it is lower than the bridge priority values of all the other switches on the network. To ensure that a switch has the lowest bridge priority value, use the following command:

```
Switch(config)#spanning-tree Vlan 1 root primary
```

Now SWX is set up to be the root bridge. We can verify this by going to the global configuration and using the following command:

```
Switch#show spanning-tree
```

Which yields the folowing result:

PhysicalConfigCLIAttributes

IOS Command Line Interface

Switch(config)#spanning-tree Vlan 1 root pr
Switch(config)#spanning-tree Vlan 1 root primary
Switch(config)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show sp
Switch#show spanning-tree
VLAN0001
Spanning tree enabled protocol ieee
Root ID Priority 24577
Address 0001.641A.D267
This bridge is the root
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 24577 (priority 24576 sys-id-ext 1)
Address 0001.641A.D267
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

Fa0/1 Desg FWD 19 128.1 P2p
Fa0/2 Desg FWD 19 128.2 P2p
Fa0/3 Desg FWD 19 128.3 P2p

Switch#

Ctrl+F6 to exit CLI focus

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Q7

SWX:

PhysicalConfigCLIAttributes

IOS Command Line Interface

Switch>enable
Switch#show sp
Switch#show spanning-tree
VLAN0001
Spanning tree enabled protocol ieee
Root ID Priority 24577
Address 0001.641A.D267
This bridge is the root
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 24577 (priority 24576 sys-id-ext 1)
Address 0001.641A.D267
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

Fa0/1 Desg FWD 19 128.1 P2p
Fa0/2 Desg FWD 19 128.2 P2p
Fa0/3 Desg FWD 19 128.3 P2p

Switch#

Ctrl+F6 to exit CLI focus

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SWX1:

PhysicalConfigCLIAttributes

IOS Command Line Interface

Switch#
Switch#
Switch#
Switch#
Switch#show spanning-tree
VLAN0001
Spanning tree enabled protocol ieee
Root ID Priority 24577
Address 0001.641A.D267
Cost 19
Port 1(FastEthernet0/1)
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32769 (priority 32768 sys-id-ext 1)
Address 00E0.A3A8.40D1
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

Fa0/4 Desg FWD 19 128.4 P2p
Fa0/3 Desg FWD 19 128.3 P2p
Fa0/1 Root FWD 19 128.1 P2p
Fa0/2 Altn BLK 19 128.2 P2p

Switch#!"

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SWX2:

PhysicalConfigCLIAttributes

IOS Command Line Interface

Switch#show sp
Switch#show spanning-tree
VLAN0001
Spanning tree enabled protocol ieee
Root ID Priority 24577
Address 0001.641A.D267
Cost 19
Port 1(FastEthernet0/1)
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32769 (priority 32768 sys-id-ext 1)
Address 0001.42A5.2791
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

Fa0/4 Desg FWD 19 128.4 P2p
Fa0/5 Desg FWD 19 128.5 P2p
Fa0/2 Desg FWD 19 128.2 P2p
Fa0/3 Desg FWD 19 128.3 P2p
Fa0/1 Root FWD 19 128.1 P2p

Switch#
Switch#
Switch#

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SWX3:

PhysicalConfigCLIAttributes

IOS Command Line Interface

Switch>
Switch>enable
Switch#show sp
Switch#show spanning-tree
VLAN0001
Spanning tree enabled protocol ieee
Root ID Priority 24577
Address 0001.641A.D267
Cost 19
Port 1(FastEthernet0/1)
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32769 (priority 32768 sys-id-ext 1)
Address 0004.9AC0.79A8
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

Fa0/3 Desg FWD 19 128.3 P2p
Fa0/4 Desg FWD 19 128.4 P2p
Fa0/1 Root FWD 19 128.1 P2p
Fa0/2 Altn BLK 19 128.2 P2p

Switch#

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Q8

Let's take a look at the spannig-route after deleting the routing between SWX1 and SWX2:

PhysicalConfigCLIAttributes

IOS Command Line Interface

Switch>
Switch>
Switch>enable
Switch#show sp
Switch#show spanning-tree
VLAN0001
Spanning tree enabled protocol ieee
Root ID Priority 24577
Address 0001.641A.D267
Cost 19
Port 1(FastEthernet0/1)
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32769 (priority 32768 sys-id-ext 1)
Address 00E0.A3A8.40D1
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

Fa0/3 Desg FWD 19 128.3 P2p
Fa0/1 Root FWD 19 128.1 P2p
Fa0/4 Desg FWD 19 128.4 P2p

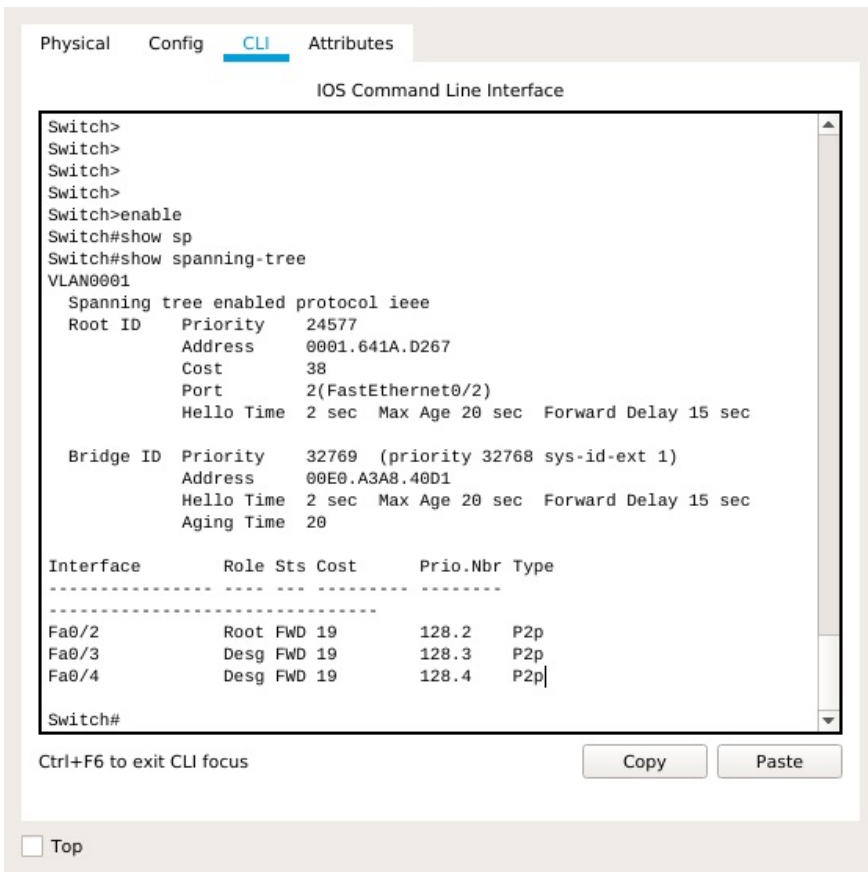
Switch#

Ctrl+F6 to exit CLI focus

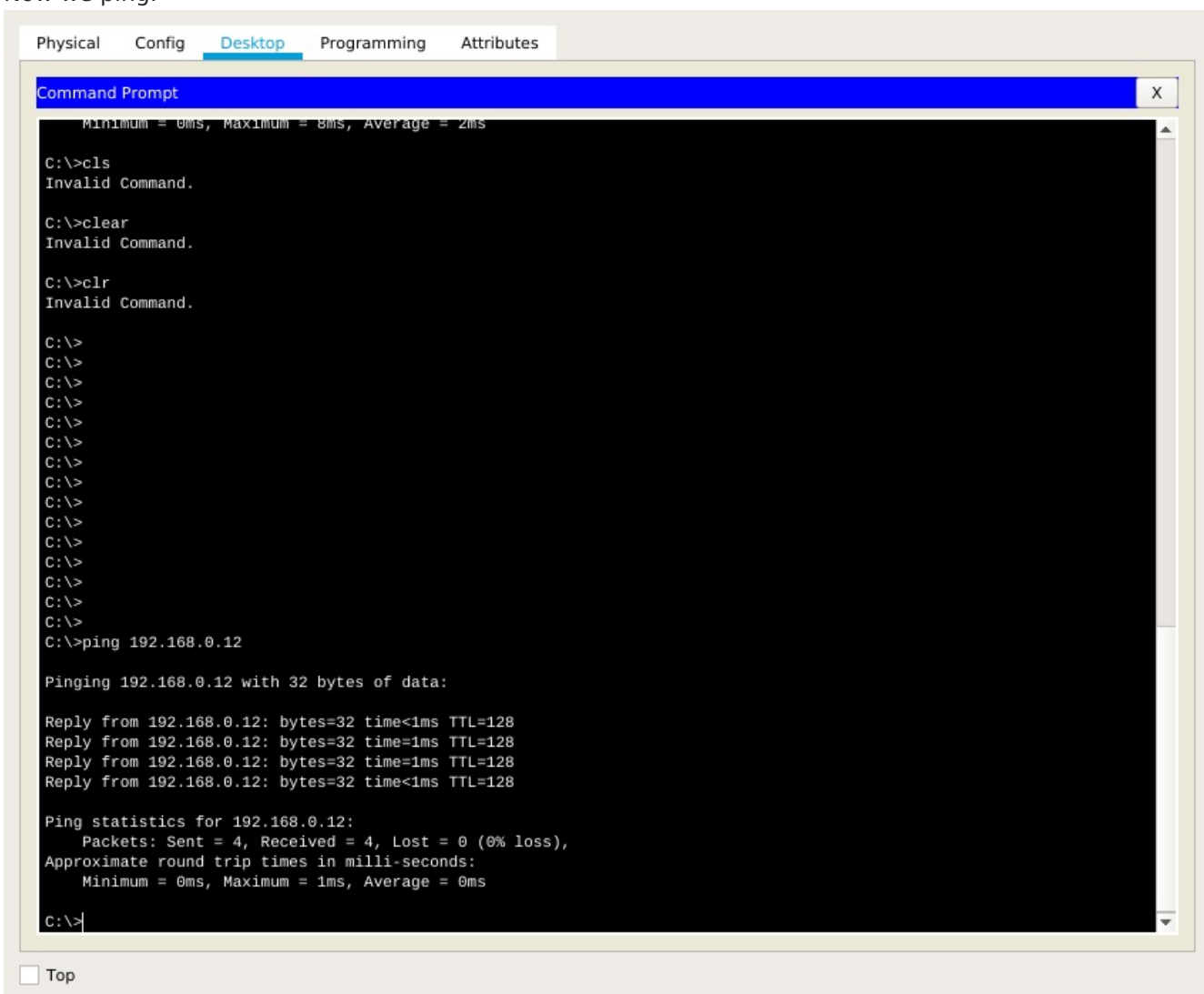
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Now we reconnect the cables and disconnect the cable from the root the SWX1:



Now we ping:



In both cases we can ping the other PC because the switches are going to route the packet over a different path.

Q9

We cant to configure interfaces as mode trunk links between switches:

```
Switch(config)#interface FastEthernet 0/1
Switch(config-if)#switchport mode trunk
```

To achieve this, apply the command above on every switch on every interface connected to another switch. We can print information about all trunk interfaces using the following command:

```
Switch#show interfaces trunk
```

Which yields the following results:

SWX1:

Physical

Config

CLI

Attributes

IOS Command Line Interface

```
Switch(config)#
Switch(config)#show intezr
Switch(config)#show inter
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#
Switch#show in
Switch#show interfaces tr
Switch#show interfaces trunk
Port      Mode      Encapsulation  Status      Native vlan
Fa0/1     on        802.1q          trunking    1
Fa0/2     on        802.1q          trunking    1

Port      Vlans allowed on trunk
Fa0/1     1-1005
Fa0/2     1-1005

Port      Vlans allowed and active in management domain
Fa0/1     1
Fa0/2     1

Port      Vlans in spanning tree forwarding state and not pruned
Fa0/1     1
Fa0/2     none

Switch#
```

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SWX2:

Physical

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Attributes

IOS Command Line Interface

Switch(config)#exit

Switch#

%SYS-5-CONFIG_I: Configured from console by console

Switch#show tr

Switch#show inter

Switch#show interface trunk

Port	Mode	Encapsulation	Status	Native vlan
Fa0/1	on	802.1q	trunking	1
Fa0/2	on	802.1q	trunking	1
Fa0/3	on	802.1q	trunking	1

Port

Vlans allowed on trunk

Fa0/1

1-1005

Fa0/2

1-1005

Fa0/3

1-1005

Port

Vlans allowed and active in management domain

Fa0/1

1

Fa0/2

1

Fa0/3

1

Port

Vlans in spanning tree forwarding state and not pruned

Fa0/1

1

Fa0/2

1

Fa0/3

1

Switch#

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SWX3:

Physical

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Attributes

IOS Command Line Interface

state to up

Switch(config-if)#

Switch(config-if)#exit

Switch(config)#

Switch(config)#exit

Switch#

%SYS-5-CONFIG_I: Configured from console by console

Switch#

Switch#show interface trunk

Port	Mode	Encapsulation	Status	Native vlan
Fa0/1	on	802.1q	trunking	1
Fa0/2	on	802.1q	trunking	1

Port

Vlans allowed on trunk

Fa0/1

1-1005

Fa0/2

1-1005

Port

Vlans allowed and active in management domain

Fa0/1

1

Fa0/2

1

Port

Vlans in spanning tree forwarding state and not pruned

Fa0/1

1

Fa0/2

none

Switch#

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Q10

Now we want to create VLAN Trunking Protocol for a server and multiple clients. First, we configure the server using the following commands:

```
Switch(config)#vtp domain lab.cisco
Changing VTP domain name from NULL to lab.cisco
Switch(config)#vtp password cisco
```



```
Setting device VLAN database password to cisco
Switch(config)#vtp mode server
Device mode already VTP SERVER.
Switch(config)#vtp version 2
```

Second, we configure the clients using the following commands:

```
Switch(config)#vtp domain lab.cisco
Domain name already set to lab.cisco.
Switch(config)#vtp password cisco
Setting device VLAN database password to cisco
Switch(config)#vtp mode client
Setting device to VTP CLIENT mode.
```

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SWX:

Physical

Config

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Attributes

IOS Command Line Interface

Switch#

%SYS-5-CONFIG_I: Configured from console by console

Switch#

Switch#show vtp status

VTP Version capable : 1 to 2

VTP version running : 2

VTP Domain Name : lab.cisco

VTP Pruning Mode : Disabled

VTP Traps Generation : Disabled

Device ID : 00E0.F775.3E00

Configuration last modified by 192.168.0.10 at 3-2-93 05:54:07

Local updater ID is 192.168.0.10 on interface V11 (lowest numbered VLAN interface found)

Feature VLAN :

VTP Operating Mode : Server

Maximum VLANs supported locally : 1005

Number of existing VLANs : 5

Configuration Revision : 1

MD5 digest : 0xB3 0xC3 0x88 0x69 0x25 0x1A 0xCA 0x9F

0x9C 0xFC 0xAC 0x4B 0x09 0x59 0x2C 0x2B

Switch#show vtp password

VTP Password: cisco

Switch#

Ctrl+F6 to exit CLI focus

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SWX1:

Physical

Config

CLI

Attributes

IOS Command Line Interface

Switch#

Switch#

Switch#

Switch#

Switch#

Switch#

Switch#

Switch#

Switch#

Switch#

Switch#

Switch#

Switch#

Switch#

Switch#

Switch#show vtp status

VTP Version : 2

Configuration Revision : 1

Maximum VLANs supported locally : 255

Number of existing VLANs : 5

VTP Operating Mode : Client

VTP Domain Name : lab.cisco

VTP Pruning Mode : Disabled

VTP V2 Mode : Disabled

VTP Traps Generation : Disabled

MD5 digest : 0xB3 0xC3 0x88 0x69 0x25 0x1A 0xCA 0x9F

Configuration last modified by 192.168.0.10 at 3-2-93 05:54:07

Switch#show vtp password

VTP Password: cisco

Switch#

Ctrl+F6 to exit CLI focus

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SWX2:

Physical

Config

CLI

Attributes

IOS Command Line Interface

Domain name already set to lab.cisco.

Switch(config)#vtp password cisco

Setting device VLAN database password to cisco

Switch(config)#vtp mode client

Setting device to VTP CLIENT mode.

Switch(config)#show vtp status

^

% Invalid input detected at '^' marker.

Switch(config)#exit

Switch#

%SYS-5-CONFIG_I: Configured from console by console

Switch#show vtp status

VTP Version : 2

Configuration Revision : 1

Maximum VLANs supported locally : 255

Number of existing VLANs : 5

VTP Operating Mode : Client

VTP Domain Name : lab.cisco

VTP Pruning Mode : Disabled

VTP V2 Mode : Disabled

VTP Traps Generation : Disabled

MD5 digest : 0xB3 0xC3 0x88 0x69 0x25 0x1A 0xCA 0x9F

Configuration last modified by 192.168.0.10 at 3-2-93 05:54:07

Switch#show vtp password

VTP Password: cisco

Switch#

Ctrl+F6 to exit CLI focus

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SWX3:

Physical

Config

CLI

Attributes

IOS Command Line Interface

```
Switch>enable
Switch#config t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vtp domain lab.cisco
Domain name already set to lab.cisco.
Switch(config)#vtp password cisco
Setting device VLAN database password to cisco
Switch(config)#vtp mode client
Setting device to VTP CLIENT mode.
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show vtp status
VTP Version          : 2
Configuration Revision : 1
Maximum VLANs supported locally : 255
Number of existing VLANs : 5
VTP Operating Mode    : Client
VTP Domain Name       : lab.cisco
VTP Pruning Mode      : Disabled
VTP V2 Mode           : Disabled
VTP Traps Generation  : Disabled
MD5 digest            : 0xB3 0xC3 0x88 0x69 0x25 0x1A 0xCA 0x9F
Configuration last modified by 192.168.0.10 at 3-2-93 05:54:07
Switch#show vtp password
VTP Password: cisco
Switch#
```

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Q12

We can add VLANs using the following commands:

```
Switch(config)#vlan 10
Switch(config-vlan)#exit
Switch(config)#vlan 20
Switch(config-vlan)#exit
```

Q13

Now we can print the VLAN configuration.

SWX:

Physical

Config

CLI

Attributes

IOS Command Line Interface

Primary Secondary Type Ports

Switch#show vlan brief

VLAN	Name	Status	Ports
1	default	active	Fa0/4, Fa0/5, Fa0/6, Fa0/7 Fa0/8, 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
10	VLAN0010	active	
20	VLAN0020	active	
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

Switch#

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SWX1:

Physical

Config

CLI

Attributes

IOS Command Line Interface

VTP V2 Mode : Disabled

VTP Traps Generation : Disabled

MD5 digest : 0x6D 0x0F 0x38 0x0D 0x78 0x56 0x07 0xC6

Configuration last modified by 192.168.0.10 at 3-2-93 06:06:22

Switch#show vlan brief

VLAN	Name	Status	Ports
1	default	active	Fa0/3, Fa0/4, Fa0/5, Fa0/6 Fa0/7, Fa0/8, 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
10	VLAN0010	active	
20	VLAN0020	active	
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

Switch#

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SWX2:

Physical

Config

CLI

Attributes

IOS Command Line Interface

VTP Traps Generation : Disabled

MD5 digest : 0xB3 0xC3 0x88 0x69 0x25 0x1A 0xCA 0x9F

Configuration last modified by 192.168.0.10 at 3-2-93 05:54:07

Switch#show vtp password

VTP Password: cisco

Switch#show vlan brief

VLAN Name	Status	Ports
1 default	active	Fa0/4, Fa0/5, Fa0/6, Fa0/7, Fa0/8, 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
10 VLAN0010	active	
20 VLAN0020	active	
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

Switch#

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SWX3:

Physical

Config

CLI

Attributes

IOS Command Line Interface

MD5 digest : 0xB3 0xC3 0x88 0x69 0x25 0x1A 0xCA 0x9F

Configuration last modified by 192.168.0.10 at 3-2-93 05:54:07

Switch#show vtp password

VTP Password: cisco

Switch#show vlan brief

VLAN Name	Status	Ports
1 default	active	Fa0/3, Fa0/4, Fa0/5, Fa0/6, Fa0/7, Fa0/8, 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
10 VLAN0010	active	
20 VLAN0020	active	
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

Switch#

Ctrl+F6 to exit CLI focus

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Q14

IOS Command Line Interface

```
Switch#show sdp
Switch#show sp
Switch#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    24577
            Address    0001.641A.D267
            Cost        19
            Port        1(FastEthernet0/1)
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
            Address    00E0.A3A8.40D1
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
            Aging Time  20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Fa0/2          Altn BLK 19        128.2    P2p
Fa0/3          Desg FWD 19        128.3    P2p
Fa0/1          Root FWD 19        128.1    P2p
Fa0/4          Desg FWD 19        128.4    P2p

VLAN0010
  Spanning tree enabled protocol ieee
  Root ID    Priority    32778
            Address    0001.42A5.2791
            Cost        19
            Port        2(FastEthernet0/2)
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32778  (priority 32768 sys-id-ext 10)
            Address    00E0.A3A8.40D1
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
            Aging Time  20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Fa0/2          Root FWD 19        128.2    P2p
Fa0/1          Altn BLK 19        128.1    P2p

VLAN0020
  Spanning tree enabled protocol ieee
  Root ID    Priority    32788
            Address    0001.42A5.2791
            Cost        19
            Port        2(FastEthernet0/2)
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32788  (priority 32768 sys-id-ext 20)
            Address    00E0.A3A8.40D1
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
            Aging Time  20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Fa0/2          Root FWD 19        128.2    P2p
Fa0/1          Altn BLK 19        128.1    P2p

Switch#!
```

IOS Command Line Interface

```
Switch#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    24577
             Address     0001.641A.D267
             Cost        19
             Port        1(FastEthernet0/1)
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769 (priority 32768 sys-id-ext 1)
             Address     0001.42A5.2791
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface                Role Sts Cost      Prio.Nbr Type
-----
Fa0/4                    Desg FWD 19        128.4   P2p
Fa0/5                    Desg FWD 19        128.5   P2p
Fa0/2                    Desg FWD 19        128.2   P2p
Fa0/3                    Desg FWD 19        128.3   P2p
Fa0/1                    Root FWD 19        128.1   P2p

VLAN0010
  Spanning tree enabled protocol ieee
  Root ID    Priority    32778
             Address     0001.42A5.2791
             This bridge is the root
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32778 (priority 32768 sys-id-ext 10)
             Address     0001.42A5.2791
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface                Role Sts Cost      Prio.Nbr Type
-----
Fa0/2                    Desg FWD 19        128.2   P2p
Fa0/3                    Desg FWD 19        128.3   P2p
Fa0/1                    Desg FWD 19        128.1   P2p

VLAN0020
  Spanning tree enabled protocol ieee
  Root ID    Priority    32788
             Address     0001.42A5.2791
             This bridge is the root
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32788 (priority 32768 sys-id-ext 20)
             Address     0001.42A5.2791
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface                Role Sts Cost      Prio.Nbr Type
-----
Fa0/2                    Desg FWD 19        128.2   P2p
Fa0/3                    Desg FWD 19        128.3   P2p
Fa0/1                    Desg FWD 19        128.1   P2p

Switch#
```

SWX3:

PhysicalConfigCLIAttributes

IOS Command Line Interface

Switch#show sp
Switch#show spanning-tree
VLAN0001

Spanning tree enabled protocol ieee
Root ID Priority 24577
Address 0001.641A.D267
Cost 19
Port 1(FastEthernet0/1)
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32769 (priority 32768 sys-id-ext 1)
Address 0004.9AC0.79A8
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 20

Interface	Role	Sts	Cost	Prio.Nbr	Type
Fa0/3	Desg	FWD	19	128.3	P2p
Fa0/4	Desg	FWD	19	128.4	P2p
Fa0/1	Root	FWD	19	128.1	P2p
Fa0/2	Altn	BLK	19	128.2	P2p

VLAN0010

Spanning tree enabled protocol ieee
Root ID Priority 32778
Address 0001.42A5.2791
Cost 19
Port 2(FastEthernet0/2)
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32778 (priority 32768 sys-id-ext 10)
Address 0004.9AC0.79A8
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 20

Interface	Role	Sts	Cost	Prio.Nbr	Type
Fa0/1	Altn	BLK	19	128.1	P2p
Fa0/2	Root	FWD	19	128.2	P2p

VLAN0020

Spanning tree enabled protocol ieee
Root ID Priority 32788
Address 0001.42A5.2791
Cost 19
Port 2(FastEthernet0/2)
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32788 (priority 32768 sys-id-ext 20)
Address 0004.9AC0.79A8
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 20

Interface	Role	Sts	Cost	Prio.Nbr	Type
Fa0/1	Altn	BLK	19	128.1	P2p
Fa0/2	Root	FWD	19	128.2	P2p

Switch#

Ctrl+F6 to exit CLI focus

CopyPaste

☐ Top

We can observe on all three screenshots that the root bridge for each and every switch is indeed SWX.

Q15

To change the VLAN on the switch SWX2, we do the following:

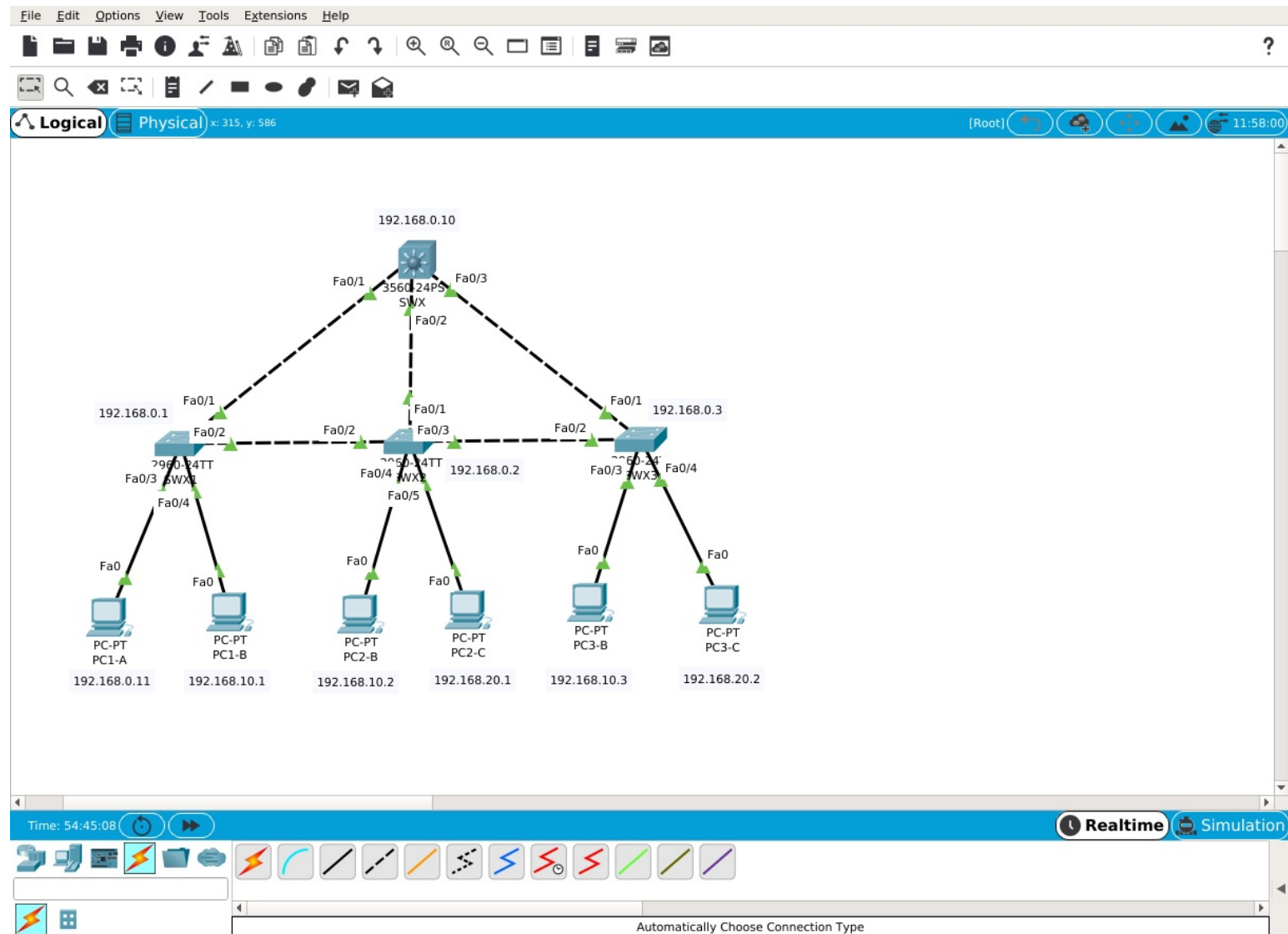
```
Switch(config)#interface FastEthernet 0/4
Switch(config-if)#switchport access vlan 10
Switch(config-if)#exit
Switch(config)#interface FastEthernet 0/5
Switch(config-if)#switchport access vlan 20
```

Now PC2-B is on VLAN 10 and PC2-C is on VLAN 20. PC1-A is still on VLAN 1.

Q16

Now let's try and see how ping works on this new network configuration.

Here is the new network:



a. Ping PC2-B and PC3-B from PC1-B

Physical

Config

Desktop

Programming

Attributes

Command Prompt

X

C:\>
C:\>ipconfig

FastEthernet0 Connection:(default port)

Link-local IPv6 Address.....: FE80::250:FFF:FE58:6A95
IP Address.....: 192.168.10.1
Subnet Mask.....: 255.255.255.0
Default Gateway.....: 0.0.0.0

Bluetooth Connection:

Link-local IPv6 Address.....: ::
IP Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: 0.0.0.0

C:\>ping 192.168.10.2

Pinging 192.168.10.2 with 32 bytes of data:

Reply from 192.168.10.2: bytes=32 time=1ms TTL=128
Reply from 192.168.10.2: bytes=32 time<1ms TTL=128
Reply from 192.168.10.2: bytes=32 time<1ms TTL=128
Reply from 192.168.10.2: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.10.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.10.3

Pinging 192.168.10.3 with 32 bytes of data:

Reply from 192.168.10.3: bytes=32 time=1ms TTL=128
Reply from 192.168.10.3: bytes=32 time=3ms TTL=128
Reply from 192.168.10.3: bytes=32 time<1ms TTL=128
Reply from 192.168.10.3: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.10.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 3ms, Average = 1ms

C:\>|

☐ Top

b. Ping PC2-C from PC1-C

Physical

Config

Desktop

Programming

Attributes

Command Prompt

Packet Tracer PC Command Line 1.0

C:\>ipconfig

FastEthernet0 Connection:(default port)

Link-local IPv6 Address.....: FE80::2D0:FFFF:FE27:66D5

IP Address.....: 192.168.20.2

Subnet Mask.....: 255.255.255.0

Default Gateway.....: 0.0.0.0

Bluetooth Connection:

Link-local IPv6 Address.....: ::

IP Address.....: 0.0.0.0

Subnet Mask.....: 0.0.0.0

Default Gateway.....: 0.0.0.0

C:\>ping 192.168.20.1

Pinging 192.168.20.1 with 32 bytes of data:

Reply from 192.168.20.1: bytes=32 time<1ms TTL=128

Reply from 192.168.20.1: bytes=32 time<1ms TTL=128

Reply from 192.168.20.1: bytes=32 time<1ms TTL=128

Reply from 192.168.20.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.20.1:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

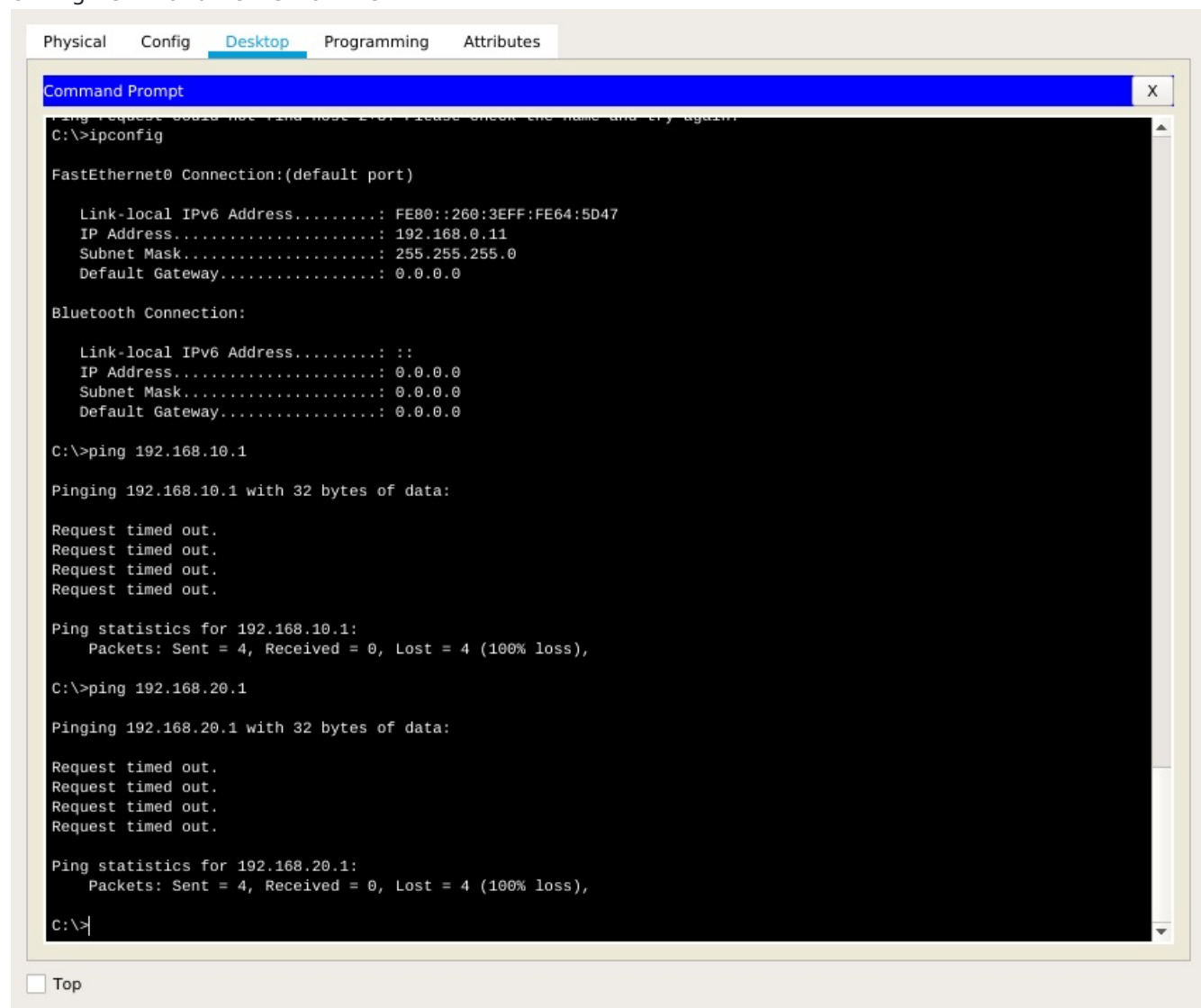
Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>

☐ Top

c. Ping PC1-B and PC1-C from PC1-A



This ping does not work because we are trying to send an ICMP request to a PC on a network which is different from the one we are currently on. We would need a router to be able to ping other networks.