

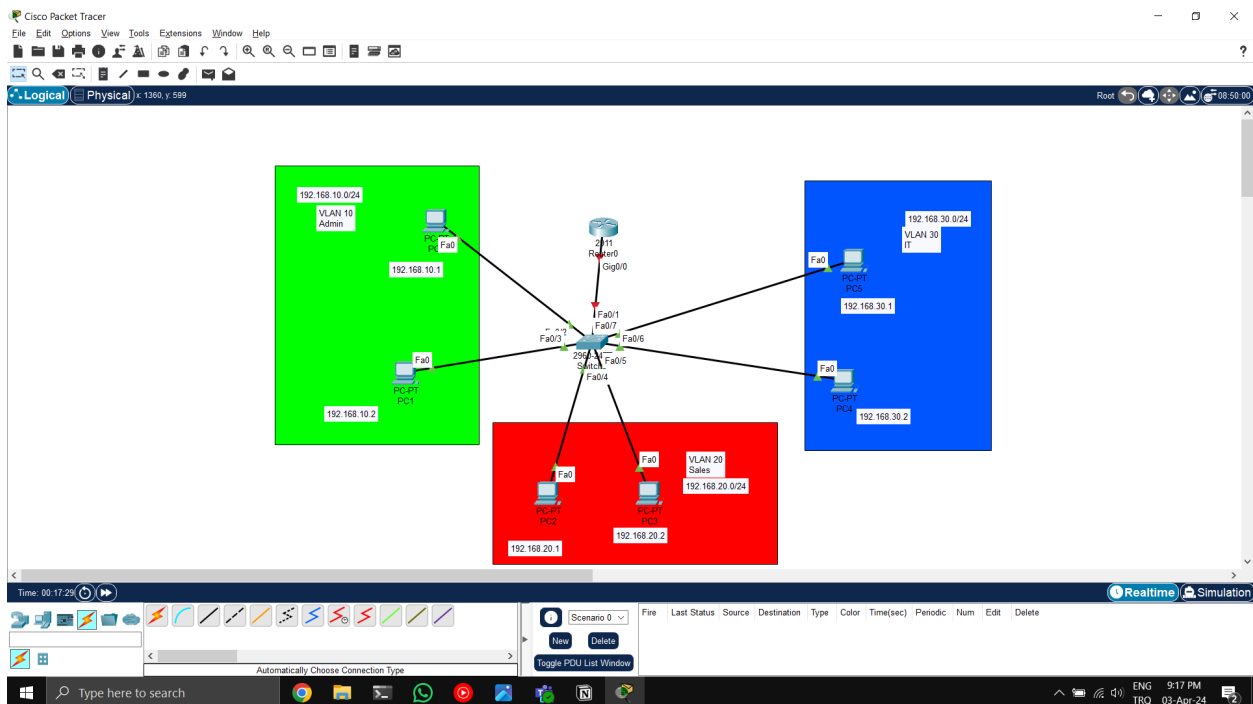
Network Assignment

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Step 1: Create topologies.

Also assign static IPs to PCs.



Step 2: Create VLANs

```
Switch>en
Switch#conf
Configuring from terminal, memory, or network [terminal]? terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name Admin
Switch(config-vlan)#exit
Switch(config)#vlan 20
Switch(config-vlan)#name Sales
Switch(config-vlan)#exit
Switch(config)#vlan 30
Switch(config-vlan)#name IT
Switch(config-vlan)#exit
Switch(config)#
```

Step 3: Configure VLANs

```
Switch(config-if)#switchport mode access
Switch(config-if)#swi
Switch(config-if)#switchport acc
Switch(config-if)#switchport access vlan 20
Switch(config-if)#exit
Switch(config)#int
Switch(config)#interface f0/5
Switch(config-if)#swi
Switch(config-if)#switchport mode acc
Switch(config-if)#switchport mode access
Switch(config-if)#swi
Switch(config-if)#switchport ac
Switch(config-if)#switchport access vlan 20
Switch(config-if)#exit
Switch(config)#int
Switch(config)#interface f0/6
Switch(config-if)#swi
Switch(config-if)#switchport mode ac
Switch(config-if)#switchport mode access
Switch(config-if)#swi
Switch(config-if)#switchport ac
Switch(config-if)#switchport access vlan 30
Switch(config-if)#exit
Switch(config)#int
Switch(config)#interface f0/7
Switch(config-if)#swi
Switch(config-if)#switchport mode ac
Switch(config-if)#switchport mode access
Switch(config-if)#swi
Switch(config-if)#switchport ac
Switch(config-if)#switchport access vlan 30
Switch(config-if)#exit
Switch(config)#int
Switch(config)#interface f0/1
Switch(config-if)#swi
Switch(config-if)#switchport mode trunk
Switch(config-if)#swi
Switch(config-if)#switchport trunk allowed vlan 10,20,30
Switch(config-if)#
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#
```

Step 4: Configure router

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.10, changed state to up

Router(config-subif)#en
Router(config-subif)#encapsulation dot1Q 10
Router(config-subif)#ip ad
Router(config-subif)#ip address 192.168.10.254 255.255.255.0
Router(config-subif)#exit
Router(config)#int
Router(config)#interface g0/0.20
Router(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0.20, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.20, changed state to up

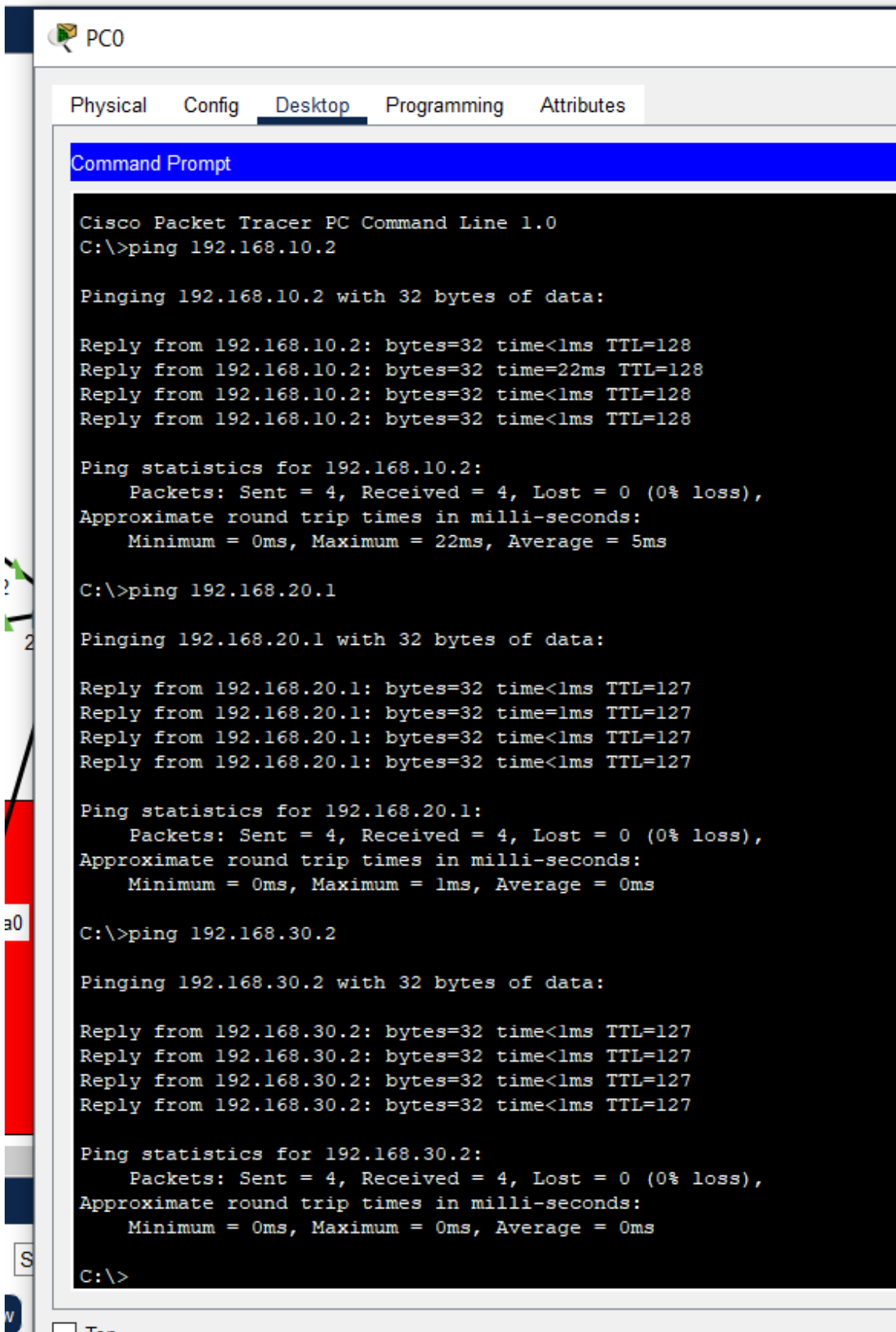
Router(config-subif)#en
Router(config-subif)#encapsulation dot
Router(config-subif)#encapsulation dot1Q 20
Router(config-subif)#ip ad
Router(config-subif)#ip address 192.168.20.254 255.255.255.0
Router(config-subif)#exit
Router(config)#int
Router(config)#interface g0/0.30
Router(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0.30, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.30, changed state to up

Router(config-subif)#en
Router(config-subif)#encapsulation do
Router(config-subif)#encapsulation dot1Q 30
Router(config-subif)#ip ad
Router(config-subif)#ip address 192.168.30.254 255.255.255.0
Router(config-subif)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#write
Building configuration...
[OK]
Router#
Router#
```

Step 5: Test connections



Step 6: Security

Router Configuration

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.20, chang

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.30, chang

Router>en

Router#conf ter

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#service password-encryption

Router(config)#security password min-length 8

Router(config)#no ip domain-lookup

Router(config)#ip domain-name CCNA.com

Router(config)#username admin secret 12345678

Router(config)#crypto key generate rsa

% Please define a hostname other than Router.

Router(config)#hostname RTA

RTA(config)#crypto key generate rsa

The name for the keys will be: RTA.CCNA.com

Choose the size of the key modulus in the range of 360 to 4096 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

How many bits in the modulus [512]: 1024

% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]

RTA(config)#login block-for 180 attempts 4 within 120

*Mar 1 0:10:33.805: %SSH-5-ENABLED: SSH 1.99 has been enabled

RTA(config)#line vty 0 4

RTA(config-line)#transport input ssh

RTA(config-line)#login local

RTA(config-line)#exec-timeout 6

RTA(config-line)#exit

RTA(config)#exit

RTA#

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

RTA#copy running-config startup-config

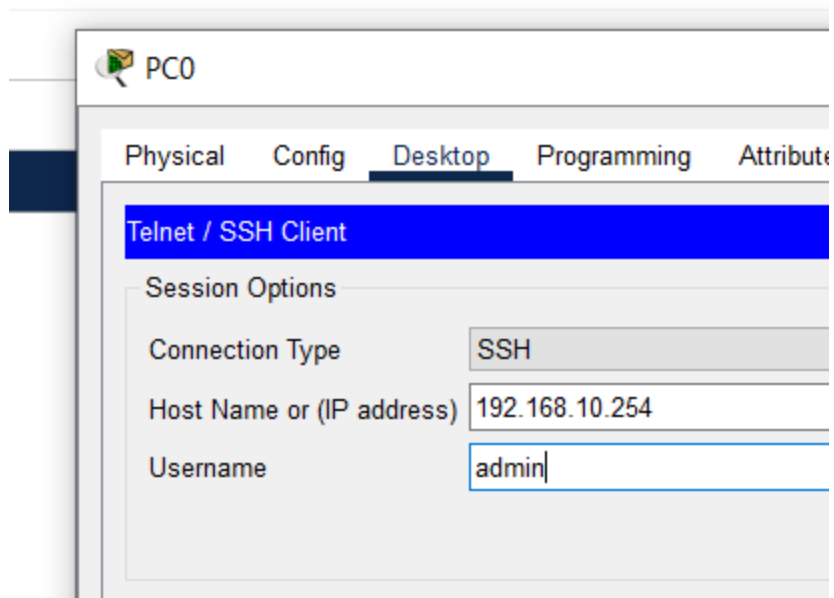
Destination filename [startup-config]?

Building configuration...

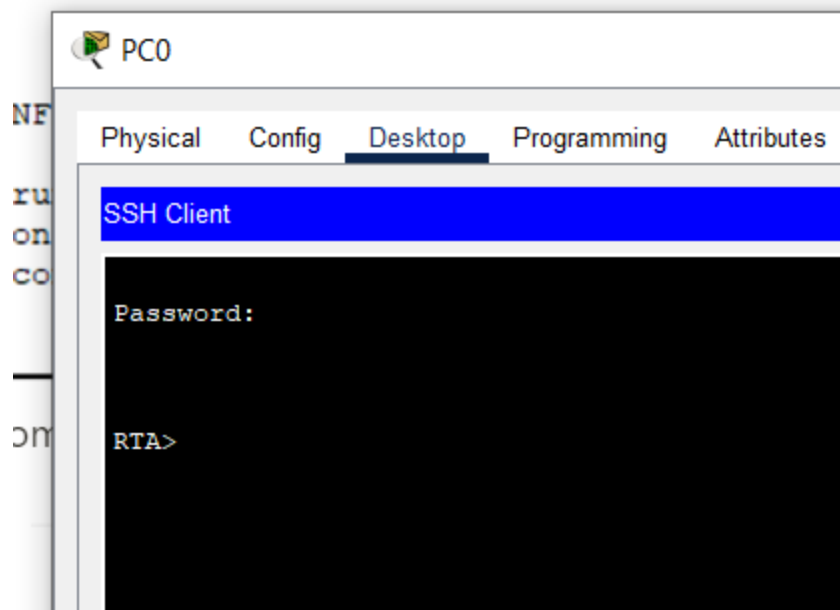
[OK]

RTA#

Verify connection from a PC.



Connection is successful as the following:



Switch Configuration

Shutdown all unused ports.

IOS Command Line Interface

```
%LINK-5-CHANGED: Interface FastEthernet0/8, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/9, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/10, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/11, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/12, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/13, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/14, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/15, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/16, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/17, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/18, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/19, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/20, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/21, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/22, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/23, changed state to administratively down
%LINK-5-CHANGED: Interface FastEthernet0/24, changed state to administratively down
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to administratively down
%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to administratively down
SW1(config-if-range)#exit
```

Encrypt all passwords.

```
%LINK-5-CHANGED: Interface GigabitEthernet0/2
SW1(config-if-range)#exit
SW1(config)#service pas
SW1(config)#service password-encryption
SW1(config)#enable secret 12345678
SW1(config)#
```

```

%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to administrat
SW1(config-if-range)#exit
SW1(config)#service pas
SW1(config)#service password-encryption
SW1(config)#enable secret 12345678
SW1(config)#no ip domain lookup
SW1(config)#ip domain-name CCNA.com
SW1(config)#username admin secret 12345678
SW1(config)#crypto key generate rsa
The name for the keys will be: SW1.CCNA.com
Choose the size of the key modulus in the range of 360 to 4096 for your
  General Purpose Keys. Choosing a key modulus greater than 512 may take
  a few minutes.

How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]

SW1(config)#line vty 0 4
*Mar 1 0:24:22.730: %SSH-5-ENABLED: SSH 1.99 has been enabled
SW1(config-line)#transp
SW1(config-line)#transport input ssh
SW1(config-line)#login local
SW1(config-line)#exec-timeout 6
SW1(config-line)#end
SW1#
%SYS-5-CONFIG_I: Configured from console by console

SW1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
SW1#

```

Configure Port Security for the Switch

```
SW1(config)#interface range fa0/2-7
SW1(config-if-range)#switchpo
SW1(config-if-range)#switchport mode acc
SW1(config-if-range)#switchport mode access
SW1(config-if-range)#swi
SW1(config-if-range)#switchport po
SW1(config-if-range)#switchport port-security mac
SW1(config-if-range)#switchport port-security mac-address sticky
SW1(config-if-range)#swi
SW1(config-if-range)#switchport po
SW1(config-if-range)#switchport port-security vio
SW1(config-if-range)#switchport port-security violation shutdown
SW1(config-if-range)#swi
SW1(config-if-range)#switchport po
SW1(config-if-range)#switchport port-security maxi
SW1(config-if-range)#switchport port-security maximum 1
SW1(config-if-range)#
```
