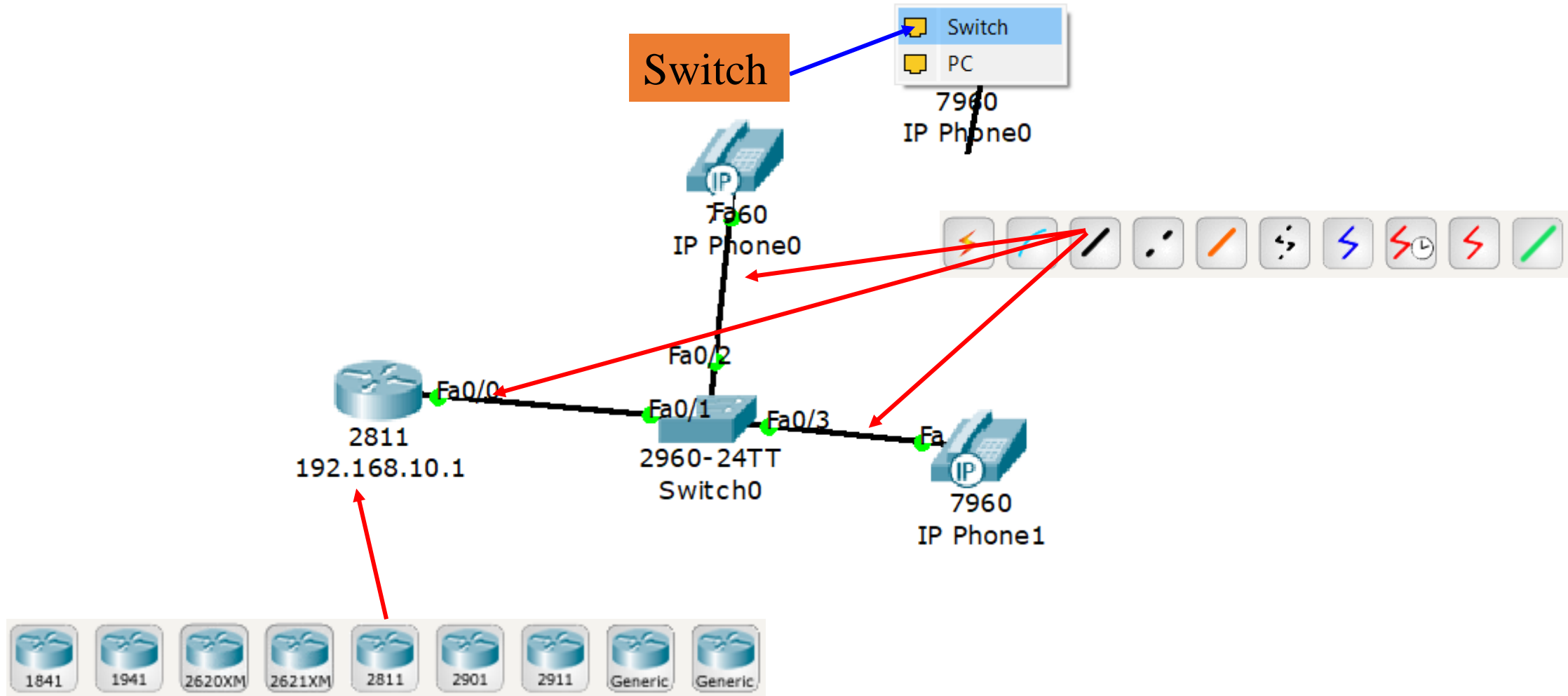


IP Telephony

Objective of this experiment is to implement a small network of IP telephony. Each telephone will be verified with its content of IP address and corresponding telephone number. Finally, the network will be tested by dialing to each other IP phone.

Step-1

Implement the IP telephony circuit likes below. During connection to the IP phone the option **PC** should be selected.



Step-2

```
Router>en
```

```
Router#conf t
```

```
Router(config)#int fa0/0
```

```
Router(config-if)#ip add 192.168.10.1 255.255.255.0
```

```
Router(config-if)#no shut
```

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

```
Router(config)#ip dhcp pool VOICE
```

```
Router(dhcp-config)#network 192.168.10.0 255.255.255.0
```

```
Router(dhcp-config)#default-router 192.168.10.1
```

```
Router(dhcp-config)#option 150 ip 192.168.10.1
```

```
Router(dhcp-config)#exit
```

When a Cisco IP Phone starts, if it does not have both the IP address and TFTP (Trivial File Transfer Protocol) server IP address, it sends a request with option 150 to the DHCP server to obtain this information.

Router(config)#telephony-service

% The router is configured for telephony services

Router(config-telephony)#max-dn 5

%the maximum number telephone line with phone number

Router(config-telephony)#max-ephone 20

%To set the maximum number of Cisco IP phones to get IP under DHCP

Router(config-telephony)#ip source-address 192.168.10.1 port 2000

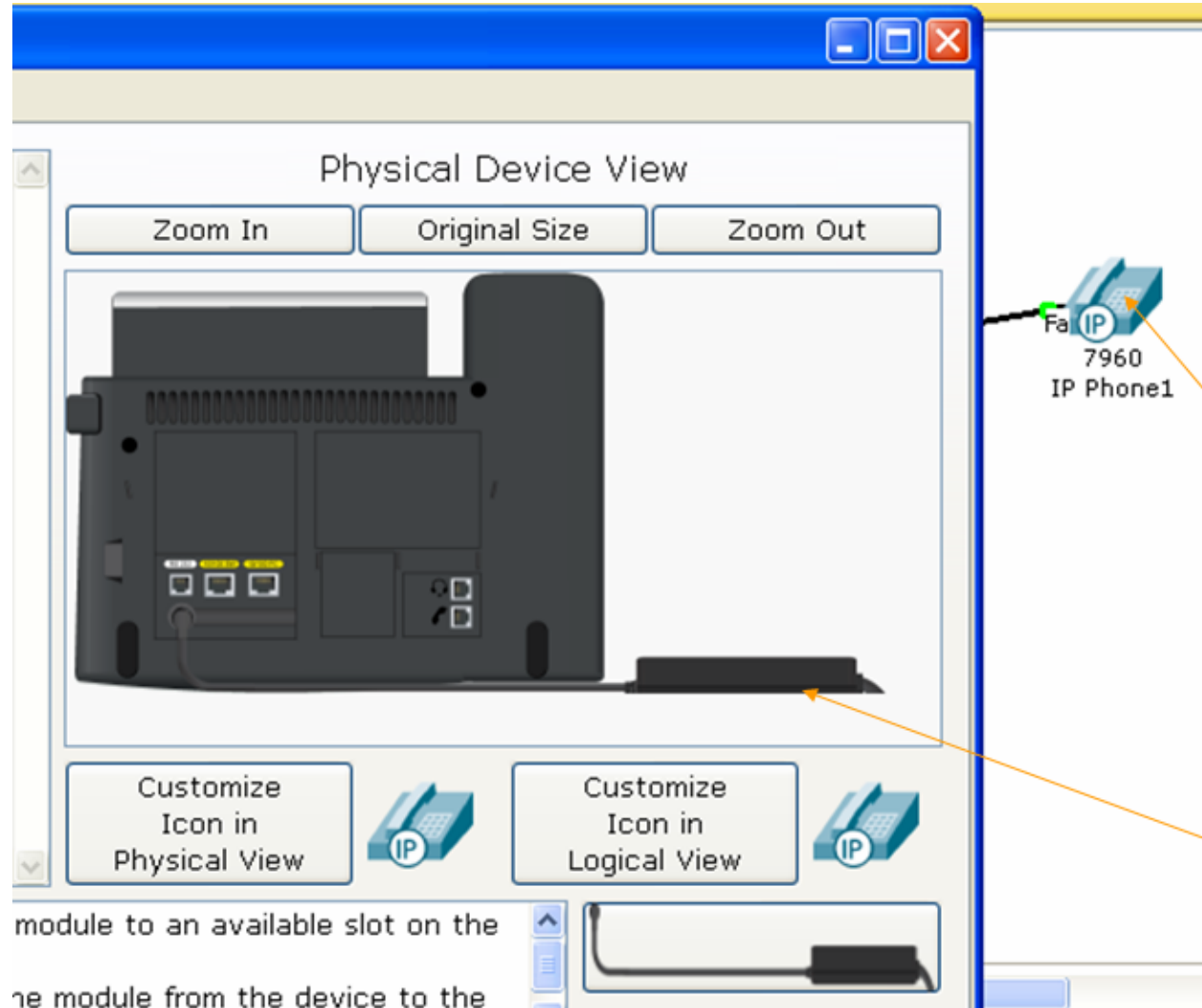
%TCP port 2000

Router(config-telephony)#auto assign 1 to 5 % ext numbers

Directory Number is a phone number assigned to a specific phone or voice endpoint.

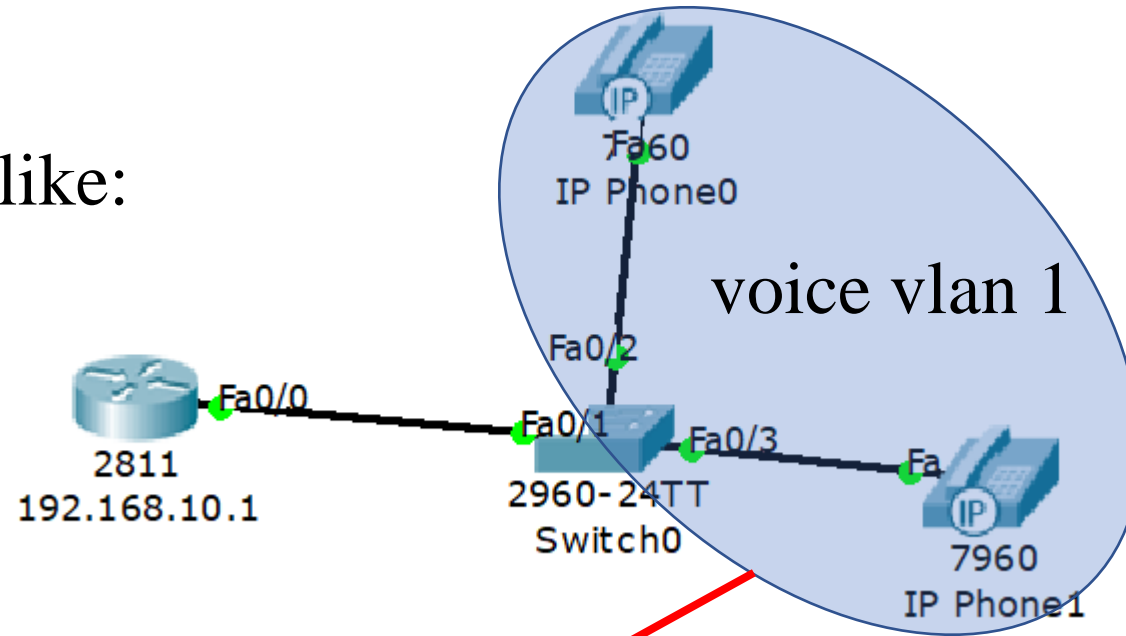
Step-3

Plug in both the telephones.



Step-4

Configure the switch using CLI like:



Ports fa0/2 to fa0/23 are under vlan 1

```
Switch>en
```

```
Switch#conf t
```

```
Switch(config)#int range fa0/2-23
```

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

```
Switch(config-if-range)#switchport voice vlan 1
```

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

Step-5

Configure the router again like:

```
Router(config-telephony)#exit
```

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

```
Router(config-ephone-dn)#number 54001
```

```
% phone calling number
```

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


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

```
Router(config-ephone-dn)#number 54002
```

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

Step-6

Verify the configuration of both IP telephone.




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Link	IP Address	MAC Address
Up	192.168.10.3/24	0006.2A8E.5895

Gateway: 192.168.10.1
Line Number: 54001

Physical Location: Intercity, Home City, Corporate Office, Main Wiring Closet

2



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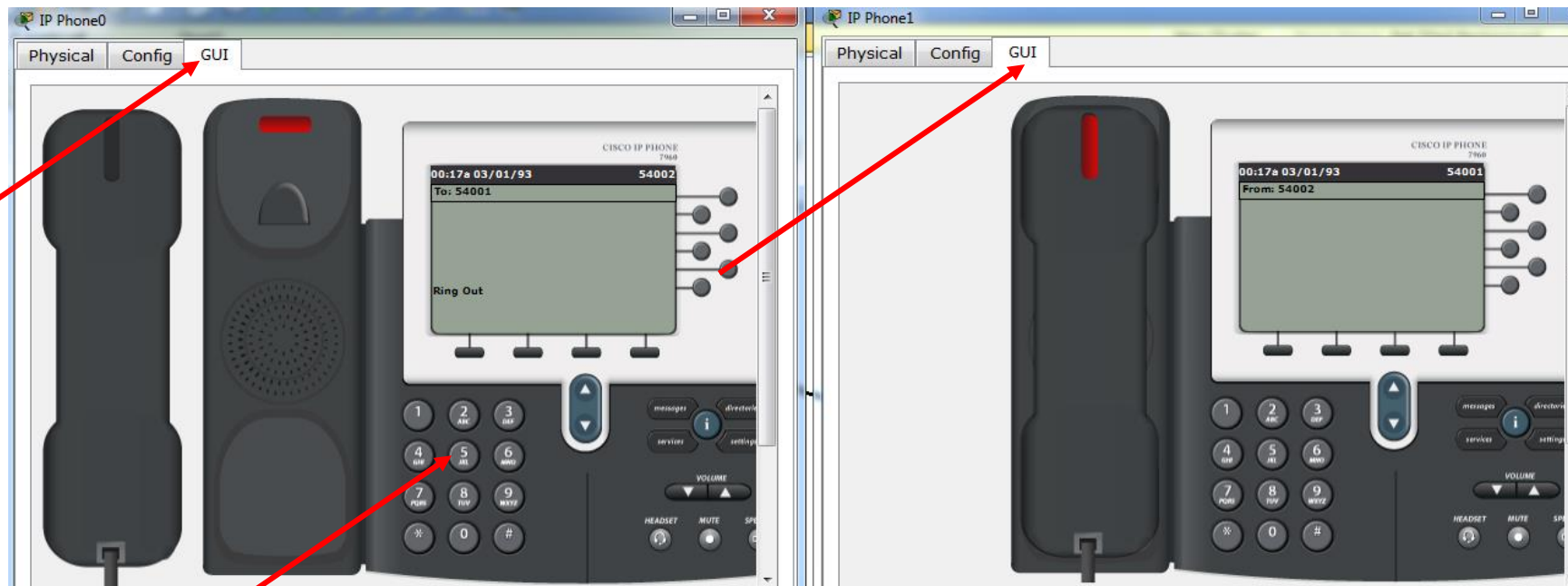
Link	IP Address	MAC Address
Up	192.168.10.2/24	0060.2F58.D48E

Gateway: 192.168.10.1
Line Number: 54002

Physical Location: Intercity, Home City, Corporate Office, Main Wiring Closet

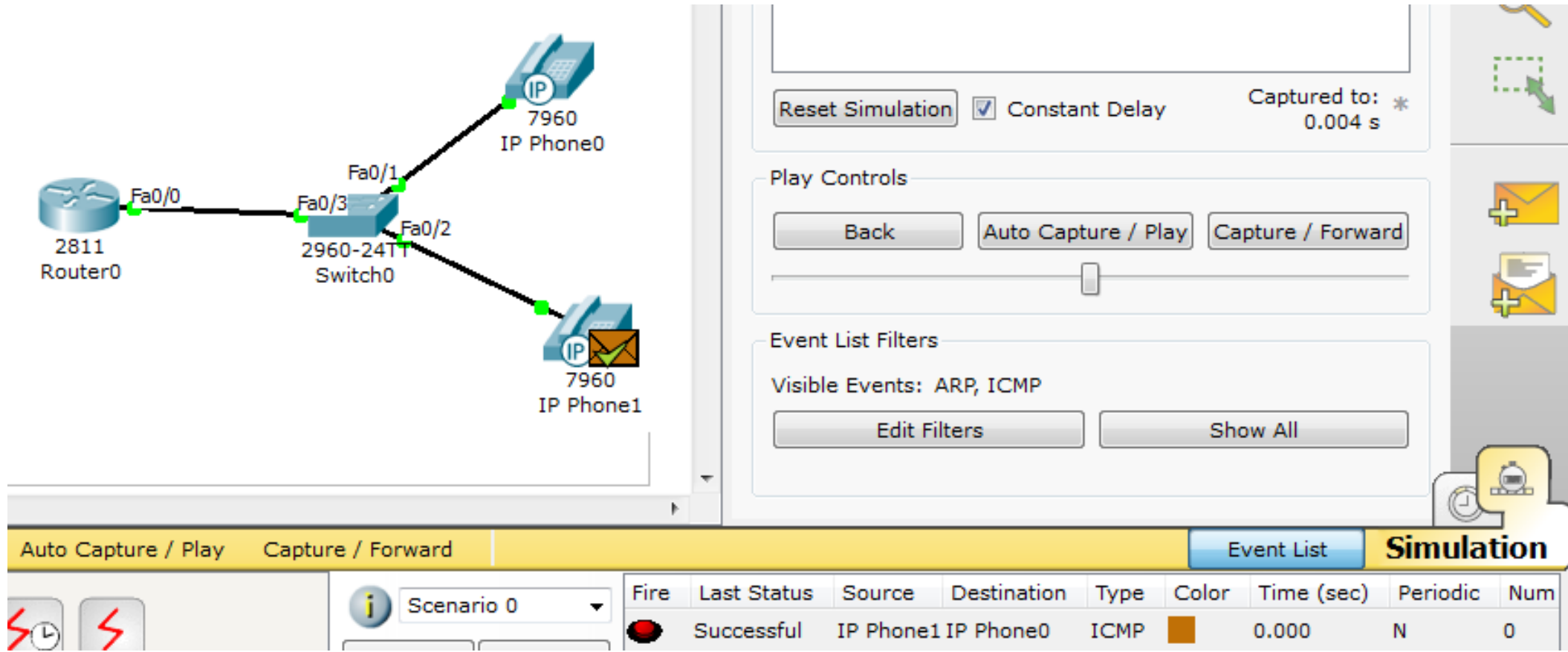
Step-7

Verify the circuit with dialing.



Step-8

You may verify the routing of packet under simulation mode.



For the following figure let us implement IP telephony again.

