# 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.
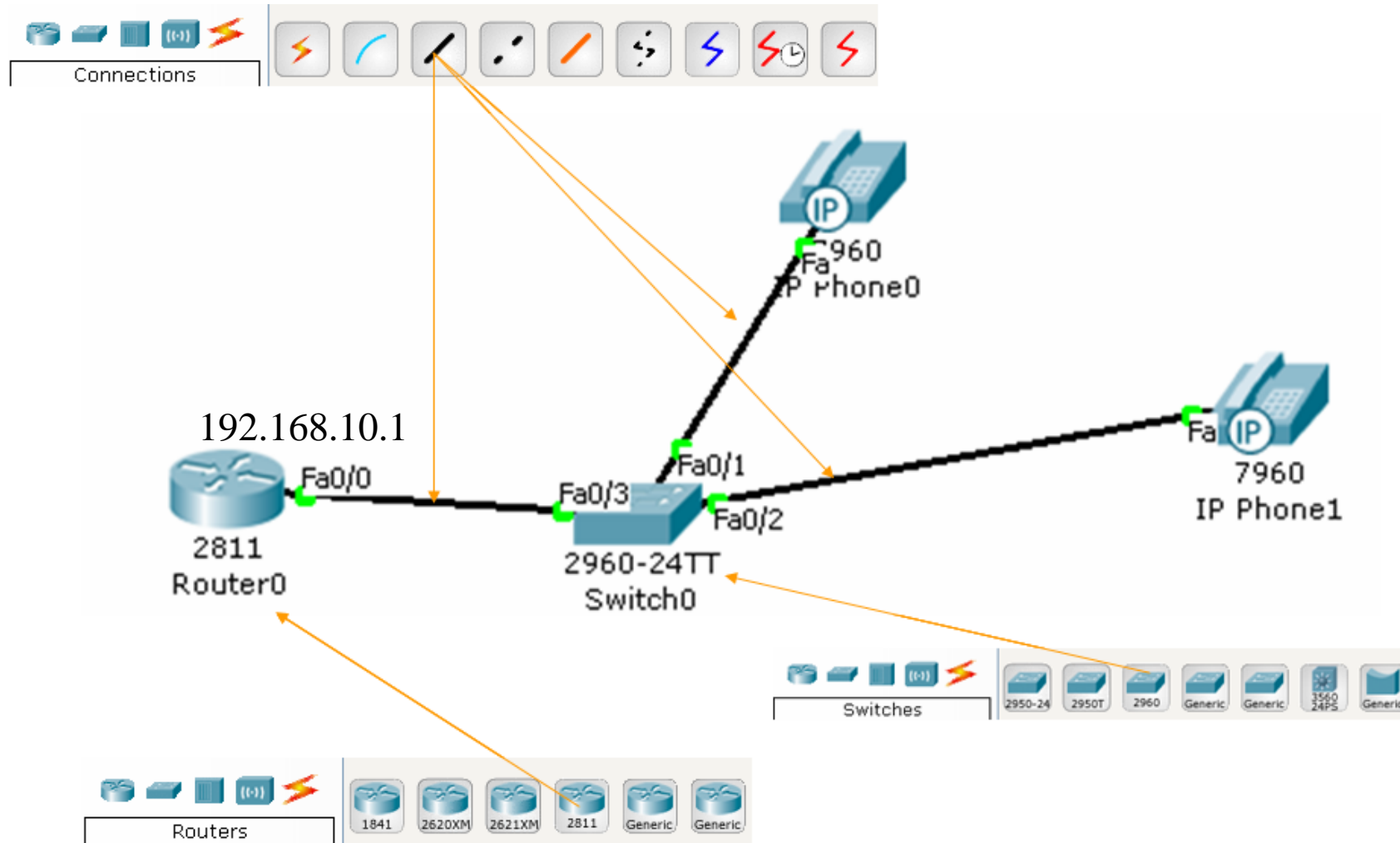
Step-2

```
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 of extensions (ephone-dns) to be supported by a Cisco router

Router(config-telephony)#max-ephone 20

%To set the maximum number of Cisco IP phones to be supported by a Cisco router

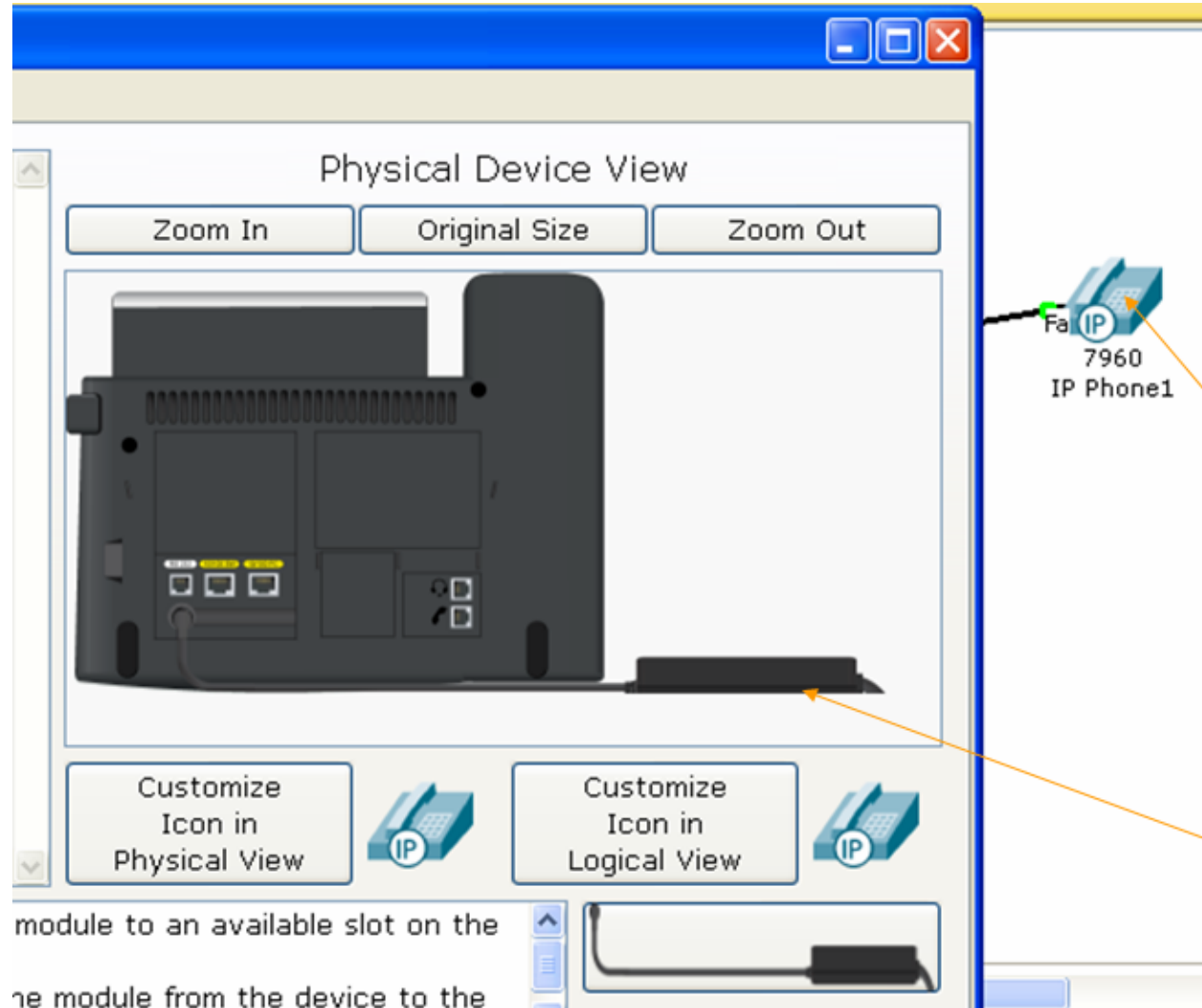Router(config-telephony)#ip source-address 192.168.10.1 port 2000

%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:

```
Switch>en
Switch#conf t
Switch(config)#int range fa0/1-21
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.

Step-7
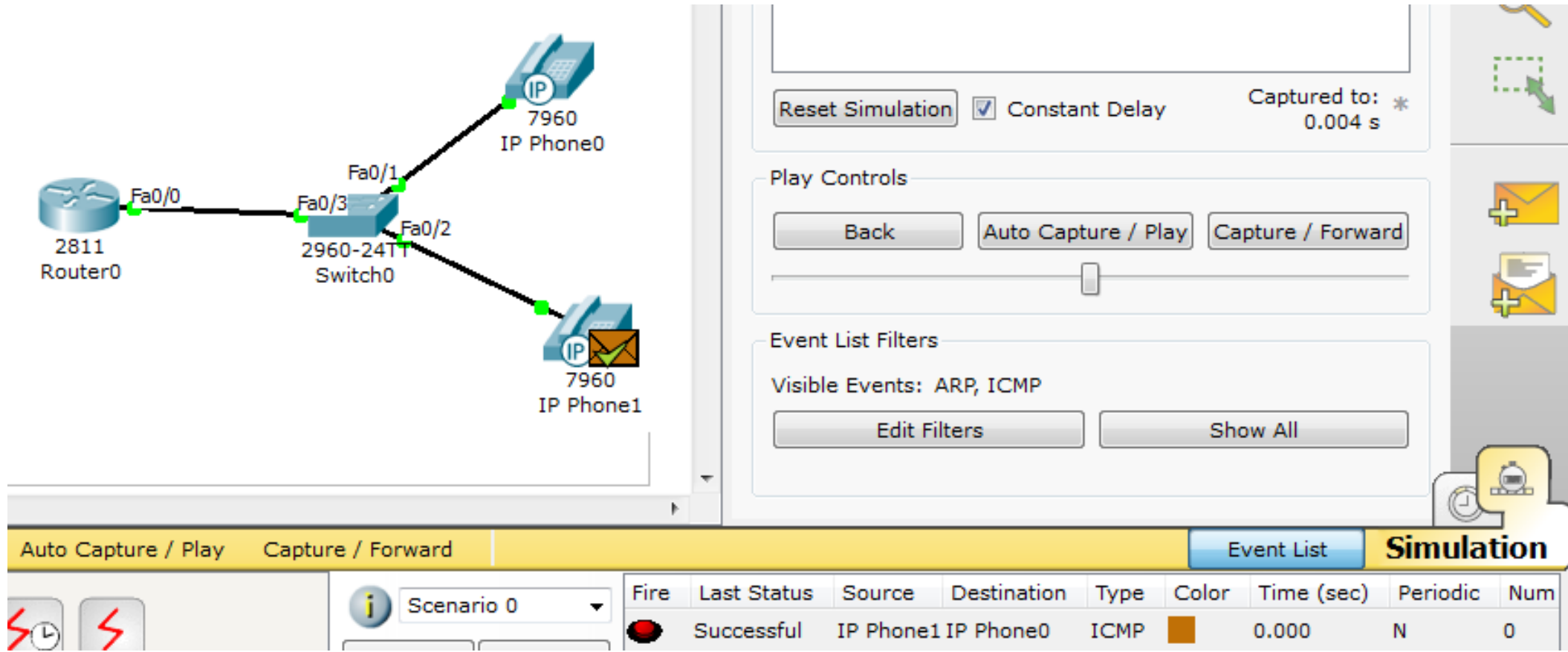Verify the circuit with dialing.
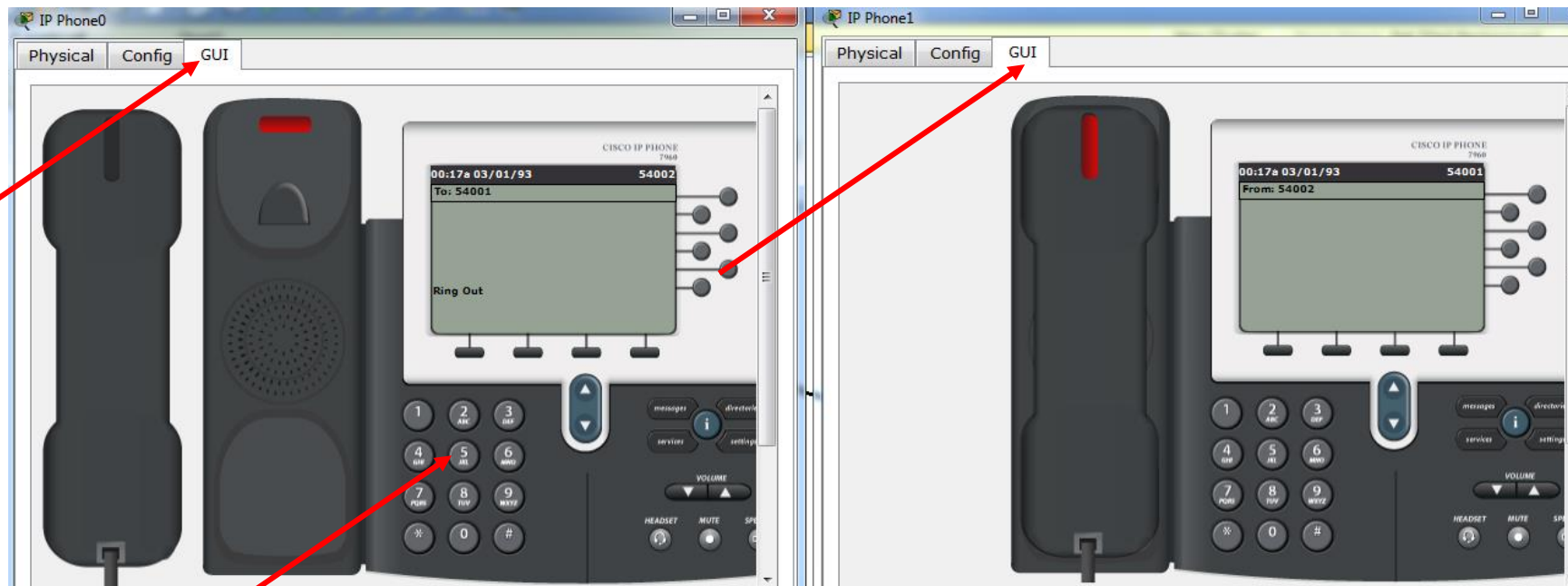
Step-8
You may verify the routing of packet under simulation mode.

For the following figure let us implement IP telephony again.