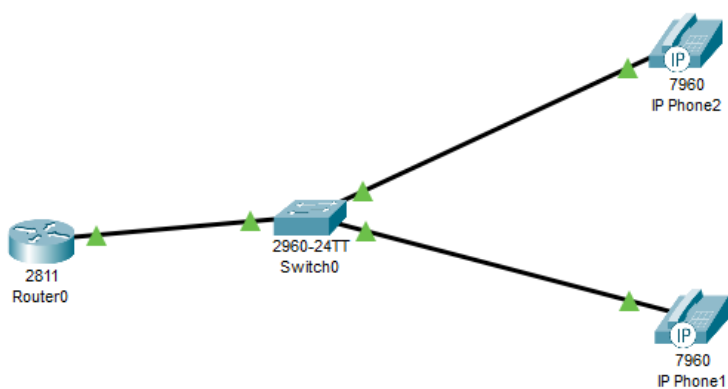


Researched by: Leyla Aliyeva

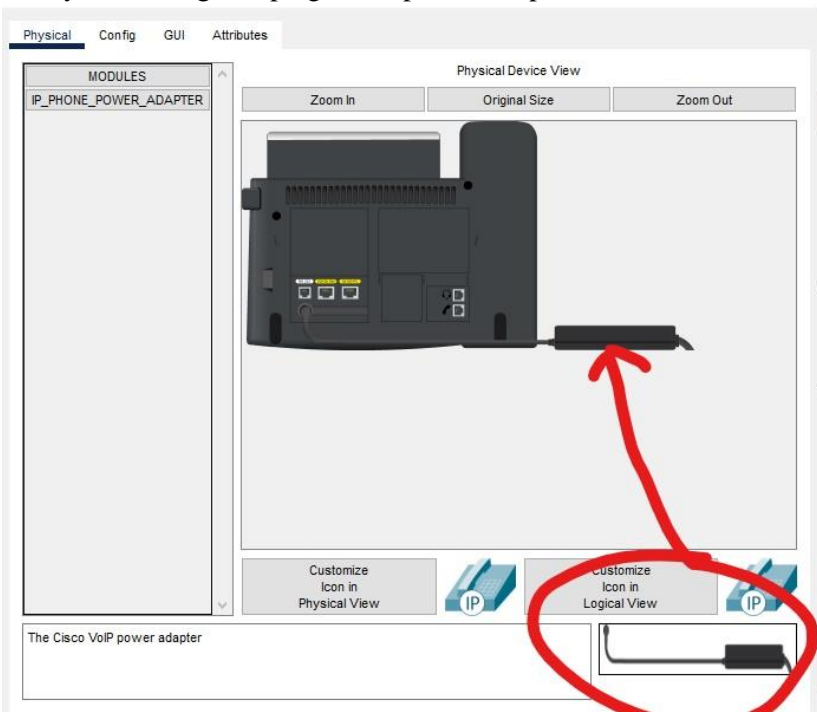
## Packet Tracer - IP telephony configuration

**Main Network topology:**



## 1 . Configure interface FastEthernet 0/0 and DHCP server on Router0 (2811 router)

Firstly, don't forget to plug-in adapter to the phone:



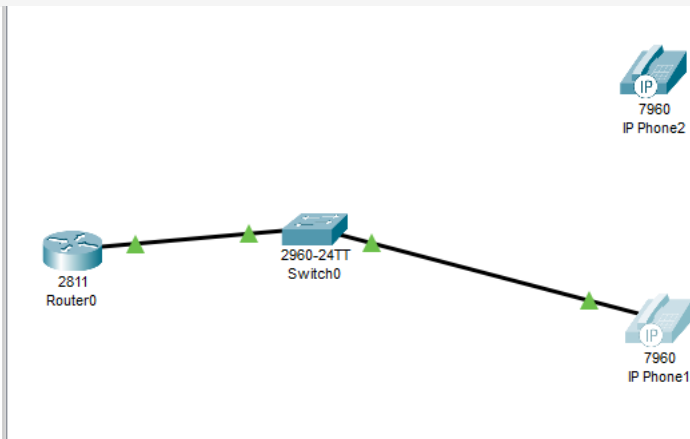
```
Router0>enable
```

```
Router0#configure terminal
```

```
Router0(config)#interface FastEthernet0/0
```

```
Router0(config-if)#ip address 192.168.10.1 255.255.255.0
```

```
Router0(config-if)#no shutdown
```



The DHCP server is needed to provide each IP phone connected to the network with an IP address and the TFTP server location.

```
Router0(config)#ip dhcp pool VOICE #Create DHCP pool named VOICE
Router0(dhcp-config)#network 192.168.10.0 255.255.255.0 #DHCP network network 192.168.10 with /24 mask#
Router0(dhcp-config)#default-router 192.168.10.1 #The default router IP address#
Router0(dhcp-config)#option 150 ip 192.168.10.1 #Mandatory for voip configuration.
```

After configuring the ISR router, wait a moment and check that 'IP Phone 1' has received an IP address by placing your cursor over the phone until a configuration summary appears.

## 2 . Configure the Call Manager Express telephony service on Router0

You must now configure the Call Manager Express telephony service on Router0 to enable voip on your network.

```
Router0(config)#telephony-service #Configuring the router for telephony services#
Router0(config-telephony)#max-dn 5 #Define the maximum number of directory numbers#
Router0(config-telephony)#max-ephones 5 #Define the maximum number of phones#
Router0(config-telephony)#ip source-address 192.168.10.1 port 2000 #IP Address source#
Router0(config-telephony)#auto assign 4 to 6 #Automatically assigning ext numbers to buttons#
Router0(config-telephony)#auto assign 1 to 5 #Automatically assigning ext numbers to buttons#
```

## 3. Configure a voice vlan on Switch0

Apply the following configuration on Switch0 interfaces. This configuration will separate voice and data traffic in different vlans on Switch0. data packets will be carried on the access vlan.

```
Switch0(config)#interface range fa0/1 – 5 #Configure interface range#
Switch0(config-if-range)#switchport mode access
Switch0(config-if-range)#switchport voice vlan 1 #Define the VLAN on which voice packets will be handled#
Switch0(config)#do copy running-config startup-config
```

#### 4 . Configure the phone directory for IP Phone 1

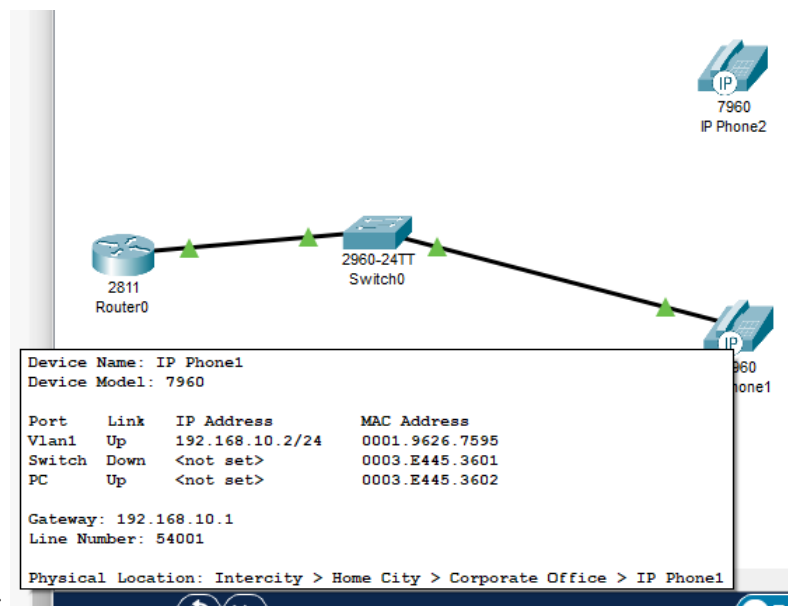
Although 'IP Phone 1' is already connected to Switch0, it needs additional configuration before being able to communicate. You need to configure Router0 CME to assign a phone number to this IP phone.

```
Router0(config)#ephone-dn 1 #Defining the first directory entry#
```

```
Router0(config-ephone-dn)#number 54001 #Assign the phone number to this entry#
```

#### 5 . Verify the configuration

Ensure that the IP Phone receives an IP Address and a the phone number 54001 from Router0 (this can take a short while).



IP address assigned to IP Phone1:

#### 6 . Configure the phone directory for IP Phone 2

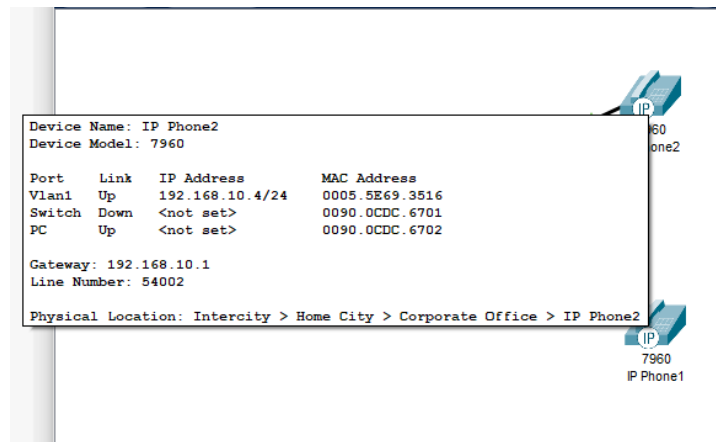
Connect IP Phone 2 to Switch0 and power the phone ON using the power adapter (Physical tab).

```
Router0(config)#ephone-dn 2 #Defining the first directory entry#
```

```
Router0(config-ephone-dn)#number 54002 #Assign the phone number to this entry#
```

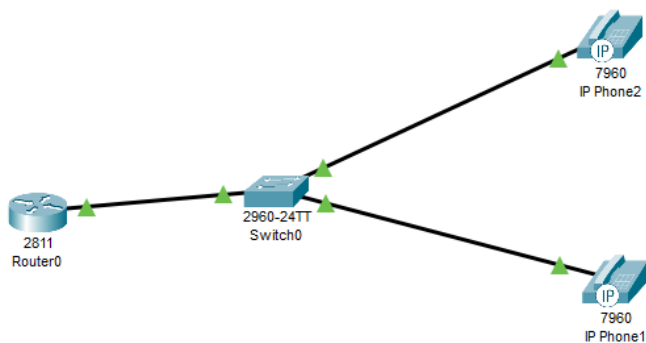
```
Router0(config-ephone-dn)#exit
```

```
Router0(config)#do copy running-config startup-config
```



IP address assigned to IP Phone2:

FINAL TOPOLOGY:



## 7 . Verify the configuration

Ensure that the IP Phone 2 receives an IP Address and a the phone number 54002 from Router0

Dial 54001 and check if IP phone 1 correctly receives the call.

Dial 54002 and check if IP phone 2 correctly receives the call.