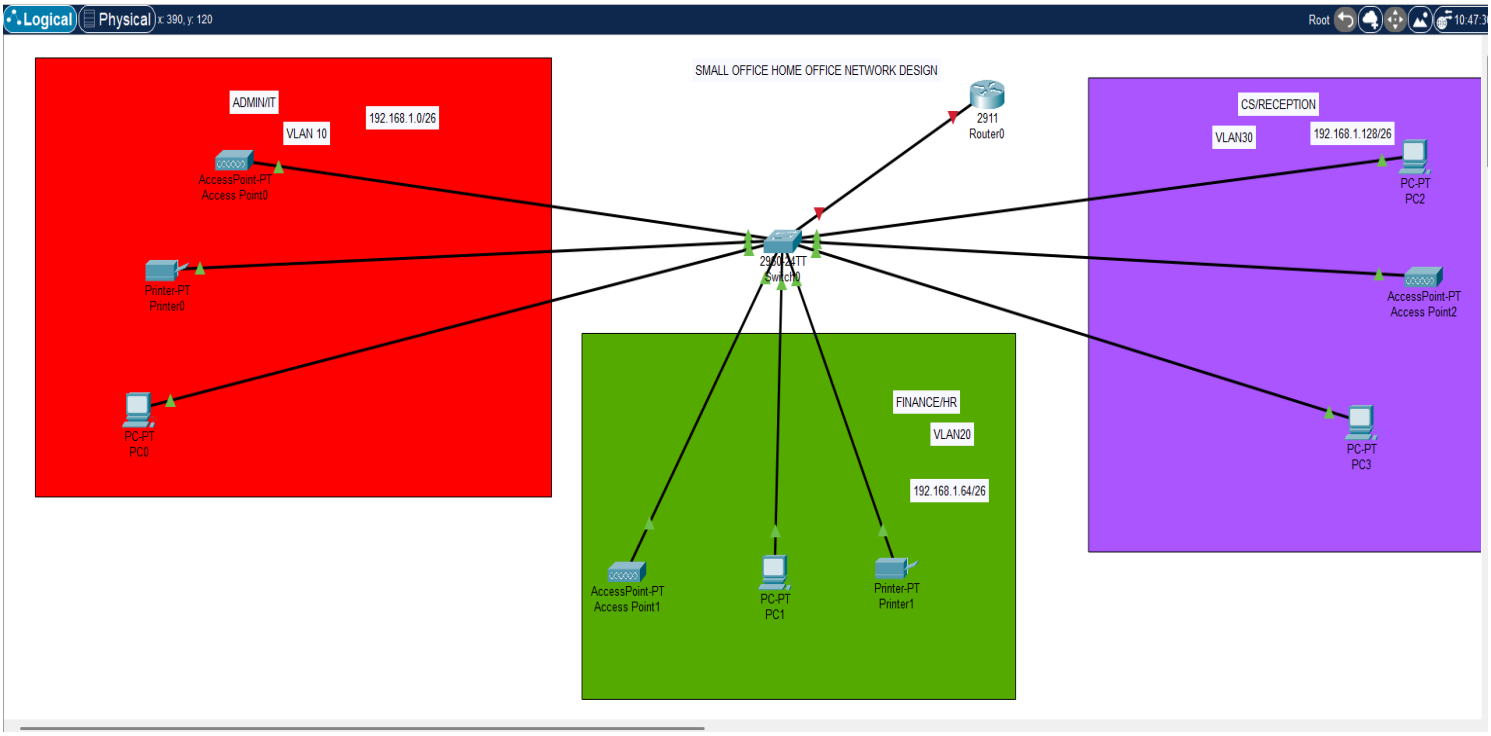
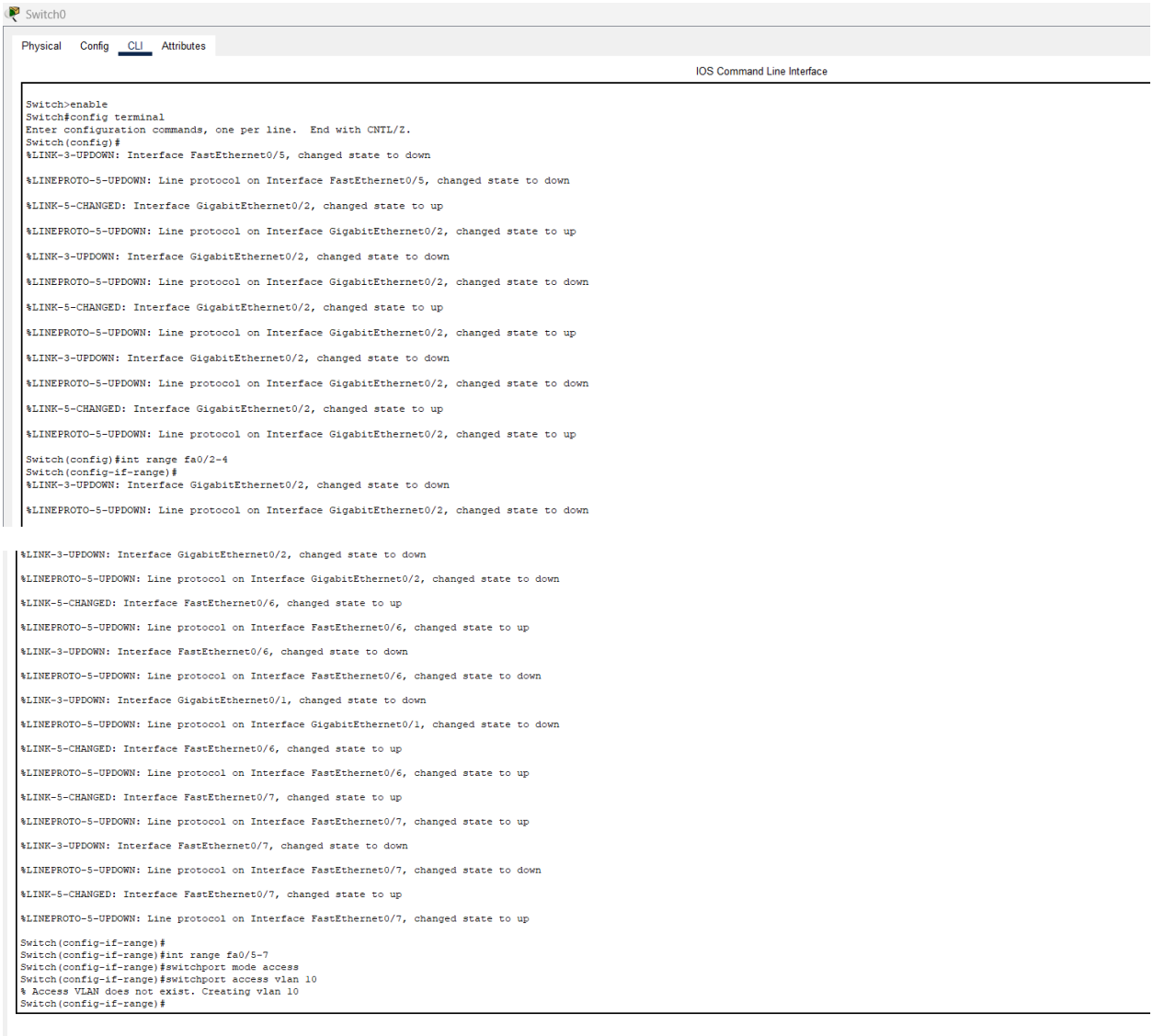
Small Office Home Office Network



Creating VLAN 10



Creating VLAN 20

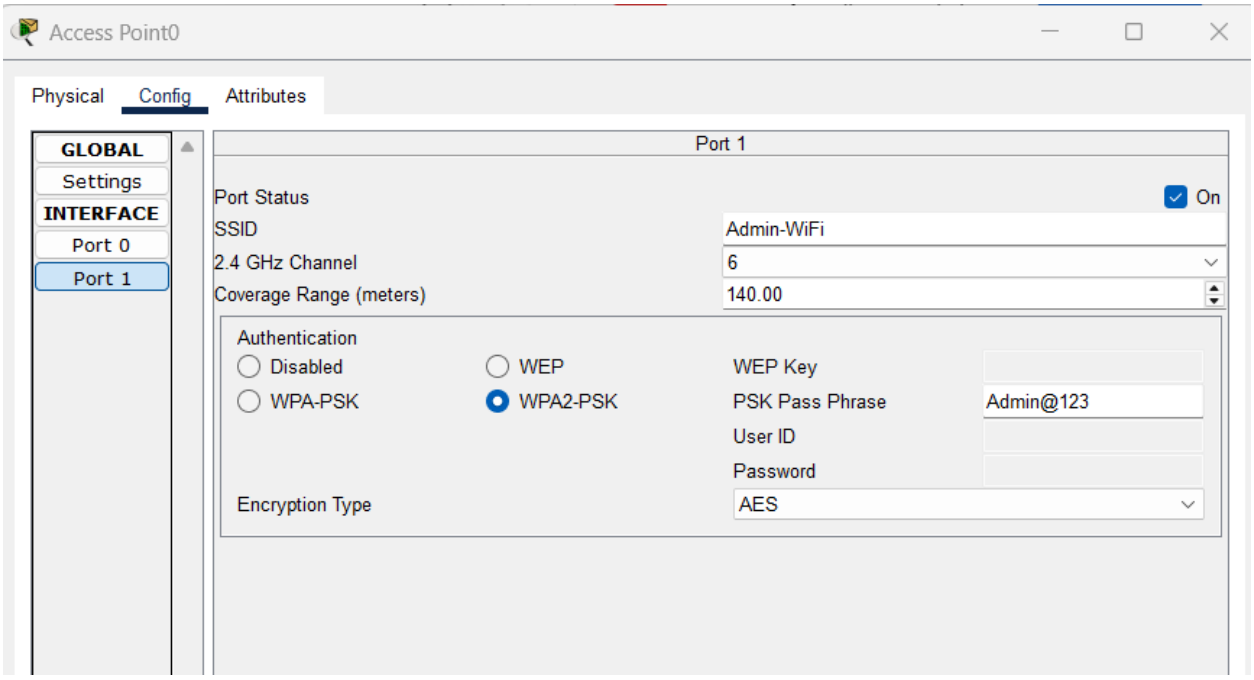
```
% Access VLAN does not exist. Creating vlan 10
Switch(config-if-range)#
Switch(config-if-range)#
Switch(config-if-range)#
Switch(config-if-range)#int range fa0/2-4
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 20
% Access VLAN does not exist. Creating vlan 20
Switch(config-if-range)#
Switch(config-if-range)#
Switch(config-if-range)#
```

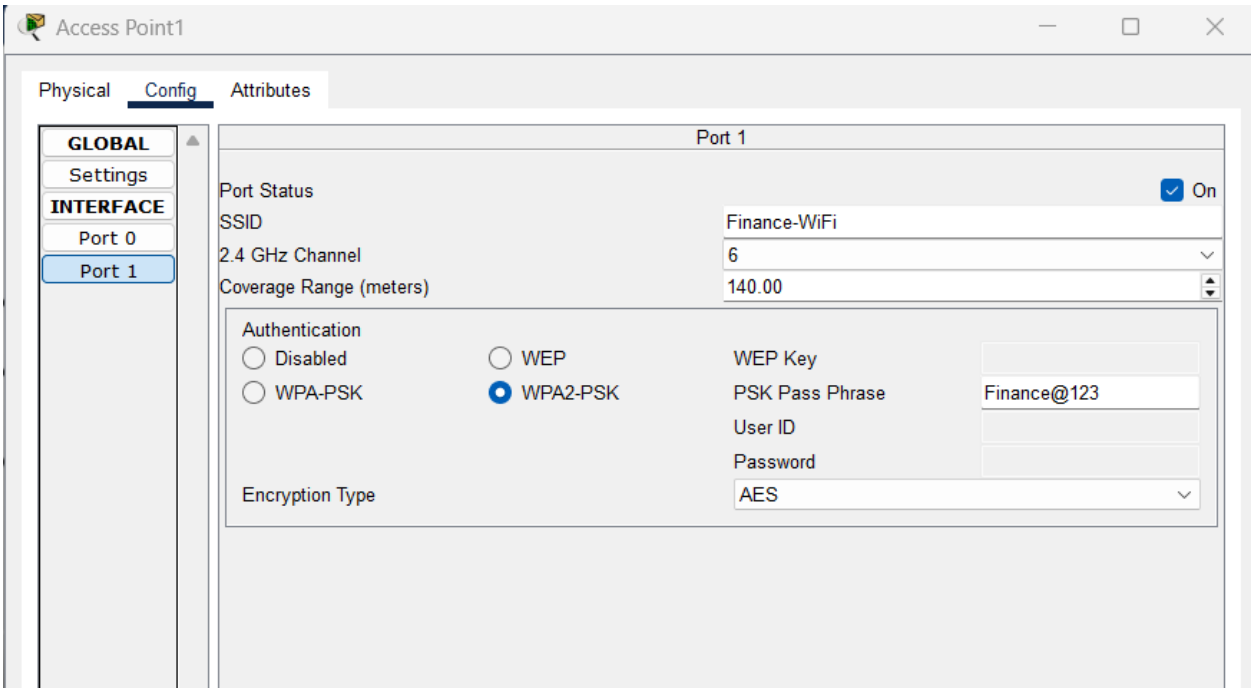
```
Switch(config-if-range)#switchport access vlan 20
% Access VLAN does not exist. Creating vlan 20
Switch(config-if-range)#
Switch(config-if-range)#
Switch(config-if-range)#int range fa0/8-10
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport mode access vlan30
                                               ^
% Invalid input detected at '^' marker.

Switch(config-if-range)#switchport access vlan30
                                              ^
% Invalid input detected at '^' marker.

Switch(config-if-range)#intrange fa0/8-10
                       ^
% Invalid input detected at '^' marker.

Switch(config-if-range)#int range fa0/8-10
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan30
                                              ^
% Invalid input detected at '^' marker.

Switch(config-if-range)#switchport access vlan 30
% Access VLAN does not exist. Creating vlan 30
Switch(config-if-range)#
Switch(config-if-range)#
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#do show start
Using 1539 bytes
!
```

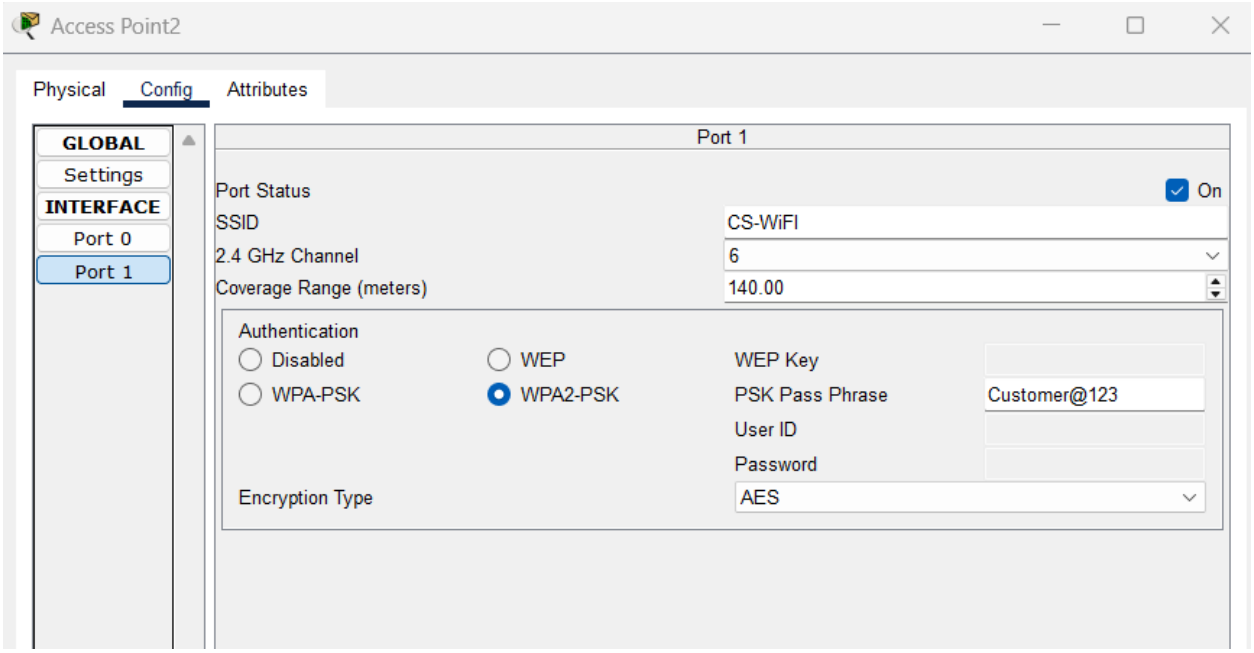
```
% Invalid input detected at '^' marker.

Switch(config-if-range)#switchport access vlan 30
% Access VLAN does not exist. Creating vlan 30
Switch(config-if-range)#
Switch(config-if-range)#
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#do show start
Using 1539 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Switch
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
interface FastEthernet0/2
 switchport access vlan 20
 switchport mode access
!
interface FastEthernet0/3
 switchport access vlan 20
 switchport mode access
!
interface FastEthernet0/4
 switchport access vlan 20
 switchport mode access
```

```
!
hostname Switch
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
interface FastEthernet0/2
 switchport access vlan 20
 switchport mode access
!
interface FastEthernet0/3
 switchport access vlan 20
 switchport mode access
!
interface FastEthernet0/4
 switchport access vlan 20
 switchport mode access
!
interface FastEthernet0/5
 switchport access vlan 10
 switchport mode access
!
interface FastEthernet0/6
 switchport access vlan 10
 switchport mode access
!
interface FastEthernet0/7
 switchport access vlan 10
 switchport mode access
!
interface FastEthernet0/8
 switchport access vlan 30
 switchport mode access
!
interface FastEthernet0/9
 switchport access vlan 30
```

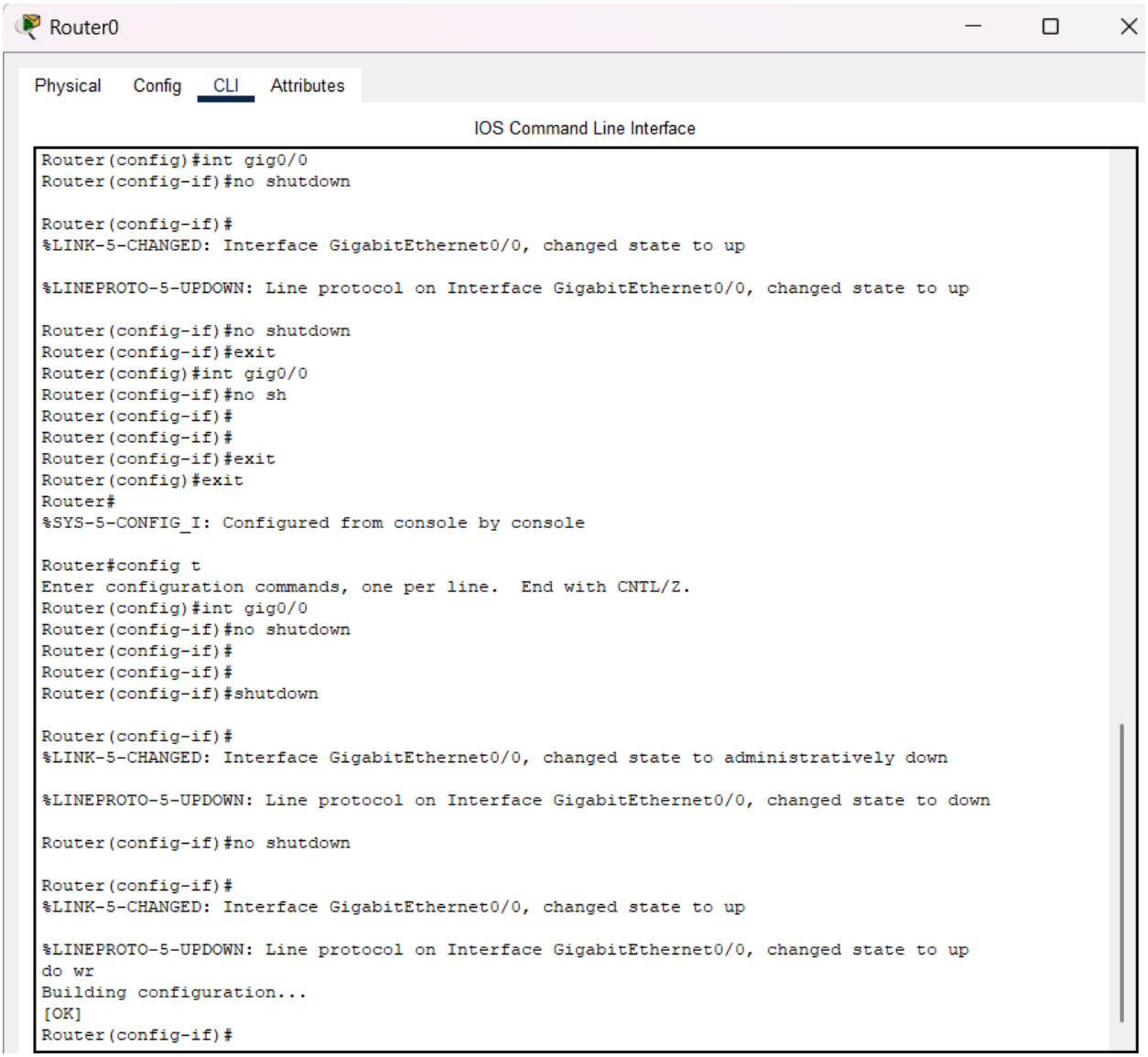
We need to configure wireless access point and SSID






Access Point2
Physical
Config
Attributes
GLOBAL
Settings
INTERFACE
Port 0
Port 1
Port 1
Port Status
On
SSID
CS-WiFI
2.4 GHz Channel
6
Coverage Range (meters)
140.00
Authentication
Disabled
WEP
WPA-PSK
WPA2-PSK
WEP Key
PSK Pass Phrase
Customer@123
User ID
Password
Encryption Type
AES

On the Router



To configure intervlan routing we create multiple subinterfaces

To create a subinterface

Configuring InterVLAN routing

Router0

Physical Config CLI Attributes

IOS Command Line Interface

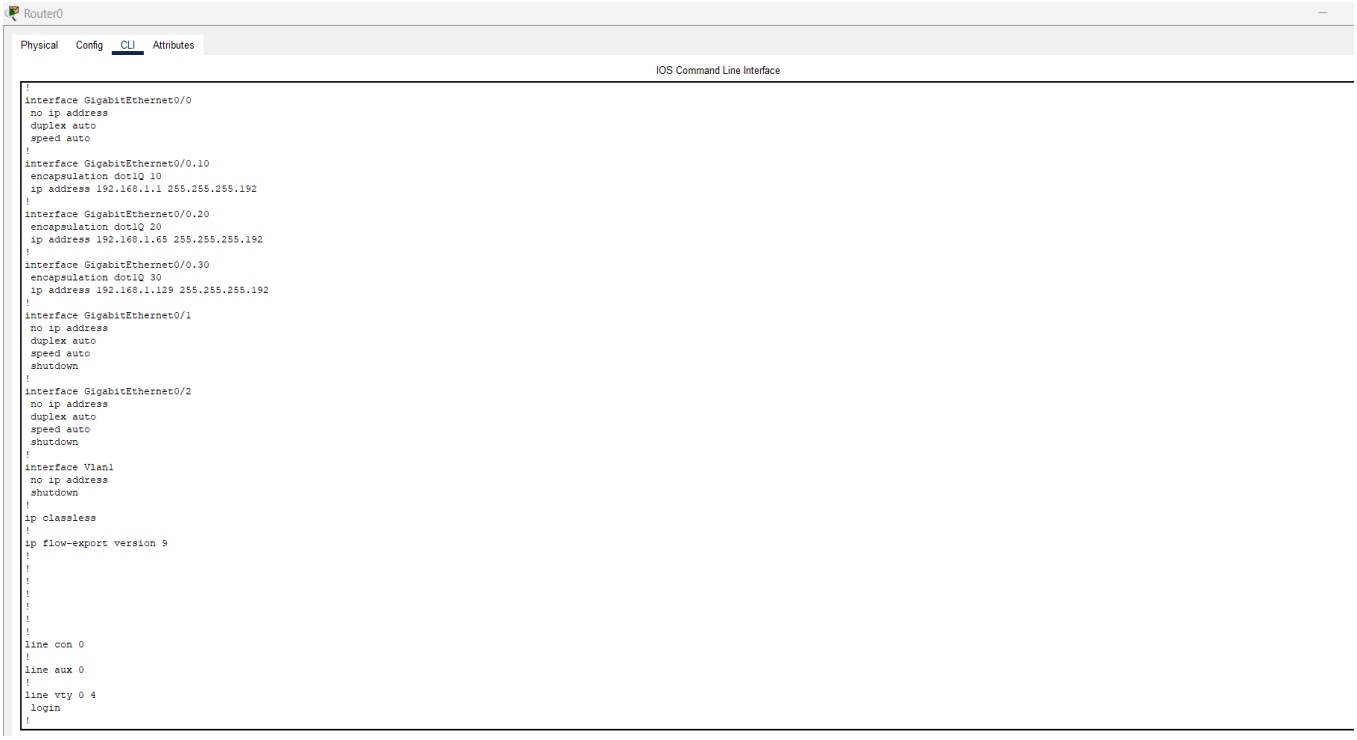
```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up
do wr
Building configuration...
[OK]
Router(config-if)#exit
Router(config)#int gig0/0.10
Router(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0.10, changed state to up

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

Router(config-subif)#enacapsulation dot1Q 10
                    ^
% Invalid input detected at '^' marker.

Router(config-subif)#encapsulation dot1Q 10
Router(config-subif)#ip address 192.168.1.1 255.255.255.192
Router(config-subif)#
Router(config-subif)#
Router(config-subif)#
Router(config-subif)#exit
Router(config)#int gig0/0.20
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)#encapsulation dot1Q 20
Router(config-subif)#ip address 192.168.1.65 255.255.255.192
Router(config-subif)#do wr
Building configuration...
[OK]
Router(config-subif)#
Router(config-subif)#exit
Router(config)#
Router(config)#
Router(config)#int gig0/0.30
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)#encapsulation dot1Q 30
Router(config-subif)#ip address 192.168.1.129 255.255.255.192
Router(config-subif)#do wr
Building configuration...
[OK]
Router(config-subif)#
Router(config-subif)#exit
Router(config)#
```

Router0

Physical Config CLI Attributes

IOS Command Line Interface

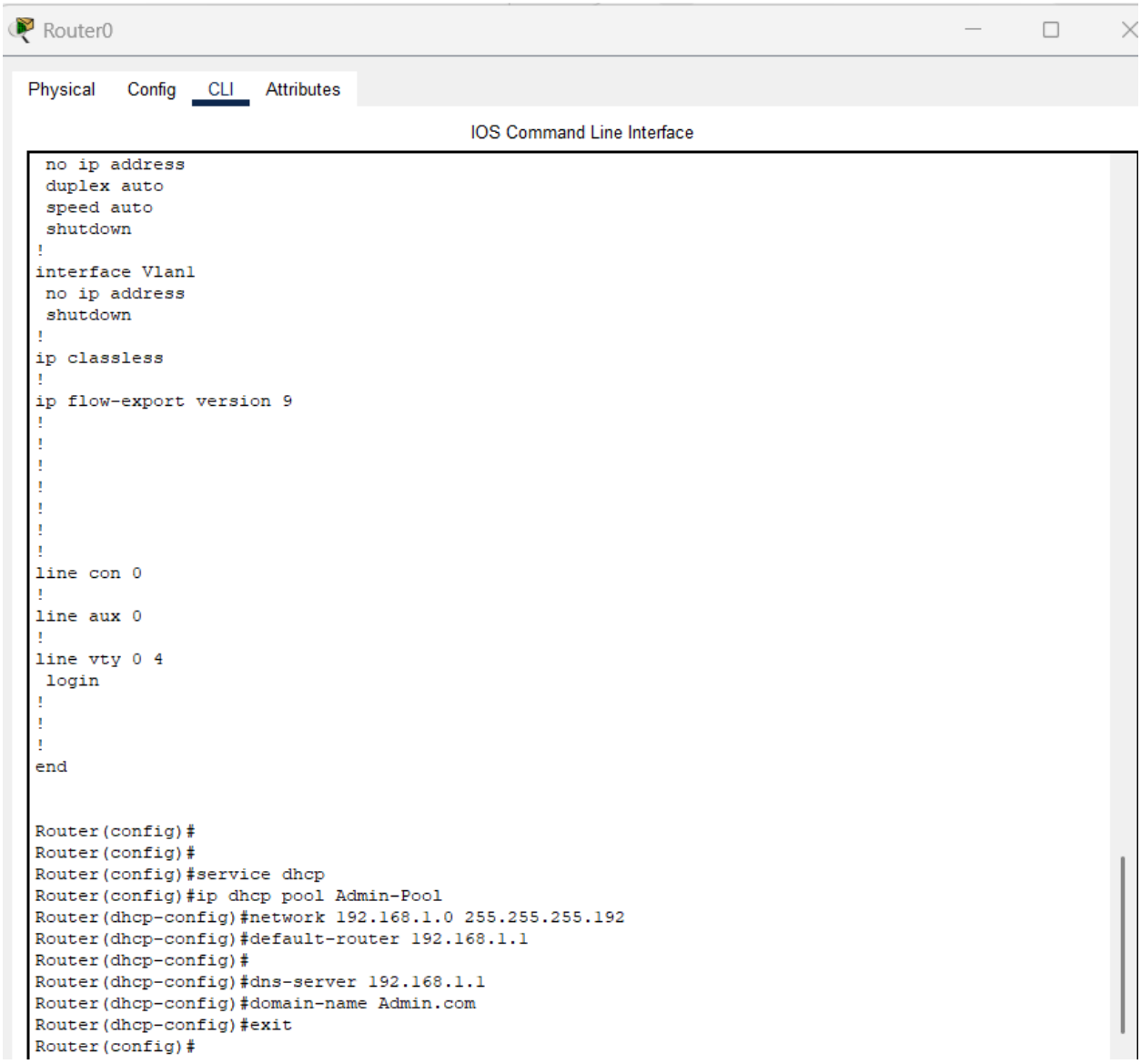
```
Router(config)#
Router(config)#do show start
Using 976 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
license udi pid CISCO2911/K9 sn FTX1524NWZ8-
!
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface GigabitEthernet0/0
 no ip address
 duplex auto
 speed auto
!
interface GigabitEthernet0/0.10
 encapsulation dot1Q 10
 ip address 192.168.1.1 255.255.255.192
```


Router0
Physical
Config
CLI
Attributes
IOS Command Line Interface
!
interface GigabitEthernet0/0
 no ip address
 duplex auto
 speed auto
!
interface GigabitEthernet0/0.10
 encapsulation dot1Q 10
 ip address 192.168.1.1 255.255.255.192
!
interface GigabitEthernet0/0.20
 encapsulation dot1Q 20
 ip address 192.168.1.65 255.255.255.192
!
interface GigabitEthernet0/0.30
 encapsulation dot1Q 30
 ip address 192.168.1.129 255.255.255.192
!
interface GigabitEthernet0/1
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface GigabitEthernet0/2
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Vlan1
 no ip address
 shutdown
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!

To configure DHCP server

We need to enable the DHCP service on that device

But on cisco devices by default its enabled

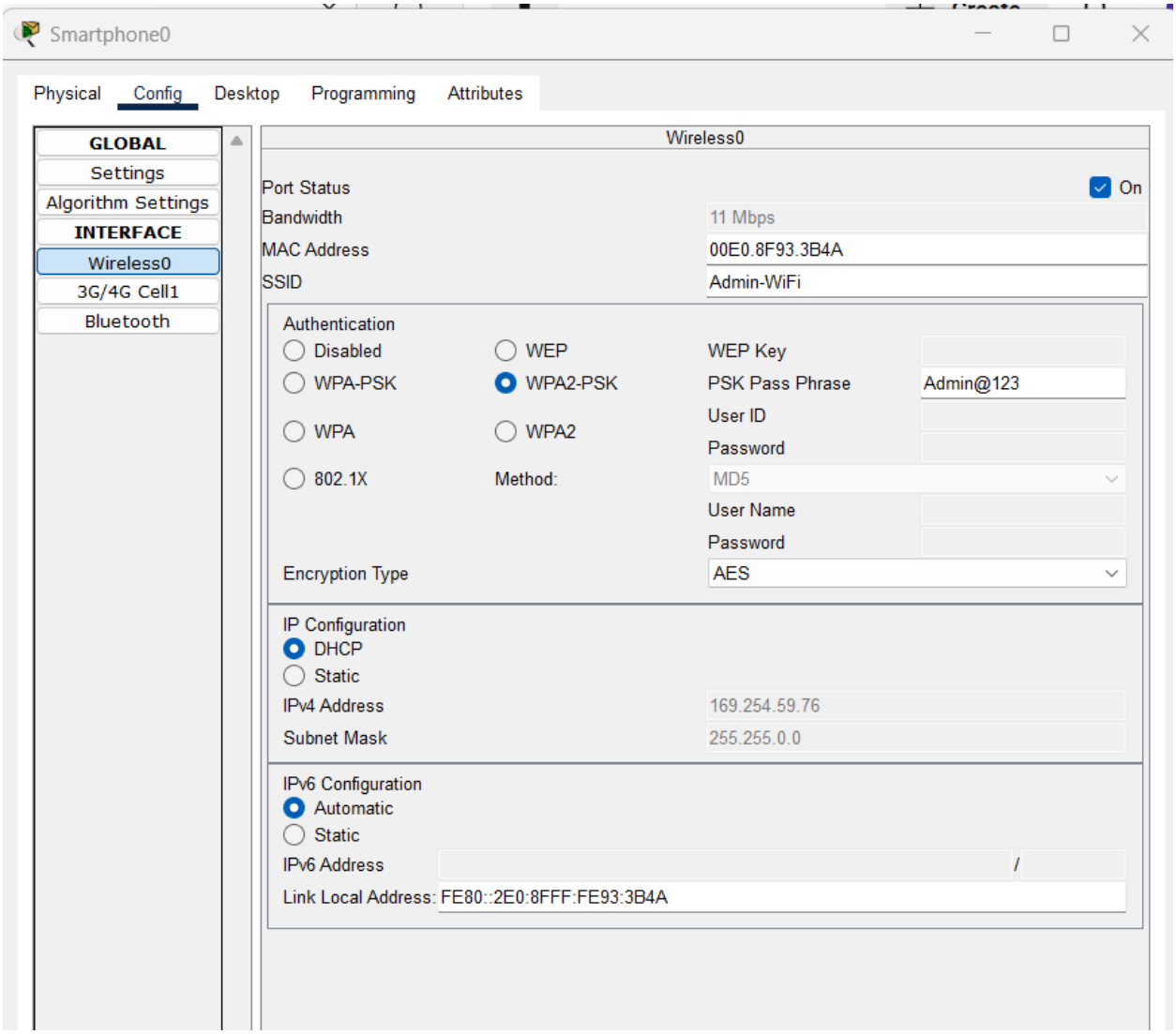


```
!
!
end


Router(config)#
Router(config)#
Router(config)#service dhcp
Router(config)#ip dhcp pool Admin-Pool
Router(dhcp-config)#network 192.168.1.0 255.255.255.192
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#
Router(dhcp-config)#dns-server 192.168.1.1
Router(dhcp-config)#domain-name Admin.com
Router(dhcp-config)#exit
Router(config)#
Router(config)#ip dhcp pool Finance-Pool
Router(dhcp-config)#network 192.168.1.64 255.255.255.192
Router(dhcp-config)#
Router(dhcp-config)#default-router 192.168.1.65
Router(dhcp-config)#
Router(dhcp-config)#dns-server 192.168.1.65
Router(dhcp-config)#
Router(dhcp-config)#domain name Finance.com
```

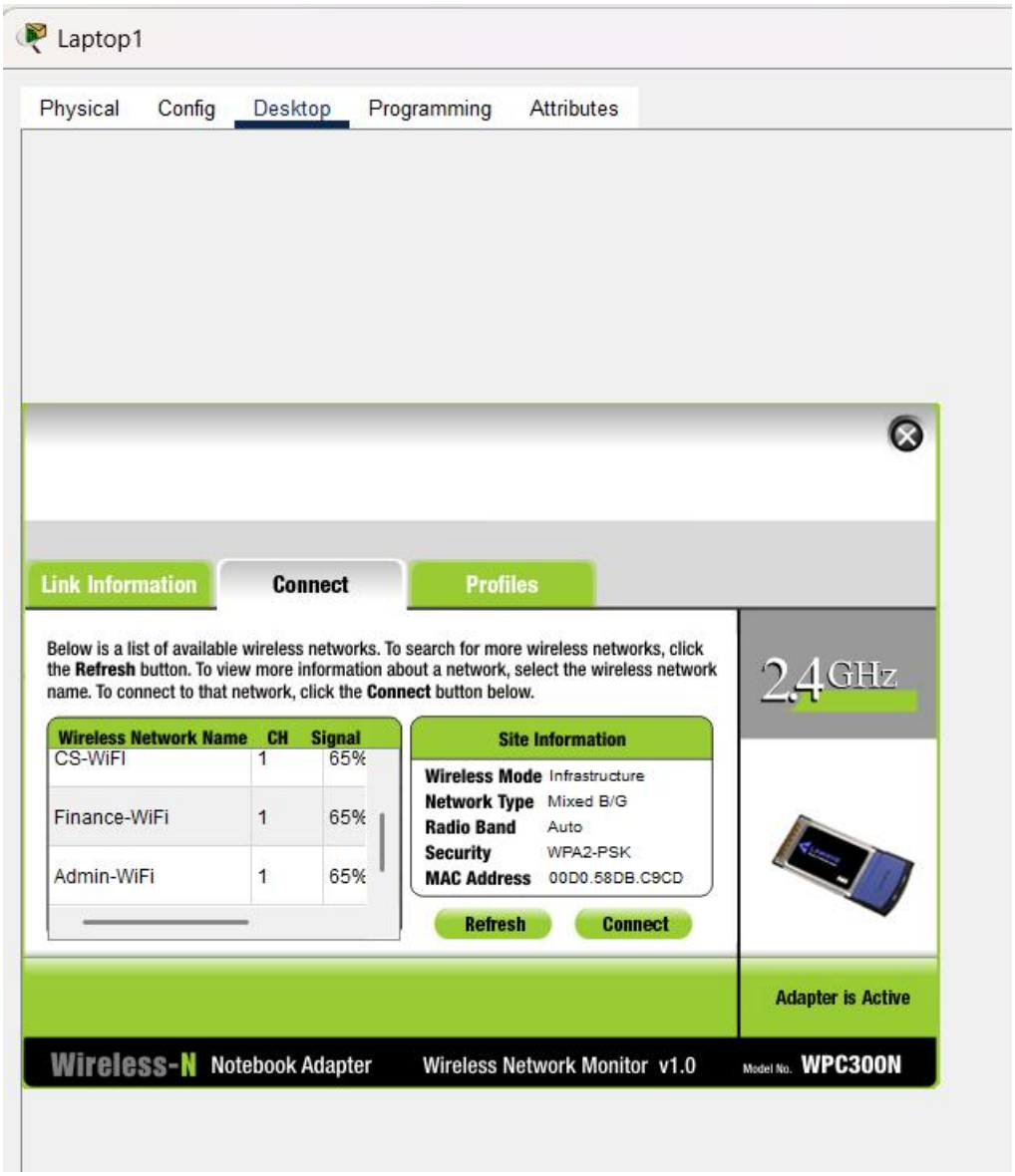
```
Router(config)#
Router(config)#ip dhcp pool Finance-Pool
Router(dhcp-config)#network 192.168.1.64 255.255.255.192
Router(dhcp-config)#
Router(dhcp-config)#default-router 192.168.1.65
Router(dhcp-config)#
Router(dhcp-config)#dns-server 192.168.1.65
Router(dhcp-config)#
Router(dhcp-config)#domain name Finance.com
                           ^
% Invalid input detected at '^' marker.

Router(dhcp-config)#
Router(dhcp-config)#
Router(dhcp-config)#exit
Router(config)#
Router(config)#
Router(config)#ip dhcp pool CS.com
Router(dhcp-config)#network 192.168.1.128 255.255.255.192
Router(dhcp-config)#
Router(dhcp-config)#default-router 192.168.1.129
Router(dhcp-config)#dns-server 192.168.1.129
Router(dhcp-config)#
Router(dhcp-config)#domain-name CS.com
Router(dhcp-config)#exit
Router(config)#
Router(config)#do wr
Building configuration...
[OK]
Router(config)#
```

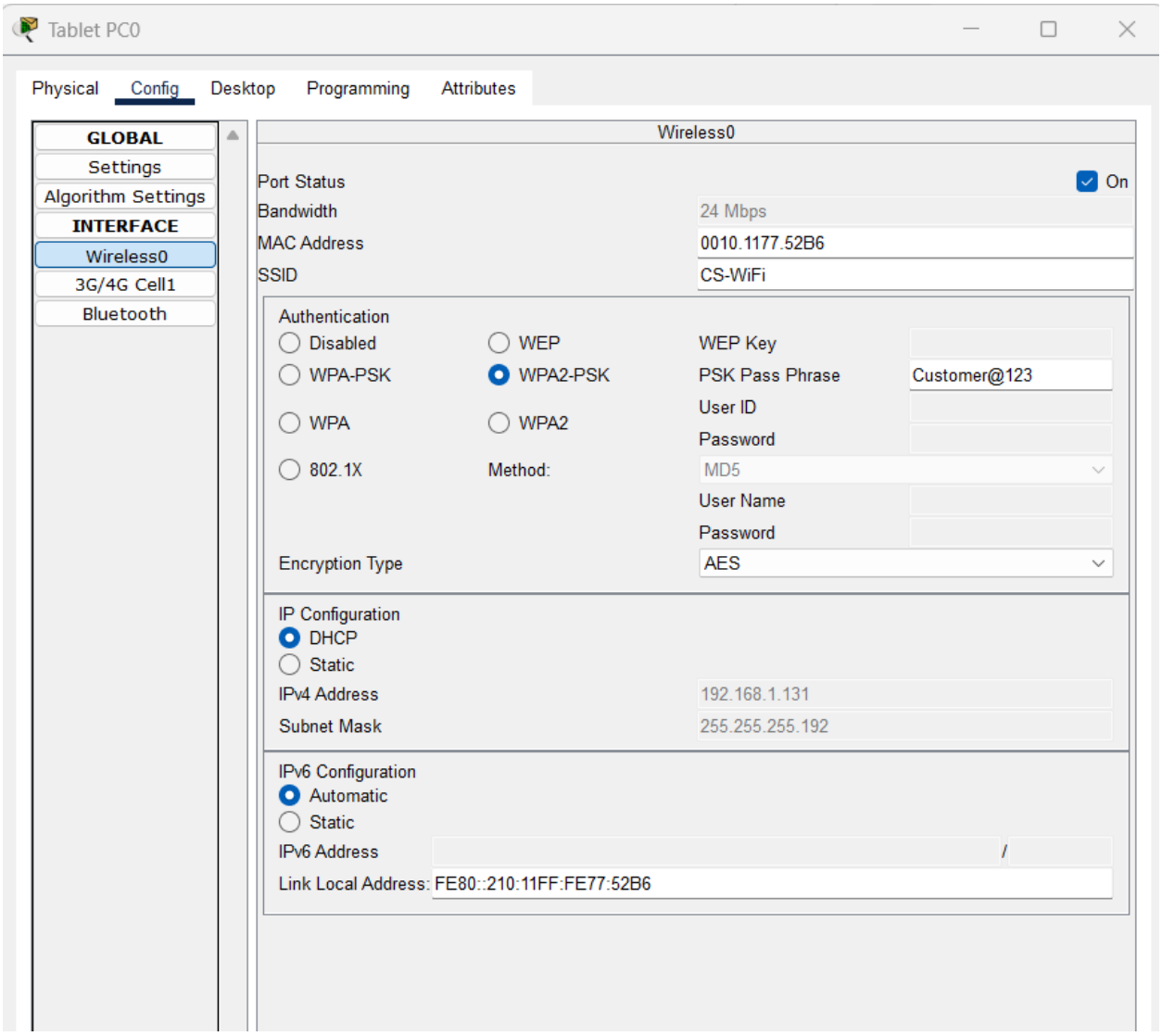
Devices in all departments are required to communicate with each other

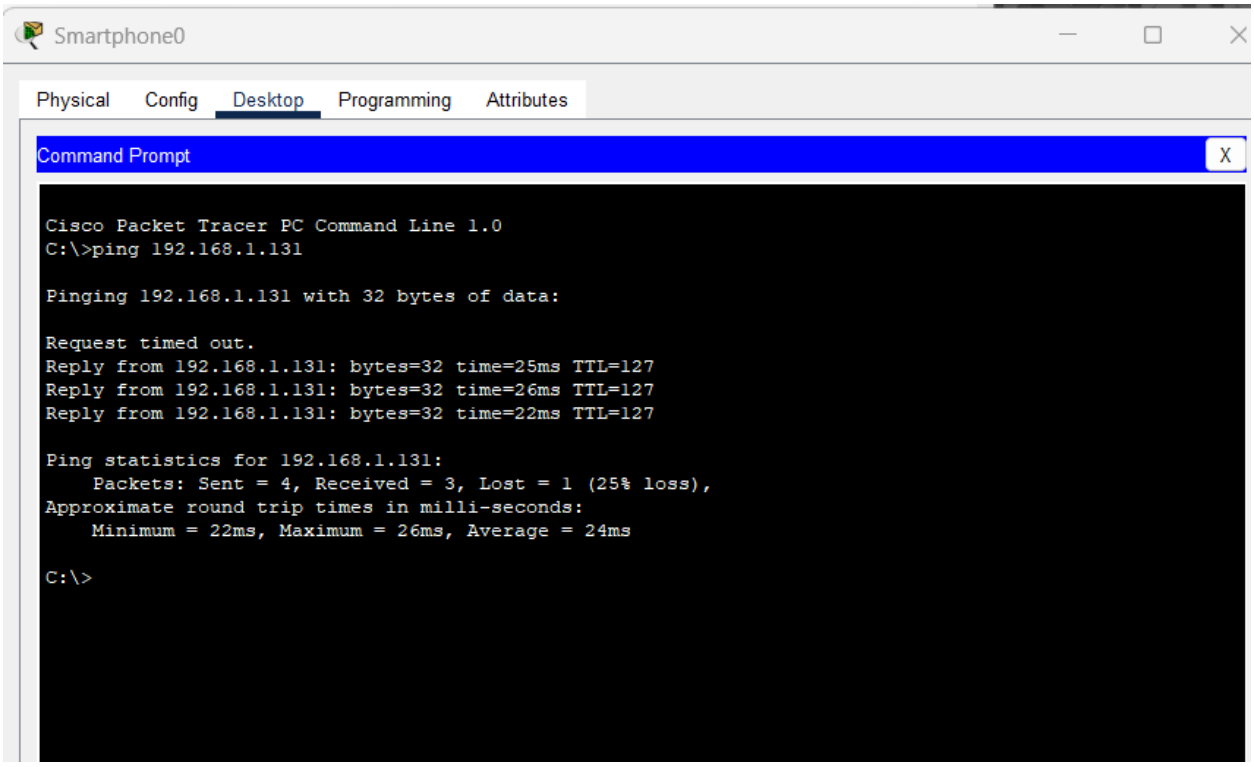
Smartphone



It has connected successfully




Tablet PC0
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
Wireless0
3G/4G Cell1
Bluetooth
Wireless0
Port Status
On
Bandwidth
24 Mbps
MAC Address
0010.1177.52B6
SSID
CS-WiFi
Authentication
Disabled
WEP
WEP Key
WPA-PSK
WPA2-PSK
PSK Pass Phrase
Customer@123
User ID
WPA
WPA2
Password
802.1X
Method:
MD5
User Name
Password
Encryption Type
AES
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.131
Subnet Mask
255.255.255.192
IPv6 Configuration
Automatic
Static
IPv6 Address
/
Link Local Address:
FE80::210:11FF:FE77:52B6


Smartphone0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.131
Pinging 192.168.1.131 with 32 bytes of data:
Request timed out.
Reply from 192.168.1.131: bytes=32 time=25ms TTL=127
Reply from 192.168.1.131: bytes=32 time=26ms TTL=127
Reply from 192.168.1.131: bytes=32 time=22ms TTL=127
Ping statistics for 192.168.1.131:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 22ms, Maximum = 26ms, Average = 24ms
C:\>