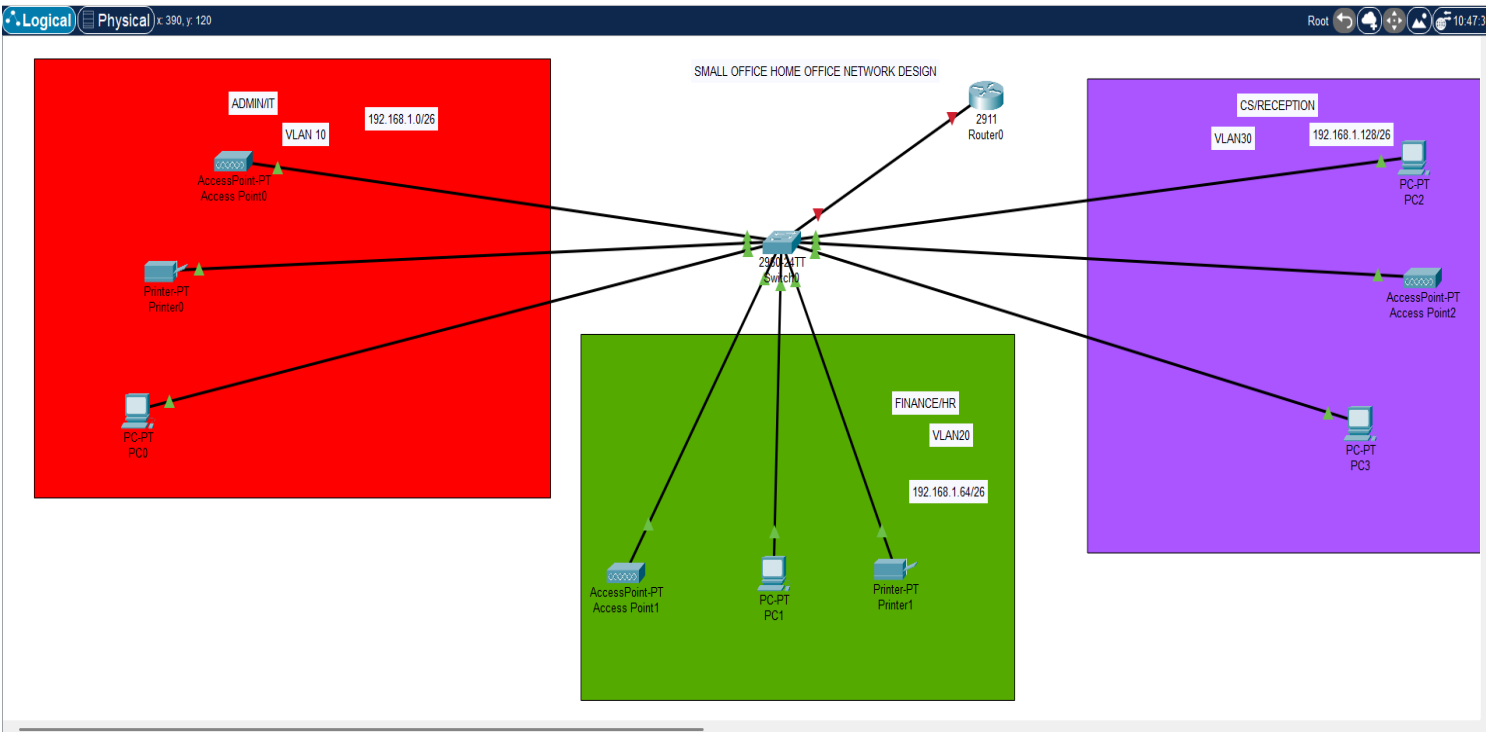


Small Office Home Office Network



# Creating VLAN 10

Switch0

Physical Config CLI Attributes

IOS Command Line Interface

```
Switch>enable
Switch#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#
%LINK-3-UPDOWN: Interface FastEthernet0/5, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/5, changed state to down

%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to up

%LINK-3-UPDOWN: Interface GigabitEthernet0/2, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to down

%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to up

%LINK-3-UPDOWN: Interface GigabitEthernet0/2, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to down

%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to up

Switch(config)#int range fa0/2-4
Switch(config-if-range)#
%LINK-3-UPDOWN: Interface GigabitEthernet0/2, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to down

%LINK-3-UPDOWN: Interface GigabitEthernet0/2, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to down

%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to up

%LINK-3-UPDOWN: Interface FastEthernet0/6, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to down

%LINK-3-UPDOWN: Interface GigabitEthernet0/1, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to down

%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/7, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7, changed state to up

%LINK-3-UPDOWN: Interface FastEthernet0/7, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7, changed state to down

%LINK-5-CHANGED: Interface FastEthernet0/7, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7, changed state to up

Switch(config-if-range)#
Switch(config-if-range)#int range fa0/5-7
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 10
% Access VLAN does not exist. Creating vlan 10
Switch(config-if-range)#
```

## 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)#inrange 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.

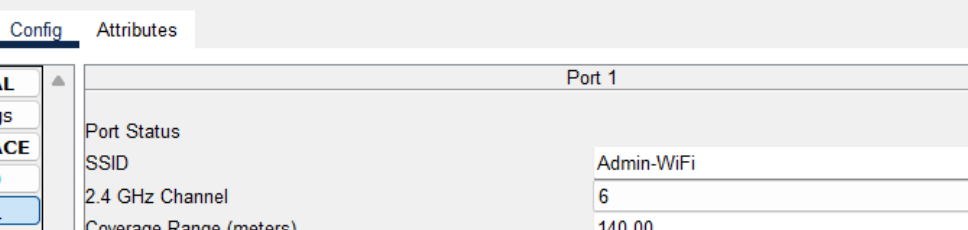
Switch(config-if-range)#switchport access vlan 30
% Access VLAN does not exist. Creating vlan 30
Switch(config-if-range)#
Switch(config-if-range)#
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#do show start
Using 1539 bytes
!
```

```
% 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 Point0

Physical **Config** Attributes

**GLOBAL**

Settings

**INTERFACE**

Port 0

**Port 1**

Port 1

Port Status ☒ On

SSID Admin-WiFi

2.4 GHz Channel 6

Coverage Range (meters) 140.00

Authentication

☐ Disabled ☐ WEP ☒ WPA2-PSK

WEP Key

PSK Pass Phrase Admin@123

User ID

Password

Encryption Type AES

Access Point1

Physical **Config** Attributes

**GLOBAL**

Settings

**INTERFACE**

Port 0

Port 1

Port 1

Port Status ☒ On

SSID Finance-WiFi

2.4 GHz Channel 6

Coverage Range (meters) 140.00

Authentication

☐ Disabled ☐ WEP ☒ WPA2-PSK

WEP Key

PSK Pass Phrase Finance@123

User ID

Password

Encryption Type AES

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

WPA-PSK

WEP

WPA2-PSK

WEP Key

PSK Pass Phrase

User ID

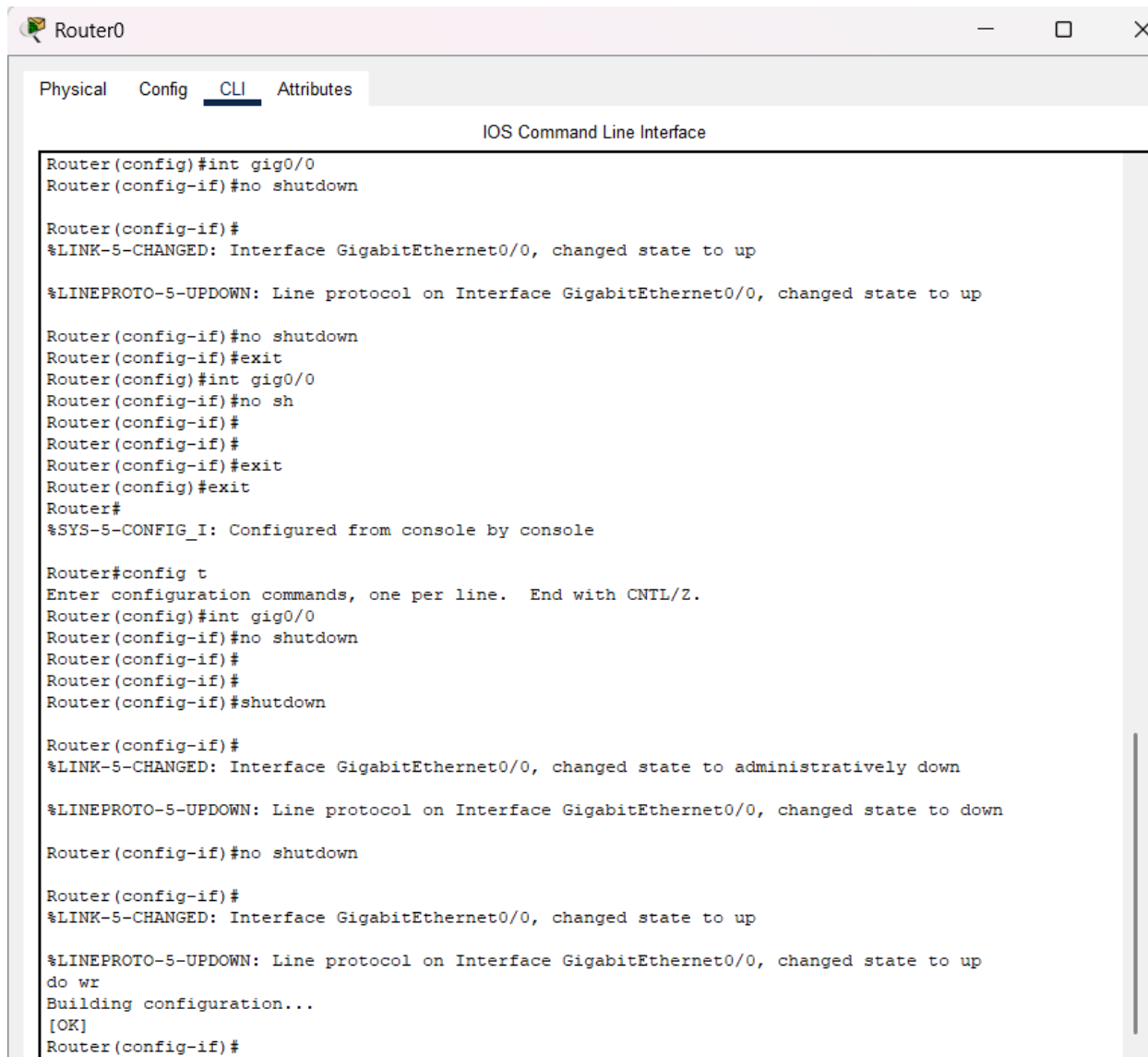
Password

Customer@123

Encryption Type

AES

## On the Router



The screenshot shows the Router0 CLI interface with the following commands and output:

```
Router0
Physical Config CLI Attributes
IOS Command Line Interface

Router(config)#int gig0/0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#int gig0/0
Router(config-if)#no sh
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int gig0/0
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#
Router(config-if)#shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to down

Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

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

To configure intervlan routing we create multiple subinterfaces

To create a subinterface

Configuring InterVLAN routing





Router0

PhysicalConfigCLIAttributes

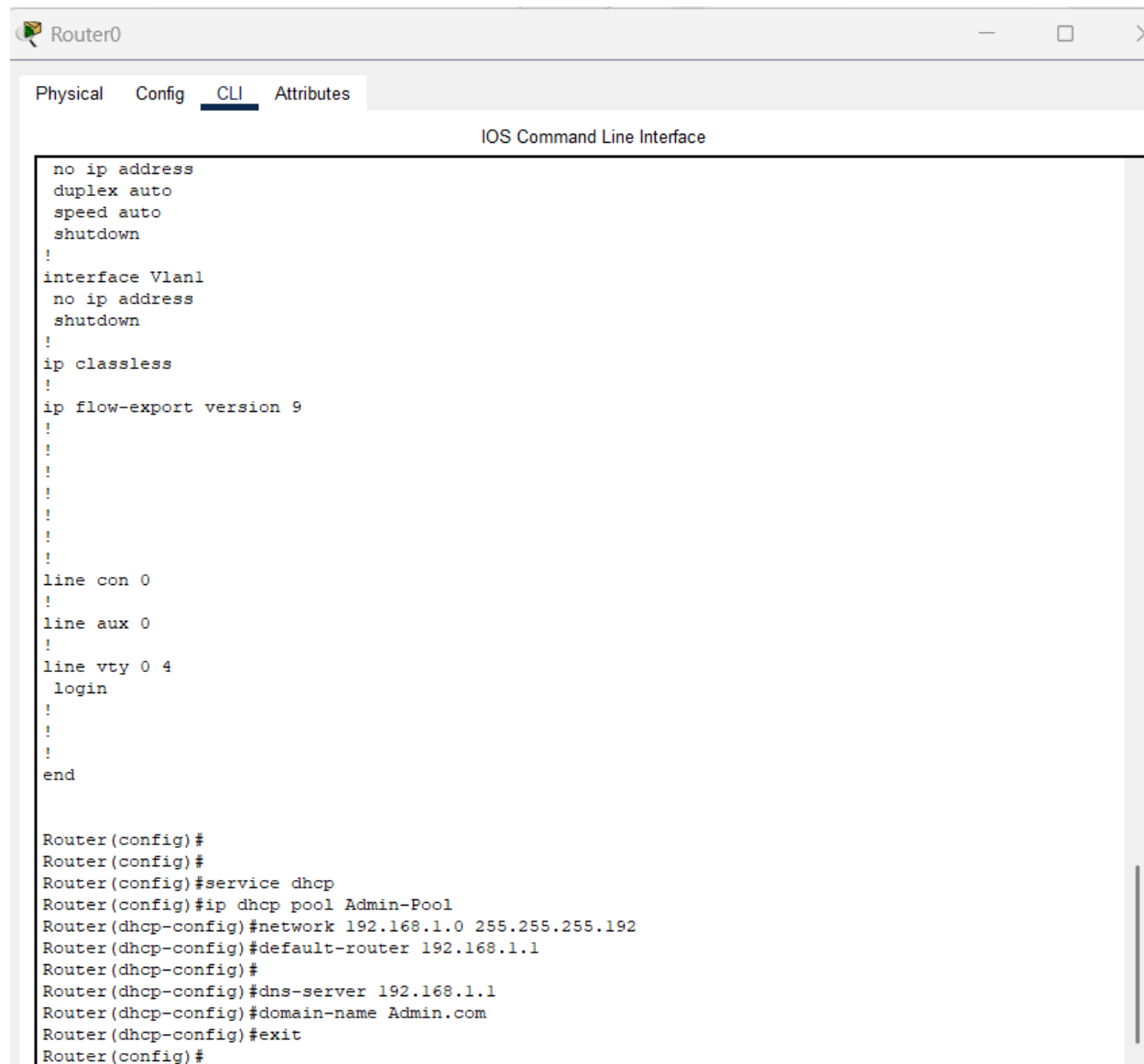
IOS Command Line Interface

```
!
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



The screenshot shows a Cisco Router CLI window titled "Router0". The window has tabs for "Physical", "Config", "CLI", and "Attributes", with "CLI" selected. The title bar also includes standard window controls (minimize, maximize, close). The main area is labeled "IOS Command Line Interface" and displays a series of configuration commands. The commands are as follows:

```
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
!
!
!
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)#
```

```
!  
!  
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)#
```

Smartphone

**Smartphone0**

Physical **Config** Desktop Programming Attributes

**GLOBAL**

- Settings
- Algorithm Settings

**INTERFACE**

- Wireless0**
- 3G/4G Cell1
- Bluetooth

### Wireless0

<b>Port Status</b>		<input checked="" type="checkbox"/> On
Bandwidth	11 Mbps	
MAC Address	00E0.8F93.3B4A	
SSID	Admin-WiFi	
<b>Authentication</b> <div style="display: flex; justify-content: space-between;"> <div> <input type="radio"/> Disabled   <input type="radio"/> WPA-PSK   <input type="radio"/> WPA   <input type="radio"/> 802.1X         </div> <div> <input type="radio"/> WEP  <input checked="" type="radio"/> WPA2-PSK   <input type="radio"/> WPA2            Method:         </div> <div>           WEP Key             PSK Pass Phrase            User ID            Password            User Name            Password         </div> </div>		
<b>Encryption Type</b>		AES
<b>IP Configuration</b> <input checked="" type="radio"/> DHCP <input type="radio"/> Static		
IPv4 Address	169.254.59.76	
Subnet Mask	255.255.0.0	
<b>IPv6 Configuration</b> <input checked="" type="radio"/> Automatic <input type="radio"/> Static		
IPv6 Address		
Link Local Address:	FE80::2E0:8FFF:FE93:3B4A	

It has connected successfully

Laptop1

PhysicalConfigDesktopProgrammingAttributes

Link InformationConnectProfiles

Below is a list of available wireless networks. To search for more wireless networks, click the **Refresh** button. To view more information about a network, select the wireless network name. To connect to that network, click the **Connect** button below.

Wireless Network Name	CH	Signal
CS-WiFi	1	65%
Finance-WiFi	1	65%
Admin-WiFi	1	65%

Site Information

Wireless ModeInfrastructure

Network TypeMixed B/G


Radio BandAuto

SecurityWPA2-PSK

MAC Address00D0.58DB.C9CD

RefreshConnect

2.4GHz



Adapter is Active

Wireless-N Notebook AdapterWireless Network Monitor v1.0Model No. WPC300N

**GLOBAL**

## Settings

Algorithm Settings

## INTERFACE

Wireless0

3G/4G Cell1

## Bluetooth

## Wireless0

☒ On

24 Mbps

0010.1177.52B6

CS-WiFi

## Authentication

☐ Disabled

○ WEP

☐ WPA-PSK

WPA2-PSK

WEP Key

PSK Pass Phrase

User ID

Password

MD5

User Name

Password

AES

## IP Configuration

 DHCP

○ Static

192.168.1.131

255.255.255.192

## IPv6 Configuration

☒ Automatic

○ Static

Link Local Address: FE80::210:11FF:FE77:52B6

