

JW4158-INFO8590-22S-Portfolio3

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INFO8590

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Lab <6> - <Implementing VoIP>Description

The purpose of this lab is to teach us how to configure a basic VoIP setup in Cisco Packet

Tracer. Preparation

To start with, place down a 2811 router as well as a 2960 switch. Also place down 3 IP phones and 3 PCs.

Observations

Connect the devices as shown in Figure 1.1. Now we will configure our switch and router using CLI commands.

Switch commands:

Switch >en

Switch #conf t

Switch(config)#vlan 10

Switch(config-vlan)#name DATA

Switch(config-vlan)#vlan 20

Switch(config-vlan)#name VOICE

Switch(config-vlan)#vlan 30

Switch(config-vlan)#name MGMT

Switch(config-vlan)#vlan 40

Switch(config-vlan)#name MISC

Switch(config-vlan)#vlan 50

Switch(config-vlan)#name NATIVE

Switch(config-vlan)#exit

Switch(config)#int fa0/1

Switch(config-if)#switchport mode trunk

```
Switch(config-if)#
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
```

```
Switch(config-if)#exit
```

```
Switch(config)#int range fa0/2-4
```

```
Switch(config-if-range)#switchport mode access
```

```
Switch(config-if-range)#switchport access vlan 10
```

```
Switch(config-if-range)#switchport voice vlan 20
```

```
Switch(config-if-range)#exit
```

```
Switch(config)#exit
```

```
Switch#
```

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

```
Switch#conf t
```

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

```
Switch(config)#int range fa0/5-24
```

```
Switch(config-if-range)#switchport mode access
```

```
Switch(config-if-range)#switchport access vlan 40
```

```
Switch(config-if-range)#exit
```

```
Switch(config)#exit
```

```
Switch#
```

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

```
Switch#show ip int bri
```

```
Interface IP-Address OK? Method Status Protocol
```

```
FastEthernet0/1 unassigned YES manual up up
```

FastEthernet0/2 unassigned YES manual up up

FastEthernet0/3 unassigned YES manual up up

FastEthernet0/4 unassigned YES manual down down

FastEthernet0/5 unassigned YES manual administratively down down

FastEthernet0/6 unassigned YES manual administratively down down

FastEthernet0/7 unassigned YES manual administratively down down

FastEthernet0/8 unassigned YES manual administratively down down

FastEthernet0/9 unassigned YES manual administratively down down

FastEthernet0/10 unassigned YES manual administratively down down

FastEthernet0/11 unassigned YES manual administratively down down

FastEthernet0/12 unassigned YES manual administratively down down

FastEthernet0/13 unassigned YES manual administratively down down

FastEthernet0/14 unassigned YES manual administratively down down

FastEthernet0/15 unassigned YES manual administratively down down

FastEthernet0/16 unassigned YES manual administratively down down

FastEthernet0/17 unassigned YES manual administratively down down

FastEthernet0/18 unassigned YES manual administratively down down

FastEthernet0/19 unassigned YES manual administratively down down

FastEthernet0/20 unassigned YES manual administratively down down

FastEthernet0/21 unassigned YES manual administratively down down

FastEthernet0/22 unassigned YES manual administratively down down

FastEthernet0/23 unassigned YES manual administratively down down

FastEthernet0/24 unassigned YES manual administratively down down

GigabitEthernet0/1 unassigned YES manual down down

GigabitEthernet0/2 unassigned YES manual down down

Vlan1 unassigned YES manual administratively down down Switch#

Switch#conf t

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

Switch(config)#int range gi0/1-2

Switch(config-if-range)#switchport mode access

Switch(config-if-range)#switchport access vlan 40

Switch(config-if-range)#exit

Switch(config)#exit

Switch#

%SYS-5-CONFIG_I: Configured from console by console Switch#show vlan bri

VLAN Name Status Ports

1 default active

10 DATA active Fa0/2, Fa0/3, Fa0/4

20 VOICE active Fa0/2, Fa0/3, Fa0/4

30 MGMT active

40 MISC active 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

50 NATIVE active

1002 fddi-default active

1003 token-ring-default active

1004 fddinet-default active

1005 trnet-default active

Switch#

%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to up

Switch con0 is now available

Press RETURN to get started.

Router commands:

Router>en

Router#conf t

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

Router(config)#int fa0/0.10

Router(config-subif)#encapsulation dot1Q 10

Router(config-subif)#ip address 192.168.0.1 255.255.255.0

Router(config-subif)#no shut

Router(config-subif)#exit

Router(config)#int fa0/0.20

Router(config-subif)#encapsulation dot1Q 20

Router(config-subif)#ip address 192.168.20.1 255.255.255.0

Router(config-subif)#exit

Router(config)#int fa0/0.10

```
Router(config-subif)#encapsulation dot1Q 10
Router(config-subif)#ip address 192.168.10.1 255.255.255.0
Router(config-subif)#no shut
Router(config-subif)#exit
```

```
Router(config)#int fa0/0.50
Router(config-subif)#encapsulation dot1Q 30
Router(config-subif)#encapsulation dot1Q 50 native
Router(config-subif)#exit
Router(config)#int fa0/0
Router(config-if)#no shutdown
```

```
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state
to up
```

```
%LINK-5-CHANGED: Interface FastEthernet0/0.10, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.10, changed
state to up
```

```
%LINK-5-CHANGED: Interface FastEthernet0/0.20, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.20, changed
state to up
```


%LINK-5-CHANGED: Interface FastEthernet0/0.50, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.50, changed state to up

exit

Router(config)#

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.10, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.20, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.50, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.10, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.20, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.50, changed state to up

```
Router(config)#encapsulation dot1Q 10
Router(config)#ip dhcp excluded-address 192.168.10.1 192.168.10.5
Router(config)#ip dhcp excluded-address 192.168.20.1 192.168.20.5
Router(config)#ip dhcp pool DATA10
Router(dhcp-config)#default-router 192.168.10.1
Router(dhcp-config)#exit
Router(config)#ip dhcp pool VOICE20
Router(dhcp-config)#network 192.168.20.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.20.1
Router(dhcp-config)#option 150 ip 192.168.20.1
Router(dhcp-config)#exit
Router(config)#telephony-service
Router(config-telephony)#max-dn 3
Router(config-telephony)#max-ephones 3
Router(config-telephony)#ip source-address 192.168.20.1 port 2000
Router(config-telephony)#ephone-dn 1
Router(config-ephone-dn)%%LINK-3-UPDOWN: Interface ephone_dsp DN 1.1, changed
state to up
number 1010
Router(config-ephone-dn)#ephone-dn 2
Router(config-ephone-dn)%%LINK-3-UPDOWN: Interface ephone_dsp DN 2.1, changed
state to up
number 1020
Router(config-ephone-dn)#ephone-dn 3
Router(config-ephone-dn)%%LINK-3-UPDOWN: Interface ephone_dsp DN 3.1, changed
state to up
number 1030
Router(config-ephone-dn)#exit
```

```
Router(config)#ephone 1
```

```
Router(config-ephone)#type 7960
```

```
Router(config-ephone)#button 1:1
```

```
Router(config-ephone)#ephone 2
```

```
Router(config-ephone)#type 7
```

```
Router(config-ephone)#but
```

```
%IPPHONE-6-REGISTER: ephone-1 IP:192.168.20.6 Socket:2 DeviceType:Phone has  
registered.
```

```
Router(config-ephone)#button 1:2
```

```
Router(config-ephone)#
```

```
%IPPHONE-6-REGISTER: ephone-2 IP:192.168.20.7 Socket:2 DeviceType:Phone has  
registered.
```

```
ephone 3
```

```
Router(config-ephone)#type 7960
```

```
Router(config-ephone)#button 1:3
```

```
Router(config-ephone)#
```

```
%IPPHONE-6-REGISTER: ephone-3 IP:192.168.20.8 Socket:2 DeviceType:Phone has  
registered.
```

The phones should now be able to call each other.

Figure 1.2 - Successful connection.

Reflection

I didn't run into any issues during this lab but I know some people who did so I would follow the CLI commands very carefully.

References

1. eConestoga, 2022 (Lab 6 – Implementing VoIP, retrieved from <https://conestoga.desire2learn.com/d2l/le/content/591148/viewContent/12779240/View> on August 14, 2022)