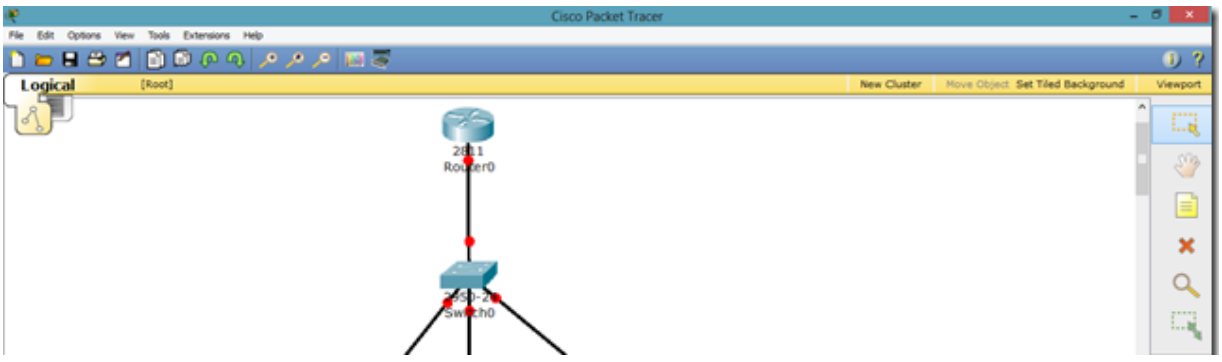
Voice over IP (VOIP) on packet tracer[1]

Voice over IP (VoIP, or voice over Internet Protocol) commonly refers to the communication protocols, technologies, methodologies, and transmission techniques involved in the delivery of voice communications and multimedia sessions over Internet Protocol (IP) networks, such as the Internet. Other terms commonly associated with VoIP are IP telephony,Internet telephony, voice over broadband (VoBB), broadband telephony, IP communications, and broadband phone.

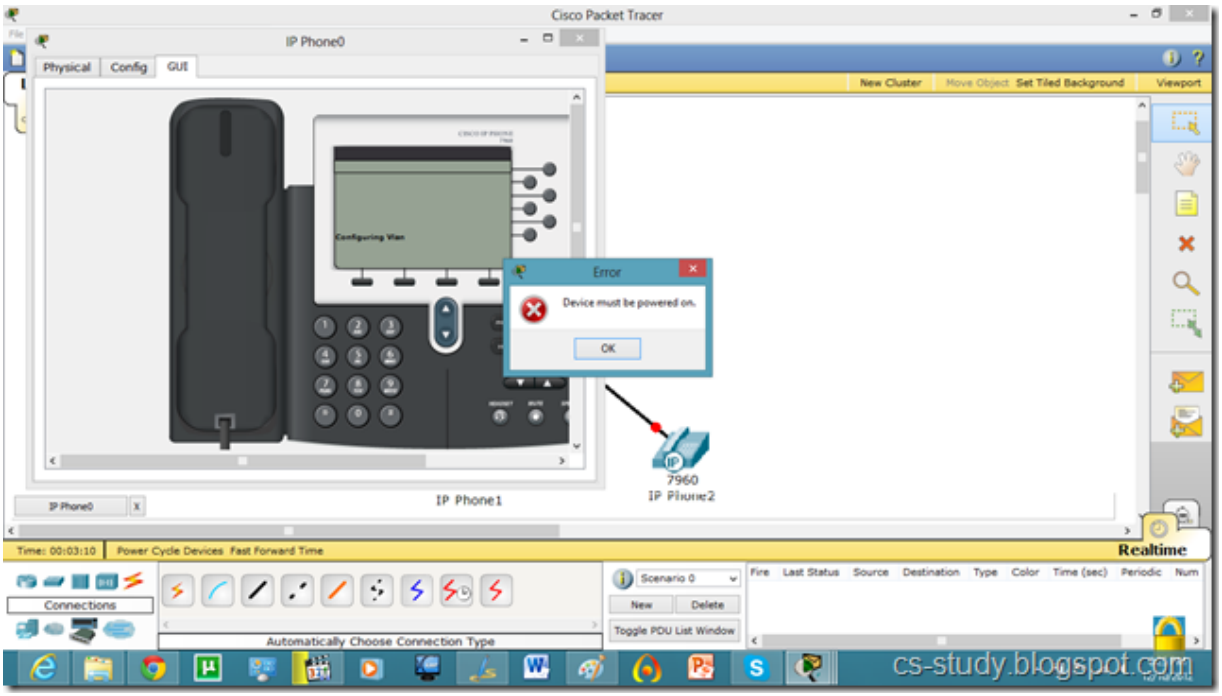
Internet telephony refers to communications services —voice, fax, SMS, and/or voice-messaging applications— that are transported via the Internet, rather than the public switched telephone network (PSTN). The steps involved in originating a VoIP telephone call are signaling and media channel setup, digitization of the analog voice signal, encoding, packetization, and transmission as Internet Protocol (IP) packets over a packet-switched network. On the receiving side, similar steps (usually in the reverse order) such as reception of the IP packets, decoding of the packets and digital-to-analog conversion reproduce the original voice stream. Even though IP telephony and VoIP are used interchangeably, IP telephony refers to all use of IP protocols for voice communication by digital telephony systems, while VoIP is one technology used by IP telephony to transport phone calls

Let us apply it on packet tracer.



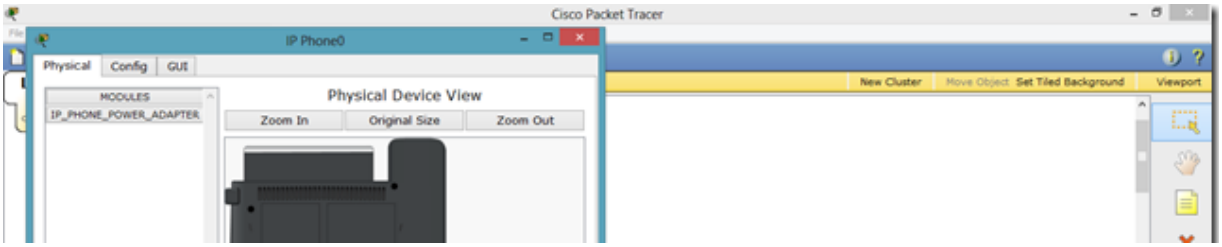
[2]

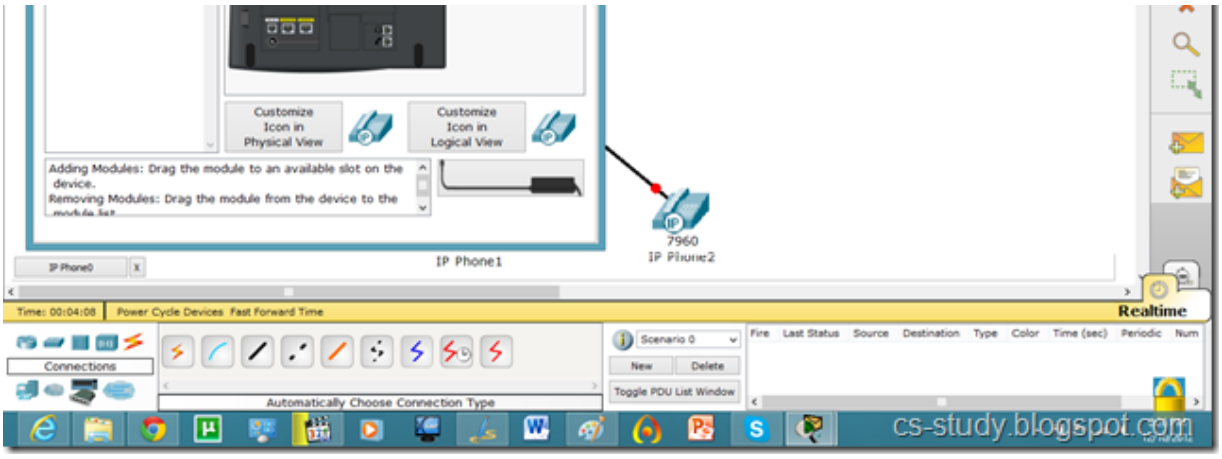
This IP Phone is displayed below. And when we try to go to any other mode its give us error and ask us to switch it on first.



[3]

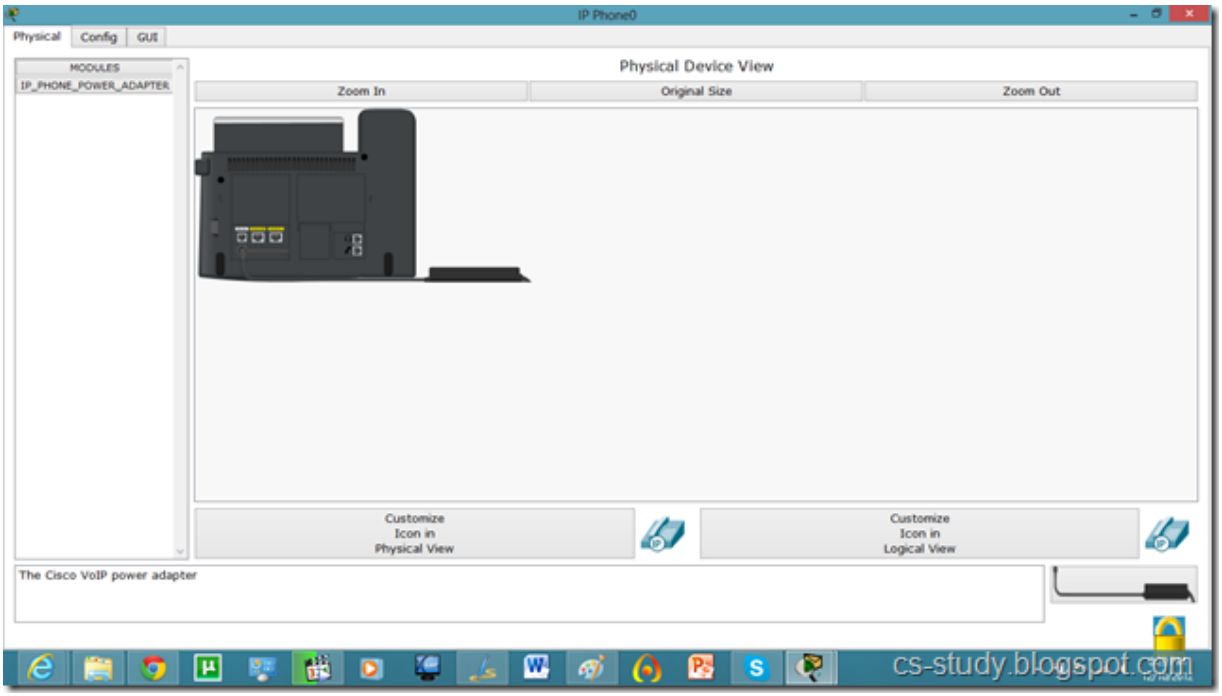
For that, go to Physical mode and put the power adapter (in the bottom right corner) into the phone as shown in figure.





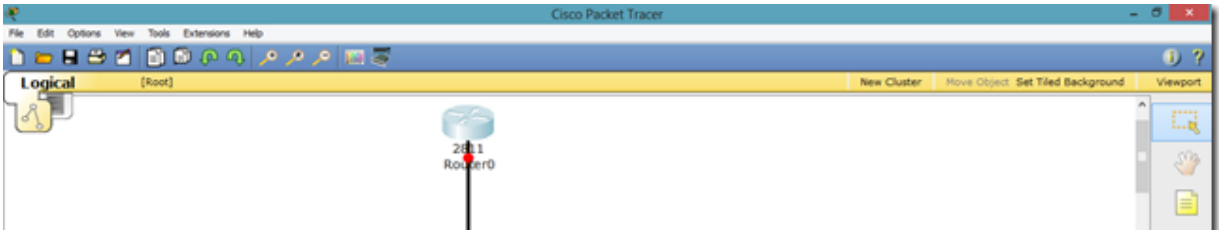
[4]

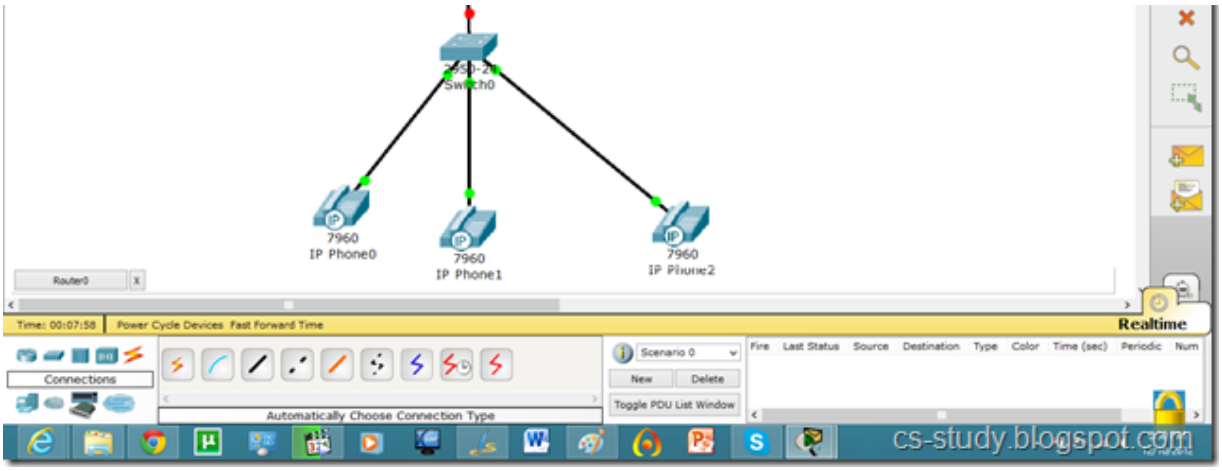
Now, we have inserted the antenna into IP phone. Repeat it for other phones as well.



[5]

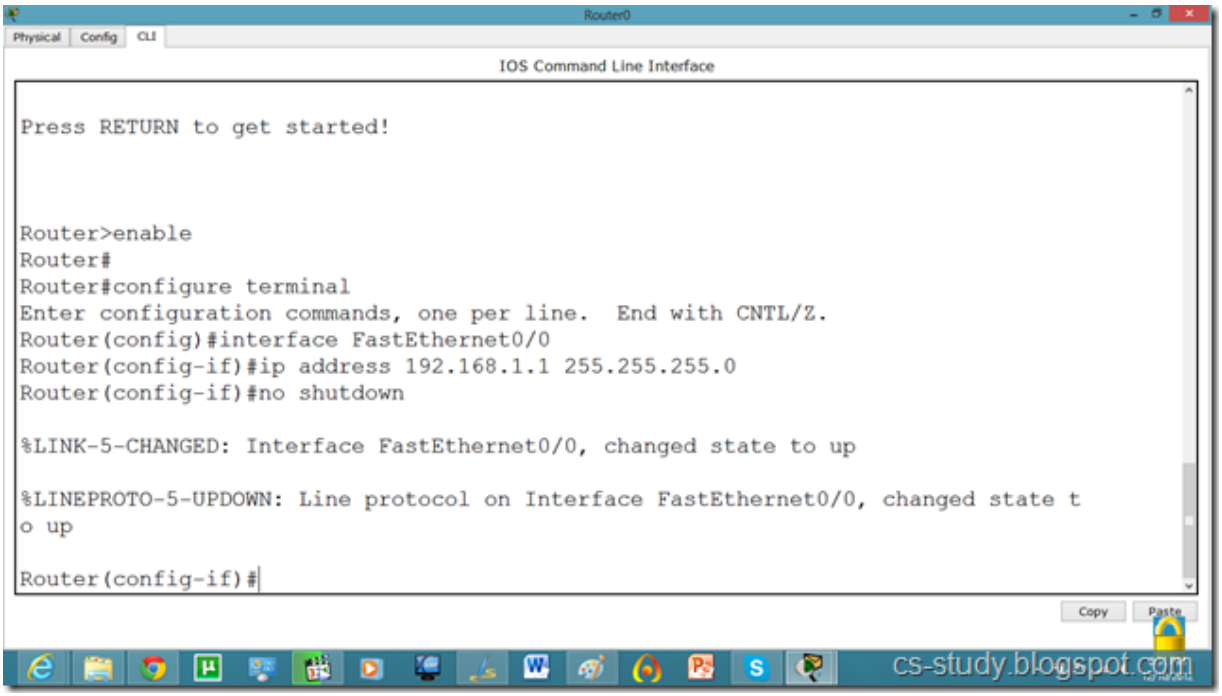
Now, we see that interface of IP phone is UP.





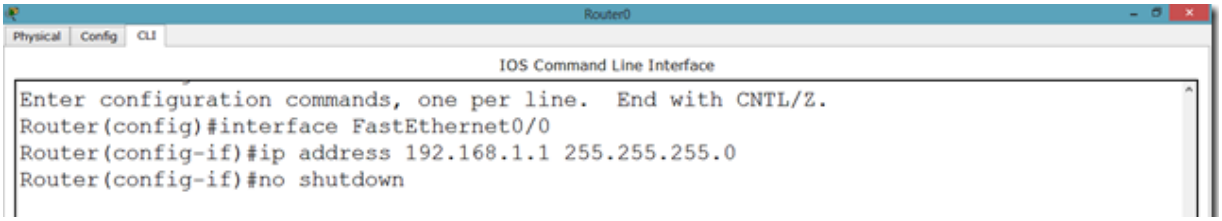
[6]

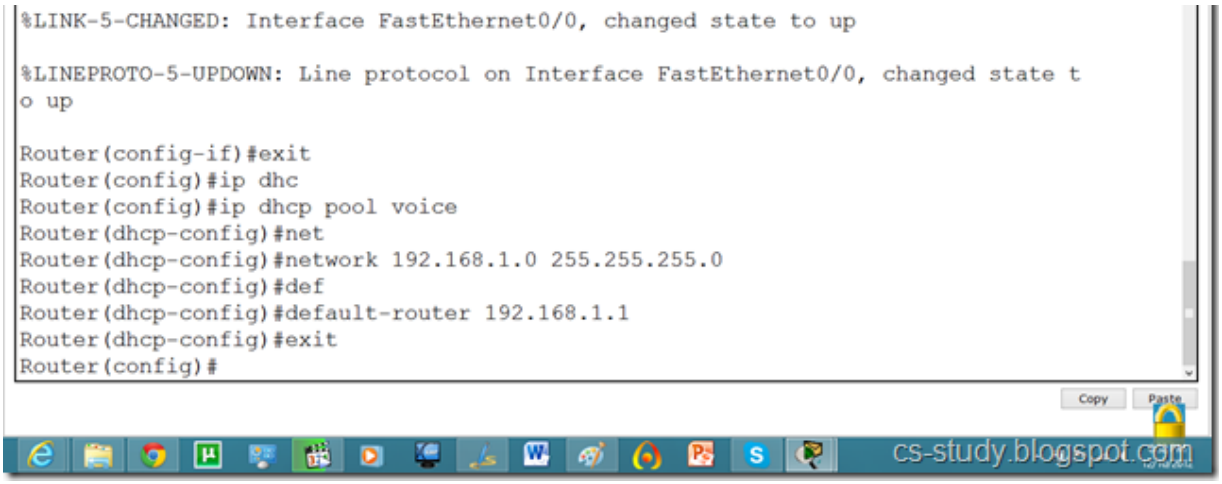
Now, go to router and assign IP address.



[7]

We will have to set DHCP server on router to assign IP addresses to IP phones.

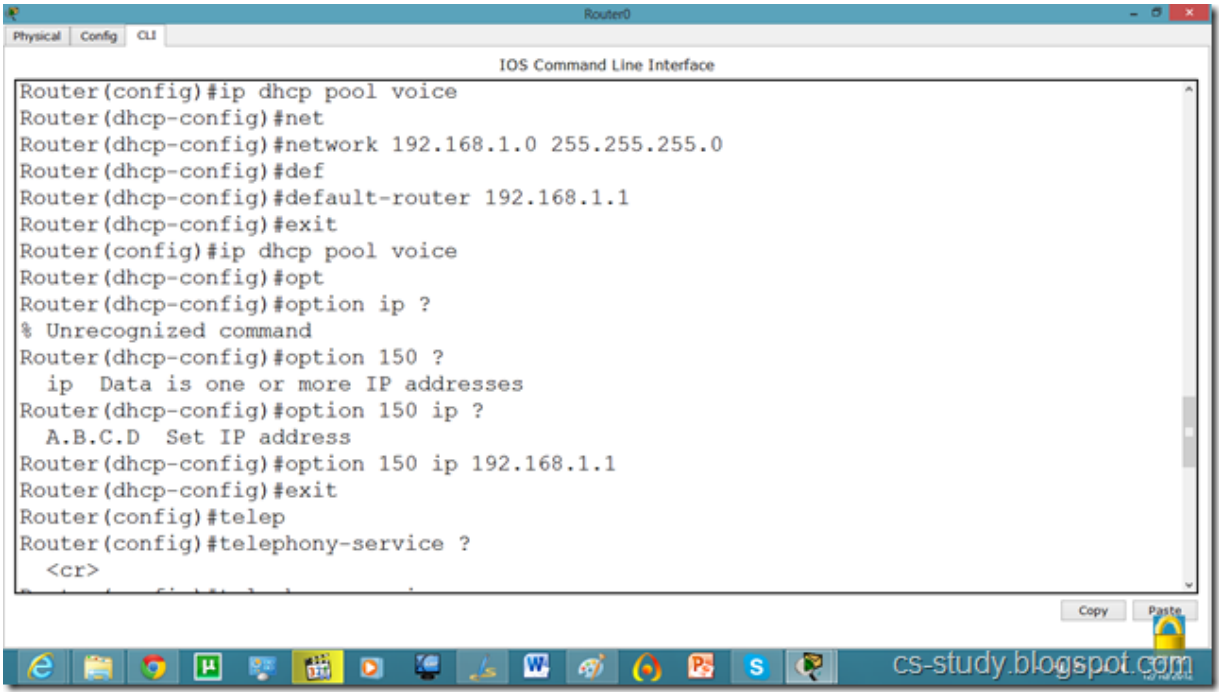




[8]

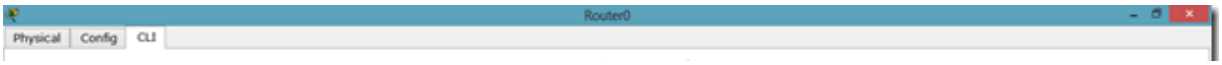
We will have to give an additional command for voip.

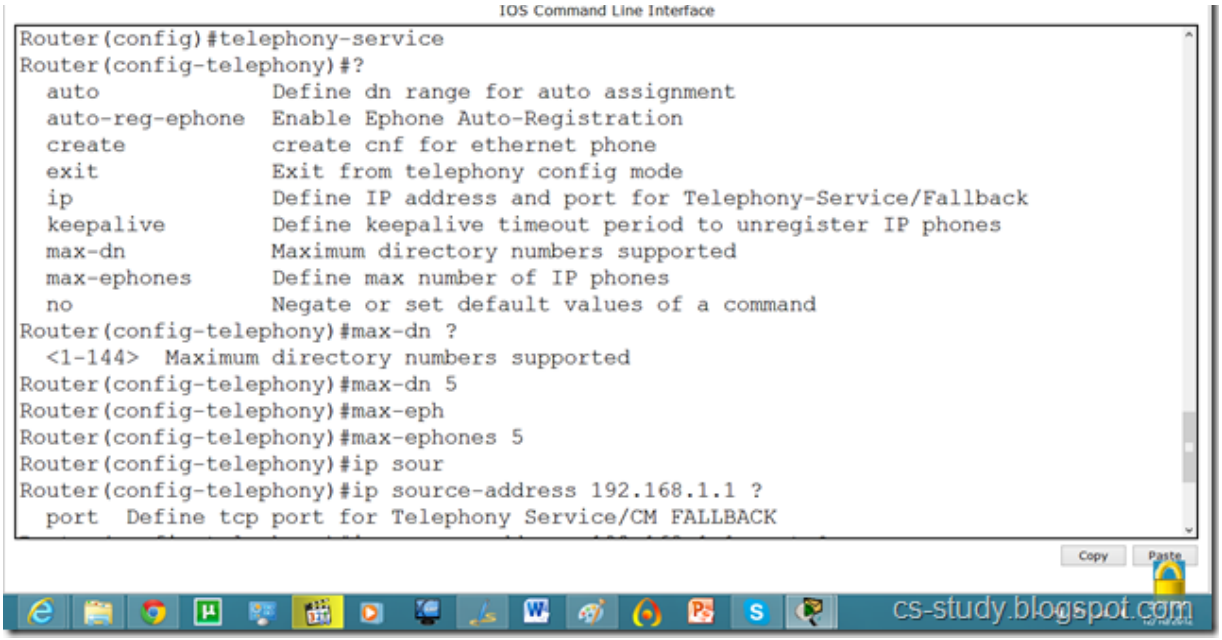
Router(dhcp-config)#option 150 ip 192.168.1.1



[9]

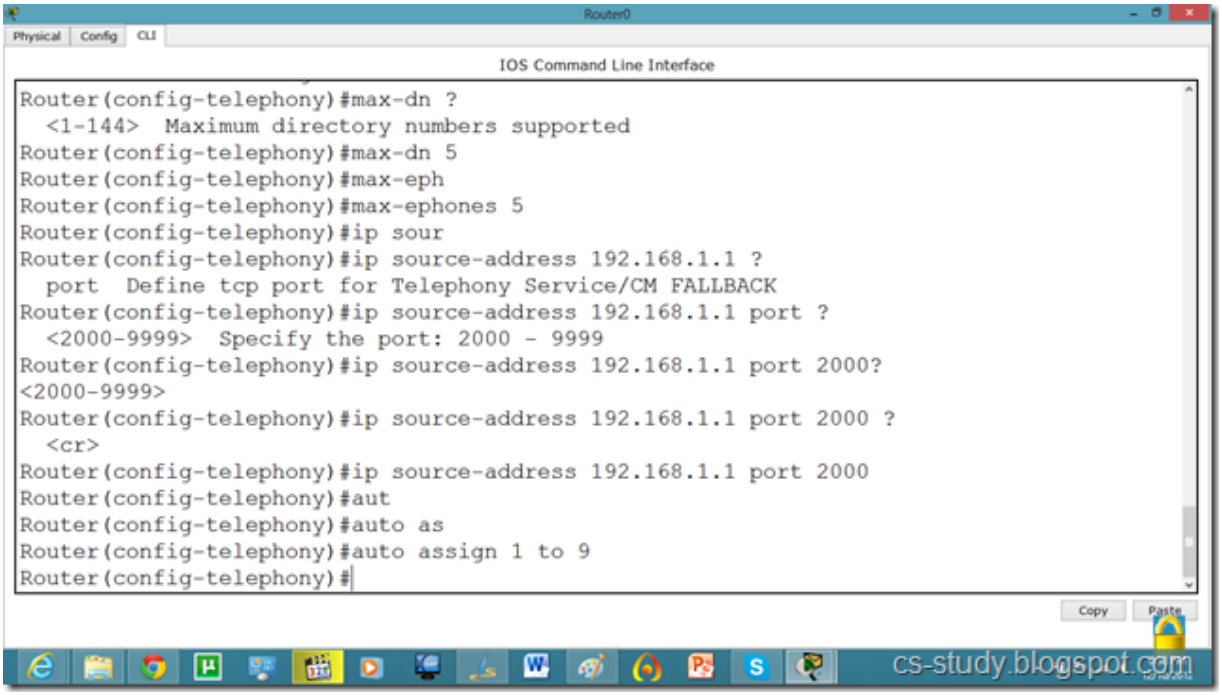
Now, let us apply commands to the router for voip. You might have noticed we took 2811 series router because it facilitates the following commands.





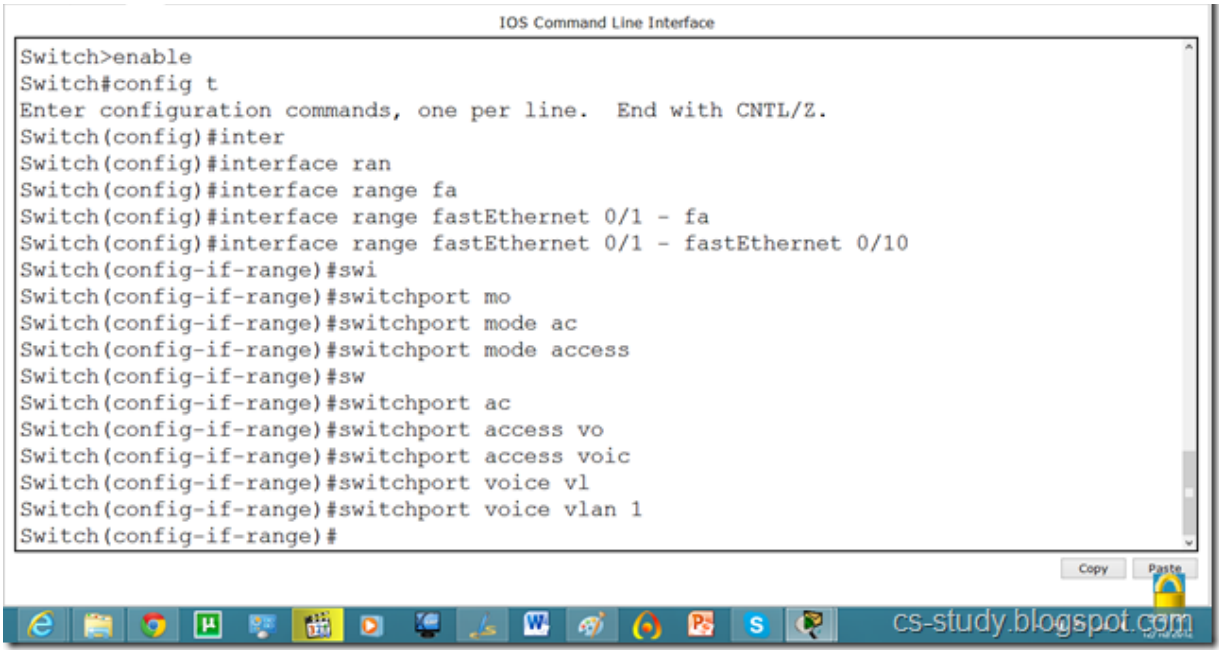
[10]

Continued.



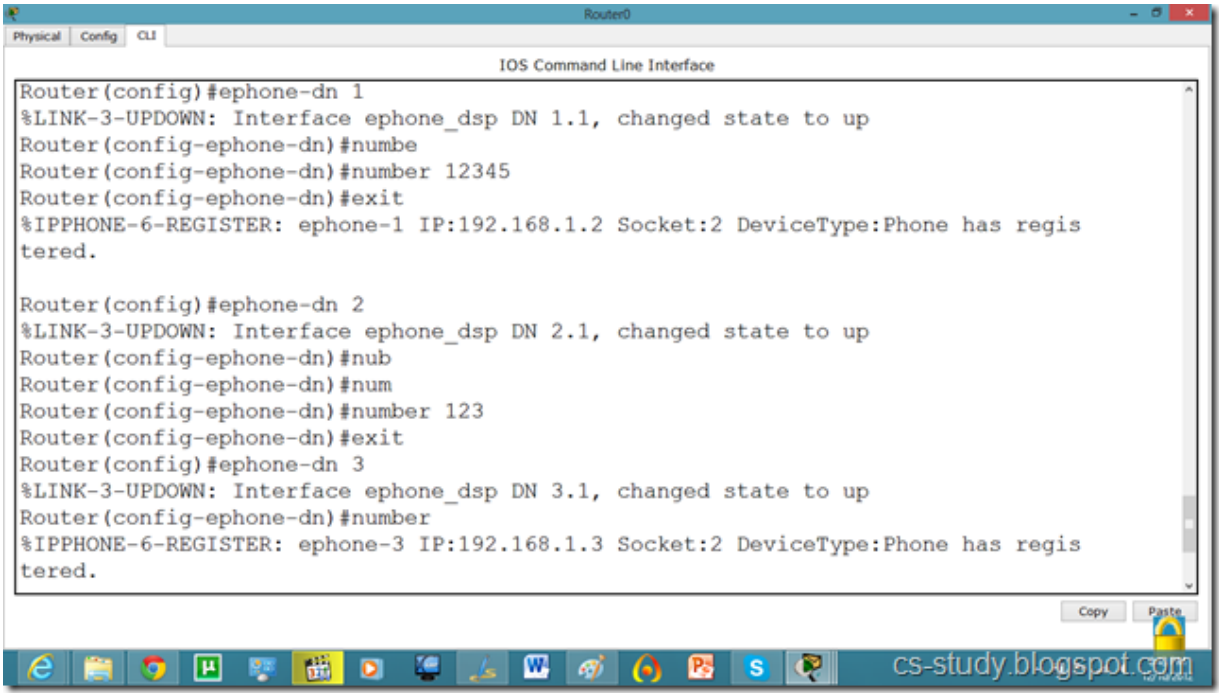
[11]

Now, we will go to the switch and make the interfaces support voip as follows.



[12]

After that, we will have to assign phone number to our IP phone by applying following commands.



[13]

Continued…

[14]

Now, we can see that in GUI mode of Phone, we have a phone number available.

[15]

This means that we can call from one phone to the other. Lets do that.

[16]

And when we pick up the reciever, it says that we are connected :) .

[17]

Commands on Router for VOIP

Router(config)#ip dhcp pool voice

Router(dhcp-config)#option 150 ip 192.168.1.1
Router(dhcp-config)#exit

Router(config)#telephony-service

Router(config-telephony)#max-dn 5

Router(config-telephony)#max-ephones 5

Router(config-telephony)#ip source-address 192.168.1.1 port 2000

Router(config-telephony)#auto assign 1 to 9
Router(config-telephony)#exit

Router(config)#ephone-dn 1
%LINK-3-UPDOWN: Interface ephone_dsp DN 1.1, changed state to up

Router(config-ephone-dn)#number 12345
Router(config-ephone-dn)#exit

%IPPHONE-6-REGISTER: ephone-1 IP:192.168.1.2 Socket:2 DeviceType:Phone has registered.

Router(config)#ephone-dn 2

%LINK-3-UPDOWN: Interface ephone_dsp DN 2.1, changed state to up

Router(config-ephone-dn)#number 123
Router(config-ephone-dn)#exit

Router(config)#ephone-dn 3
%LINK-3-UPDOWN: Interface ephone_dsp DN 3.1, changed state to up

Router(config-ephone-dn)#number 11111
Router(config-ephone-dn)#exit

Commands on Switch for VOIP

Switch(config)#interface range fastEthernet 0/1 - fastEthernet 0/10

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

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

1. http://cs-study.blogspot.mx/2012/12/voice-over-ip-voip-on-packet-tracer.html
2. http://lh6.ggpht.com/-VVCvAGG0DyU/UMZBqtatVuI/AAAAAAAACnE/JDcyawP-2kw/s1600-h/17.png
3. http://lh5.ggpht.com/-wYxoz9U3ElU/UMZBwi34AVI/AAAAAAAACnY/D8aLqoH6DOE/s1600-h/24.png
4. http://lh6.ggpht.com/-54pdfeZUEkM/UMZB2gfJb4I/AAAAAAAACns/O3xymwq9540/s1600-h/34.png
5. http://lh5.ggpht.com/-1uBkmgdUJP4/UMZB8yPzUTI/AAAAAAAACoA/IGNHw1PUvzg/s1600-h/44.png
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10. http://lh6.ggpht.com/-NhxRPeT1gaY/UMZCgb_eDDI/AAAAAAAACpk/DOCf2Tubs8c/s1600-h/94.png
11. http://lh4.ggpht.com/-pwnVfmfdqPg/UMZCnUu0wII/AAAAAAAACp4/7Rf479q--wQ/s1600-h/104.png
12. http://lh4.ggpht.com/-kLFTD3Pda5Q/UMZCu2MKR8I/AAAAAAAACqM/B7sGOVTu0s8/s1600-h/114.png
13. http://lh3.ggpht.com/-immd_GIpv6k/UMZC2NvgkCI/AAAAAAAACqg/gSdTVeO6CLg/s1600-h/124.png
14. http://lh6.ggpht.com/-jW-NqoWRBa0/UMZC9epqjWI/AAAAAAAACq0/WHasHpGQ6Ds/s1600-h/135.png
15. http://lh5.ggpht.com/-DECb1BwNPkQ/UMZDFU_V7JI/AAAAAAAACrI/9pV1pRh3CiU/s1600-h/145.png
16. http://lh5.ggpht.com/-qA5DReAiMXI/UMZDMCXOCqI/AAAAAAAACrc/Evc9yjFKhzU/s1600-h/154.png
17. http://lh4.ggpht.com/-3_PWB3FO-Tc/UMZDSmRzarI/AAAAAAAACrw/39yNn-WY7os/s1600-

h/165.png