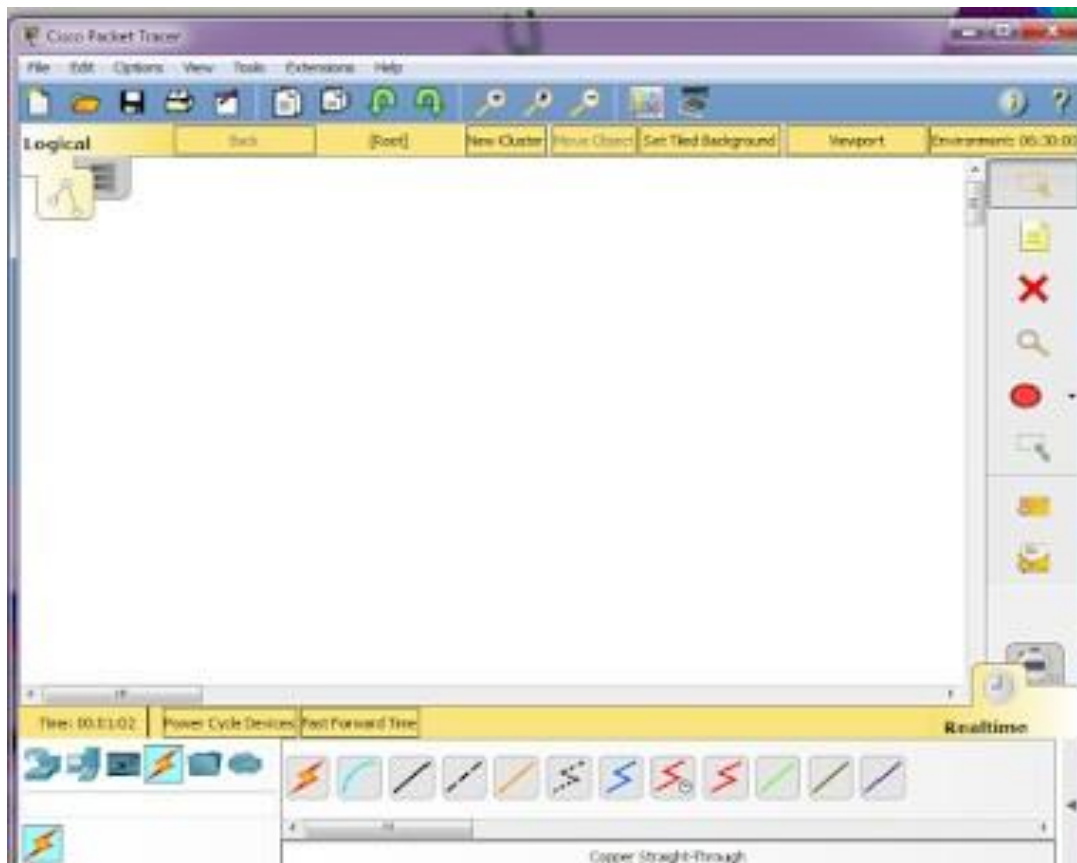


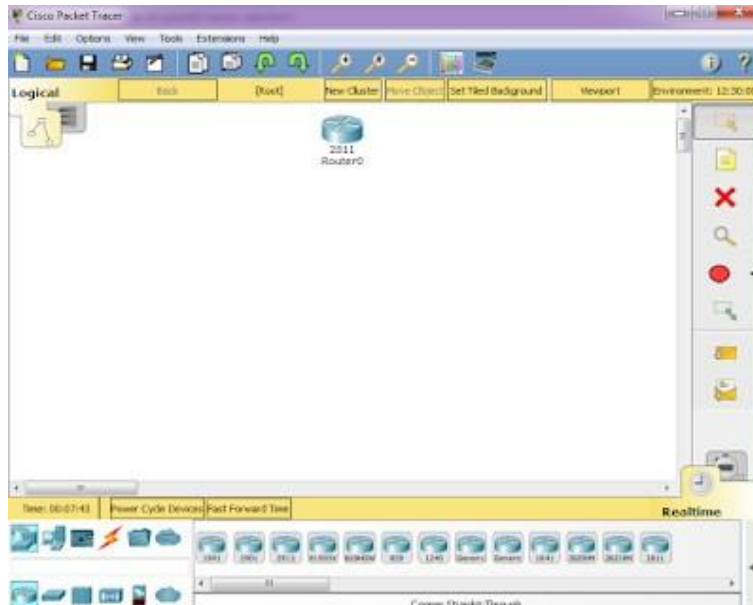
SETTING VOIP DI CISCO PACKET TRACER

- Langkah-langkah setting Voip di packet tracer :
- Switchover Switch
- Konfigurasi interface secara static pada router
- Konfigurasi interface host secara auto (DHCP)
- Setting Voip pada Router
- Setting dial number untuk Ip Phone

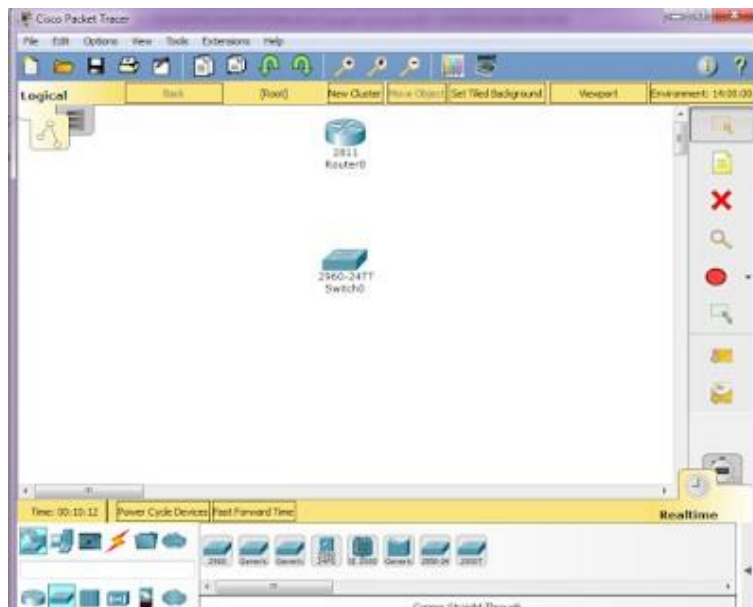
Buka software cisco packet tracker :



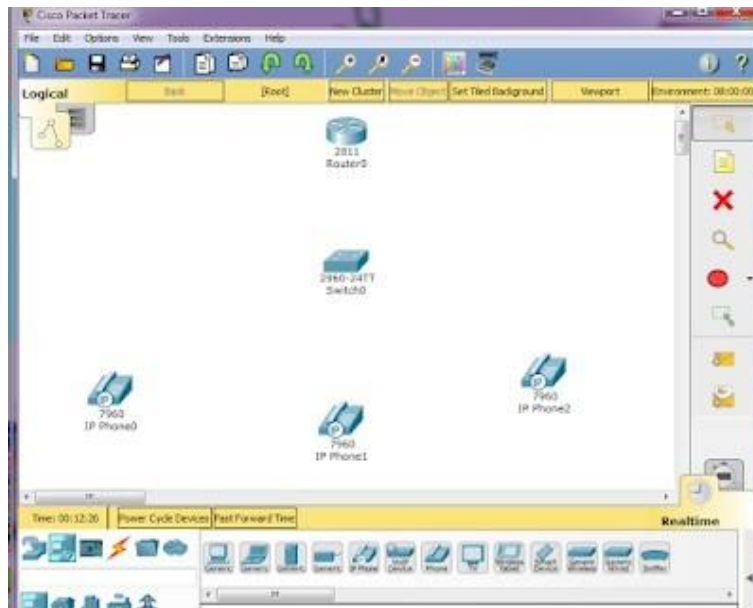
Tambahkan sebuah router 2811 (gunakan router jenis ini, karena hanya router jenis ini yang menyediakan fungsi IP phone).



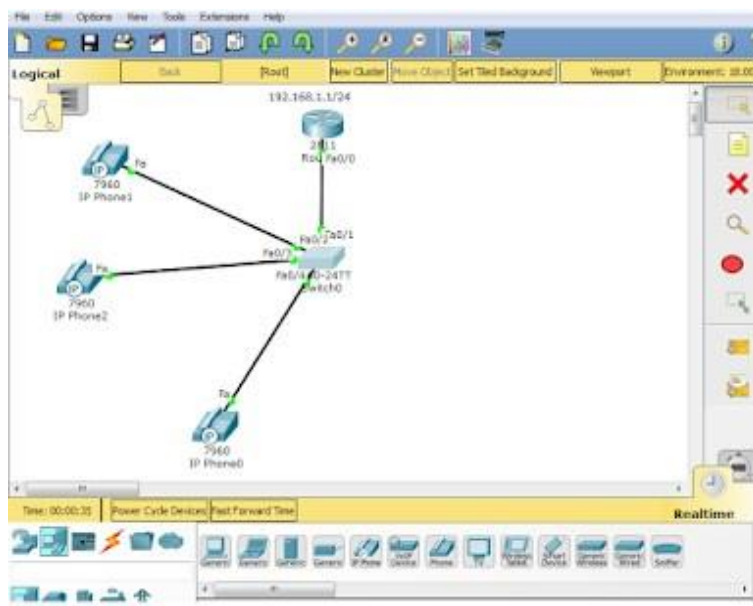
Tambahkan sebuah switch dengan menggunakan switch 2960-24TT.



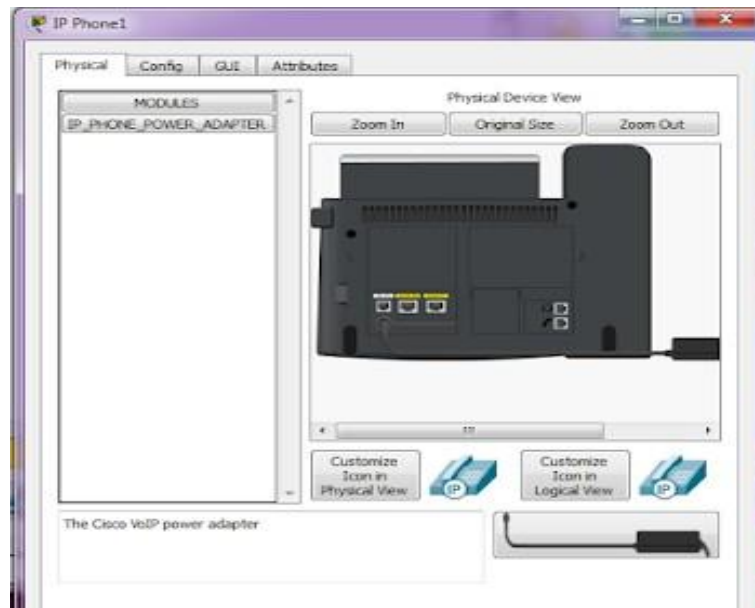
Tambahkan IP Phone (dengan menggunakan 3 IP Phone).



Selanjutnya Sambungkan IP phone Ke switch, dan juga dari switch ke router apabila sudah berwarna hijau maka Ip phone dan switch telah terhubung, kemudian lakukan langkah selanjutnya.



Lalu colokkan power adapter pada masing – masing Ip phone (caranya dengan meng klik Ip phone kemudian drag power ke portnya).

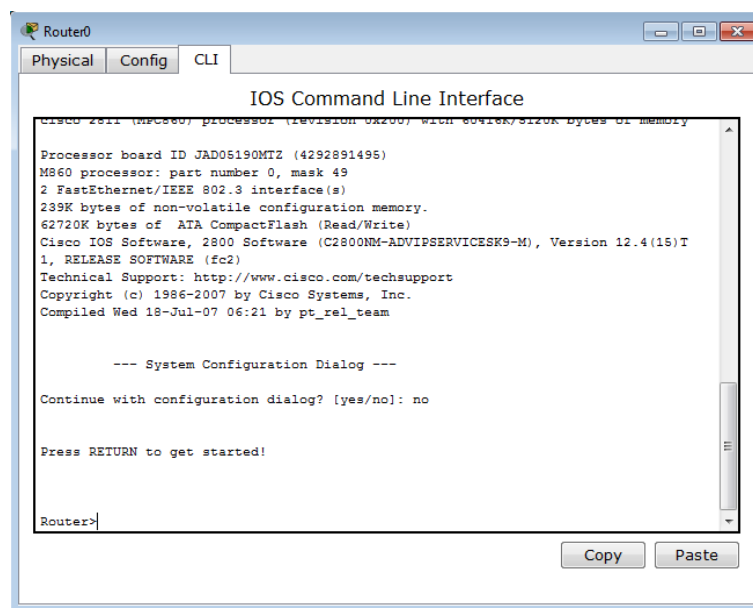


KONFIGURASI SWITCHPORT

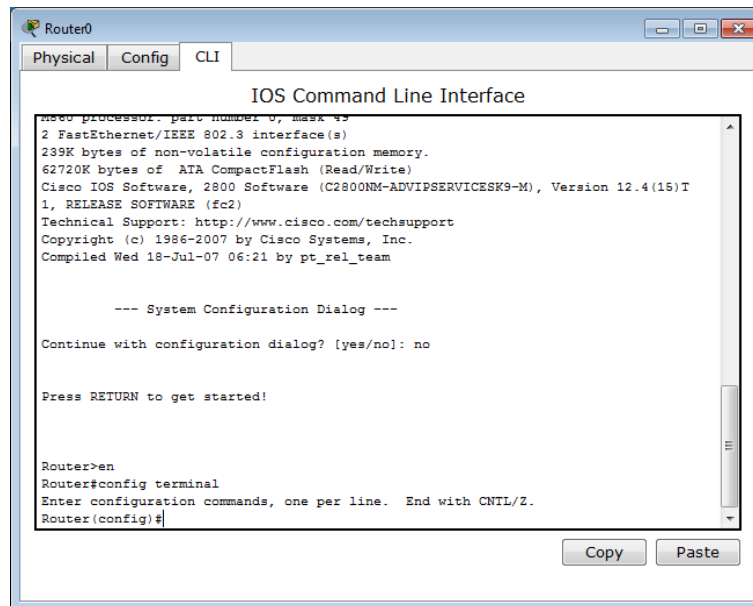
- Klik pada gambar switch, lalu masuk ke tab CLI (Konfigurasi akan dilakukan menggunakan command line).
- Pada tab CLI ketikkan perintah **“en”**
- Ketik **“config terminal”** (kita akan mulai untuk masuk ke konfigurasi)
- **int range fa0/1-24** untuk memberikan akses pada port
- Kemudian ketikkan **“switchport voice vlan 1”** (untuk membuat vlan id yang default berada di dalam vlan 1).
- Kemudian kita keluar dari config terminal. Caranya yaitu dengan menuliskan perintah **“exit”**.

KONFIGURASI ROUTER

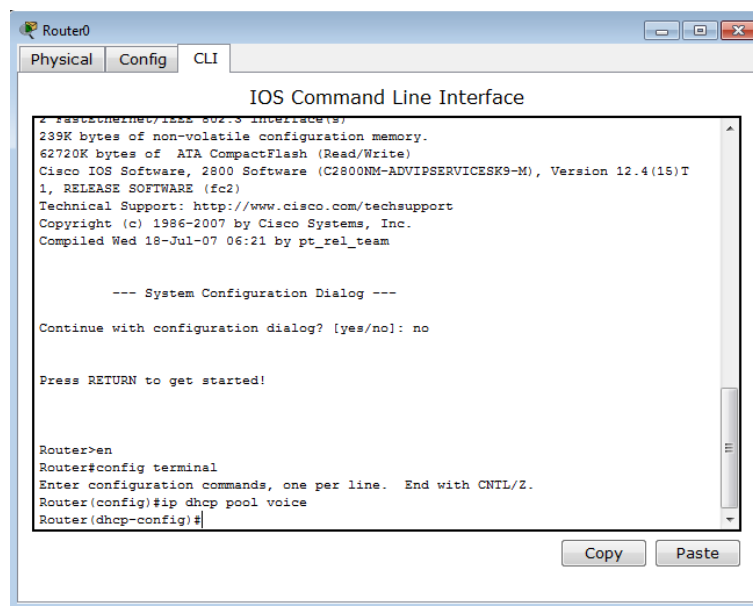
Selanjutnya kita akan melakukan konfigurasi dengan menggunakan command line, caranya yaitu Kita klik pada gambar router, lalu masuk ke tab CLI.



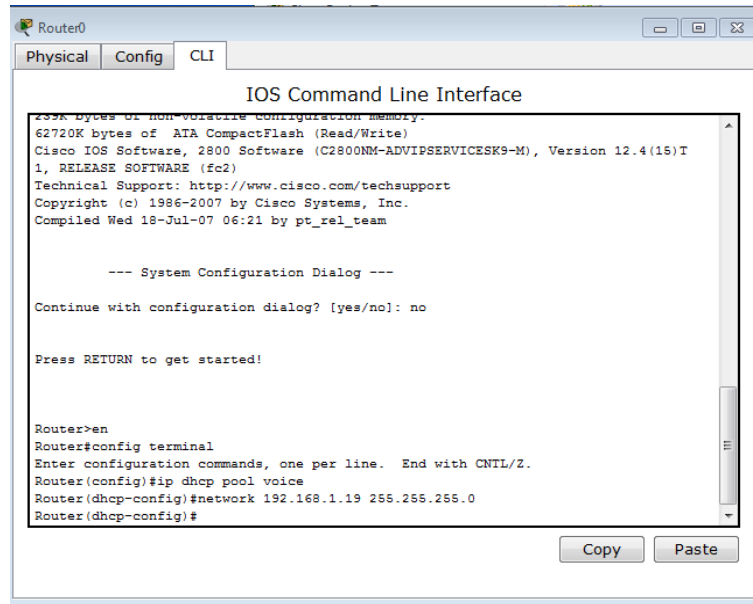
Untuk memulai konfigurasi router. Pada tab CLI ketikkan perintah **“en”**. Kemudian **“config terminal”**.



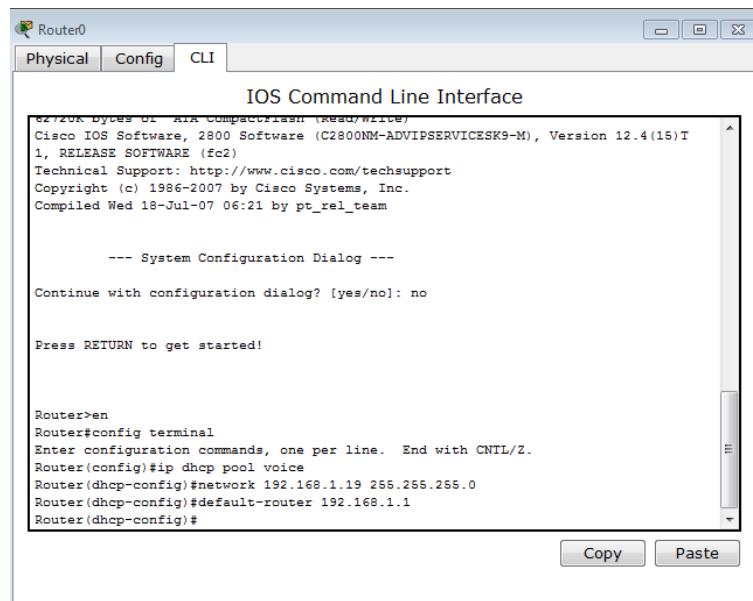
Lalu ketikkan ***"ip dhcp pool voice"***.



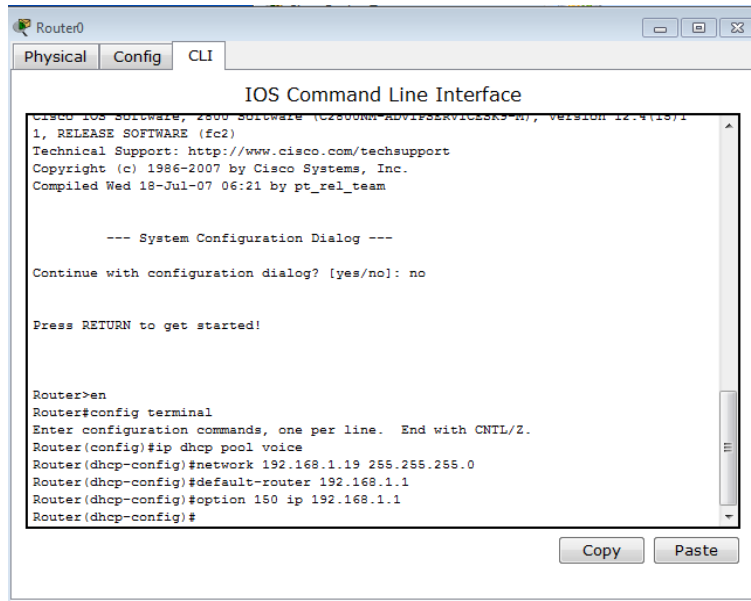
Lalu kita masukkan ip network & subnet mask pada konfigurasi dhcp, saya menggunakan network 192.168.1.0 dan subnet mask kelas C. Cara memasukkannya yaitu ketikkan ***"network 192.168.1.0 255.255.255.0"***



Lalu tentukan ip router pada dhcp. Caranya yaitu dengan memasukkan perintah ***"default-router 192.168.1.1"***



Kemudian kita tentukan berapa jumlah ip maksimal yang akan dilepaskan pada DHCP. Misalnya kita akan memberikan 150 ip yang dimulai dari 192.168.1.1 sampai 192.168.1.152, caranya kita harus mengetikkan perintah ***"option 150 ip 192.168.1.1"***



```

Router0
Physical Config CLI
IOS Command Line Interface
Cisco IOS Software, 2800 Software (C2800M-ADVIPSERVICESK9), Version 12.4(13)1, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Wed 18-Jul-07 06:21 by pt_rel_team

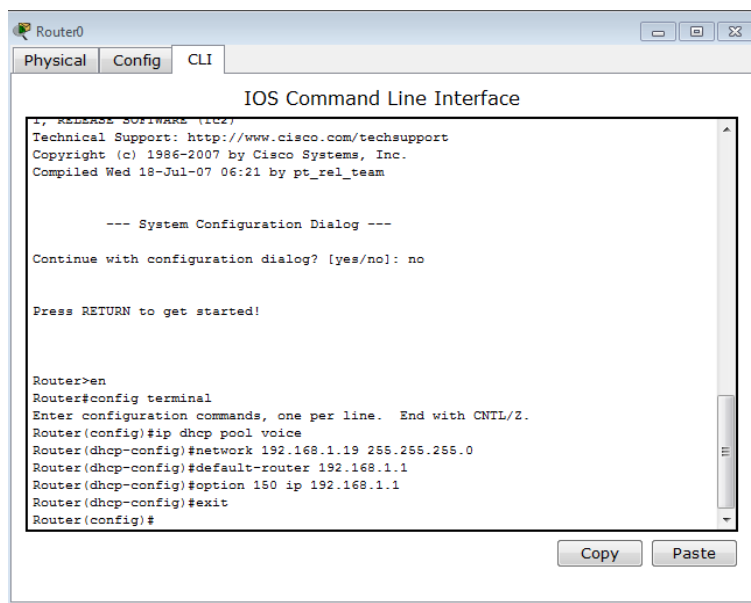
--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: no

Press RETURN to get started!

Router>en
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip dhcp pool voice
Router(dhcp-config)#network 192.168.1.19 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#option 150 ip 192.168.1.1
Router(dhcp-config)#
  
```

Kemudian keluar dari konfigurasi DHCP caranya yaitu dengan mengetikkan perintah ***“exit”***.



```

Router0
Physical Config CLI
IOS Command Line Interface
Cisco IOS Software, 2800 Software (C2800M-ADVIPSERVICESK9), Version 12.4(13)1, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Wed 18-Jul-07 06:21 by pt_rel_team

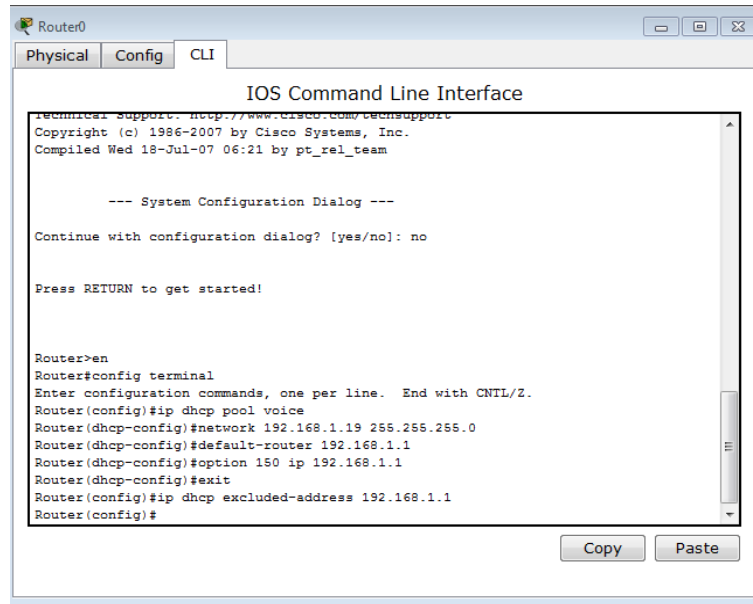
--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: no

Press RETURN to get started!

Router>en
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip dhcp pool voice
Router(dhcp-config)#network 192.168.1.19 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#option 150 ip 192.168.1.1
Router(dhcp-config)#exit
Router(config)#
  
```

Supaya ip router yaitu 192.168.1.1 tidak ikut diberikan ke host pada DHCP maka kita harus memasukkan perintah ***“ip dhcp excluded-address 192.168.1.1”***



The screenshot shows the Cisco Router CLI interface with the following text:

```
Router0
Physical Config CLI
IOS Command Line Interface
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Wed 18-Jul-07 06:21 by pt_rel_team

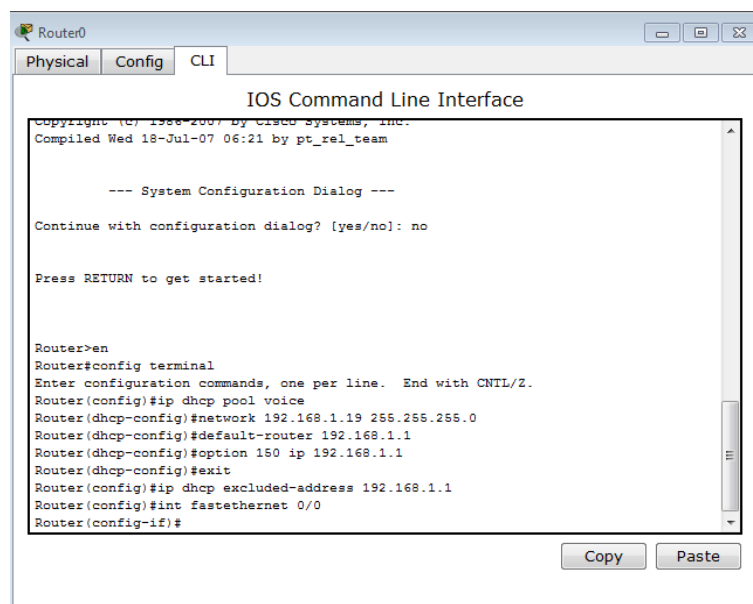
--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: no

Press RETURN to get started!

Router>en
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip dhcp pool voice
Router(dhcp-config)#network 192.168.1.19 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#option 150 ip 192.168.1.1
Router(dhcp-config)#exit
Router(config)#ip dhcp excluded-address 192.168.1.1
Router(config)#
```

Sekarang kita akan mengkonfigurasi interface pada router, caranya yaitu dengan mengetikkan **“int fastethernet 0/0”**.



The screenshot shows the Cisco Router CLI interface with the following text:

```
Router0
Physical Config CLI
IOS Command Line Interface
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Wed 18-Jul-07 06:21 by pt_rel_team

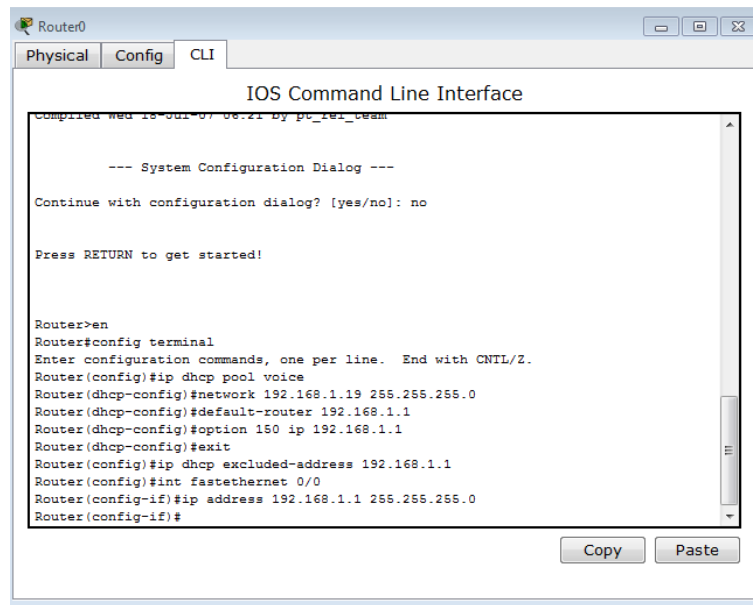
--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: no

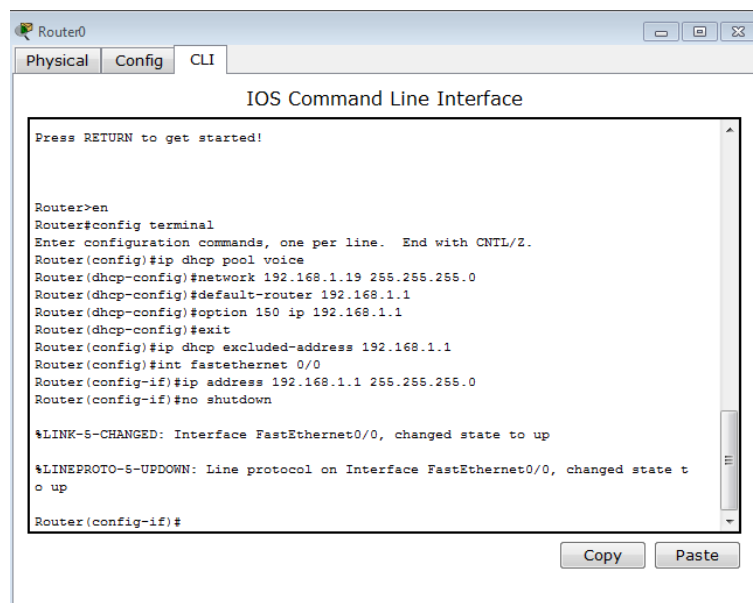
Press RETURN to get started!

Router>en
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip dhcp pool voice
Router(dhcp-config)#network 192.168.1.19 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#option 150 ip 192.168.1.1
Router(dhcp-config)#exit
Router(config)#ip dhcp excluded-address 192.168.1.1
Router(config)#int fastethernet 0/0
Router(config-if)#
```

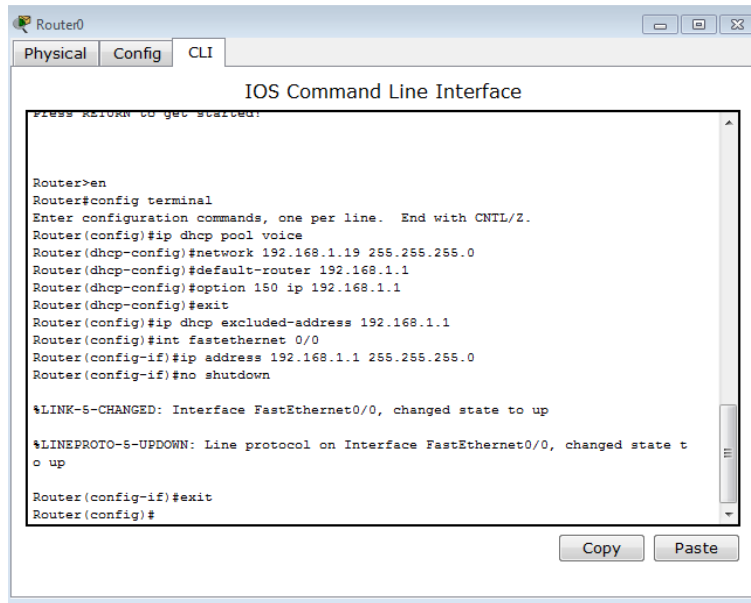
Kemudian kita berikan ip pada router secara static, caranya yaitu dengan mengetikkan **“ip address 192.168.1.1 255.255.255.0”**.



dKemudian kita aktifkan konfigurasi ip tersebut, caranya yaitu dengan mengetikkan ***“no shutdown”***.



Lalu kita keluar dari config terminal, caranya dengan mengetikkan *“exit”*



```
Router0
Physical Config CLI
IOS Command Line Interface
Press RETURN to get started:

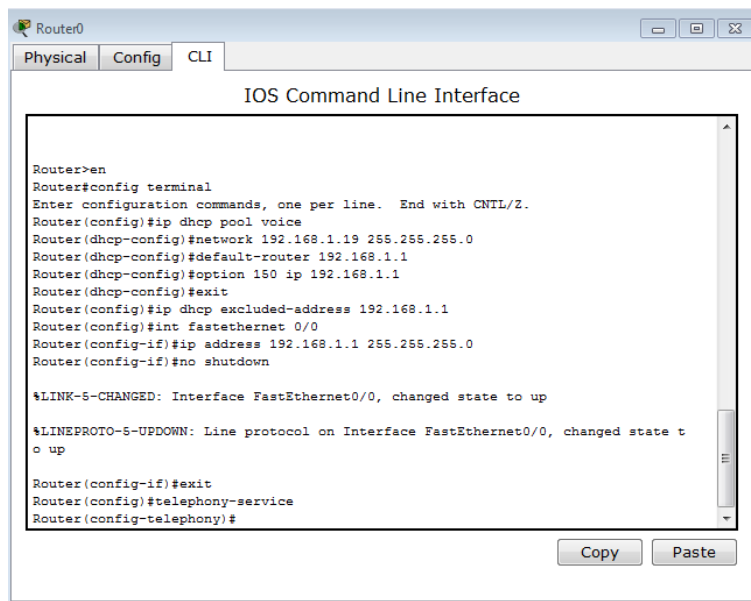
Router>en
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip dhcp pool voice
Router(dhcp-config)#network 192.168.1.19 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#option 150 ip 192.168.1.1
Router(dhcp-config)#exit
Router(config)#ip dhcp excluded-address 192.168.1.1
Router(config)#int fastethernet 0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

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

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

Kemudian masuk ke konfigurasi VoIP kita harus mengetikkan ***“telephony-service”***



```
Router0
Physical Config CLI
IOS Command Line Interface

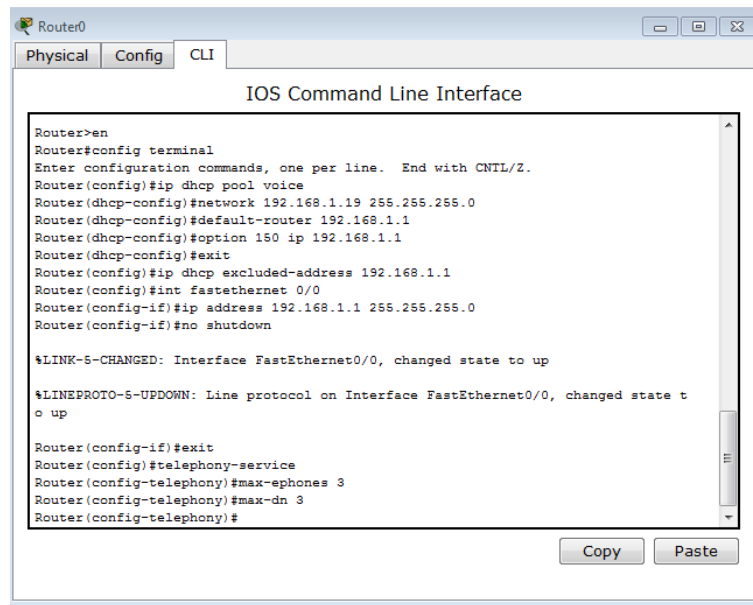
Router>en
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip dhcp pool voice
Router(dhcp-config)#network 192.168.1.19 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#option 150 ip 192.168.1.1
Router(dhcp-config)#exit
Router(config)#ip dhcp excluded-address 192.168.1.1
Router(config)#int fastethernet 0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

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

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

Kemudian kita memberikan jumlah ipphone dan dial number maksimal, caranya yaitu dengan mengetikkan ***“max-ephones 3”*** dan ***“max-dn 3”***



```

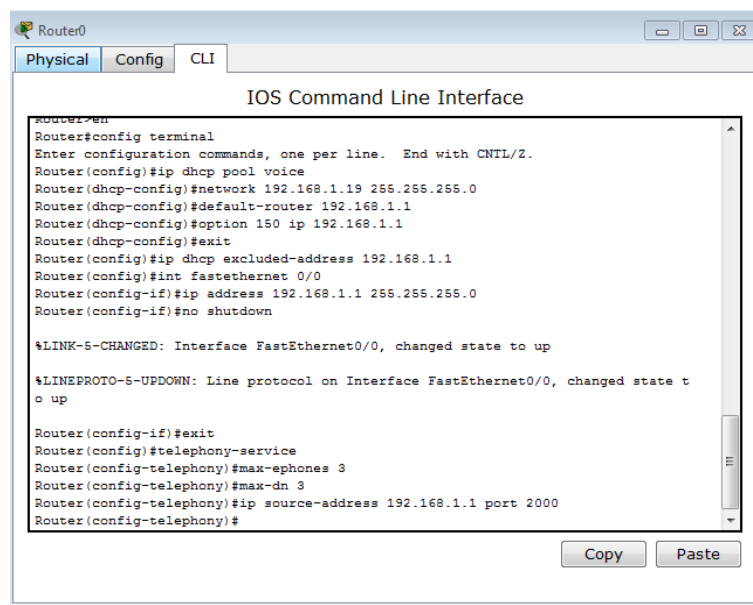
Router>en
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip dhcp pool voice
Router(dhcp-config)#network 192.168.1.19 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#option 150 ip 192.168.1.1
Router(dhcp-config)#exit
Router(config)#ip dhcp excluded-address 192.168.1.1
Router(config)#int fastEthernet 0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown

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

Router(config-if)#exit
Router(config)#telephony-service
Router(config-telephony)#max-ephones 3
Router(config-telephony)#max-dn 3
Router(config-telephony)#

```

Kemudian kita tentukan sumber ip pada ip phone, caranya yaitu dengan mengetikkan ***“ip source-address 192.168.1.1 port 2000”***



```

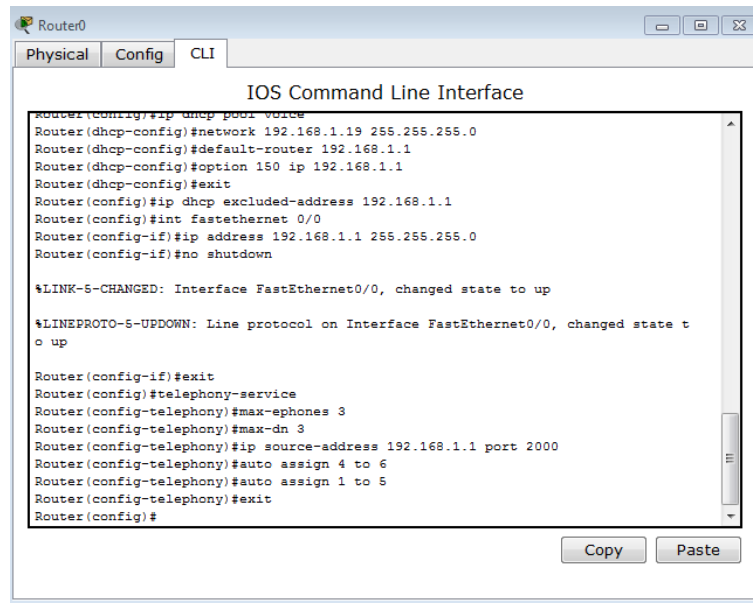
Router>en
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip dhcp pool voice
Router(dhcp-config)#network 192.168.1.19 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#option 150 ip 192.168.1.1
Router(dhcp-config)#exit
Router(config)#ip dhcp excluded-address 192.168.1.1
Router(config)#int fastEthernet 0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown

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

Router(config-if)#exit
Router(config)#telephony-service
Router(config-telephony)#max-ephones 3
Router(config-telephony)#max-dn 3
Router(config-telephony)#ip source-address 192.168.1.1 port 2000
Router(config-telephony)#

```

Ketik ***“auto assign 4 to 6”*** kemudian ***“auto assign 1 to 5”*** dan ***“exit”***



```

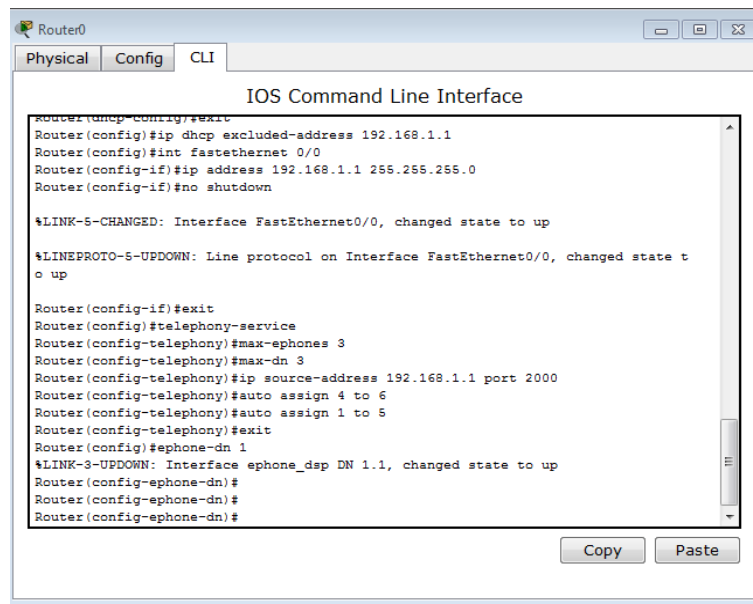
Router0
Physical Config CLI
IOS Command Line Interface
Router(config)#ip dhcp pool voice
Router(dhcp-config)#network 192.168.1.19 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#option 150 ip 192.168.1.1
Router(dhcp-config)#exit
Router(config)#ip dhcp excluded-address 192.168.1.1
Router(config)#int fastethernet 0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

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

Router(config-if)#exit
Router(config)#telephony-service
Router(config-telephony)#max-ephones 3
Router(config-telephony)#max-dn 3
Router(config-telephony)#ip source-address 192.168.1.1 port 2000
Router(config-telephony)#auto assign 4 to 6
Router(config-telephony)#auto assign 1 to 5
Router(config-telephony)#exit
Router(config)#
  
```

Selanjutnya kita akan mengkonfigurasi dial number untuk setiap ip phone



```

Router0
Physical Config CLI
IOS Command Line Interface
Router(dhcp-config)#exit
Router(config)#ip dhcp excluded-address 192.168.1.1
Router(config)#int fastethernet 0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

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

Router(config-if)#exit
Router(config)#telephony-service
Router(config-telephony)#max-ephones 3
Router(config-telephony)#max-dn 3
Router(config-telephony)#ip source-address 192.168.1.1 port 2000
Router(config-telephony)#auto assign 4 to 6
Router(config-telephony)#auto assign 1 to 5
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)#
Router(config-ephone-dn)#
Router(config-ephone-dn)#
  
```

Ketikkan ***“ephone-dn 1”***. Kemudian tekan enter 2 kali.

```

Router0
Physical Config CLI
IOS Command Line Interface

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

Router(config-if)#exit
Router(config)#telephony-service
Router(config-telephony)#max-ephones 3
Router(config-telephony)#max-dn 3
Router(config-telephony)#ip source-address 192.168.1.1 port 2000
Router(config-telephony)#auto assign 4 to 6
Router(config-telephony)#auto assign 1 to 5
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)#
Router(config-ephone-dn)#
Router(config-ephone-dn)#number 1321151
Router(config-ephone-dn)#
%IPPHONE-6-REGISTER: ephone-3 IP:192.168.1.4 Socket:2 DeviceType:Phone has registered.

Router(config-ephone-dn)#
Copy Paste

```

Ketikkan **“number 111”** (kita memberikan dial number pada ip phone 1 yaitu 111). Ketikkan **“ephone-dn 2”** Kemudian tekan enter 2 kali.

```

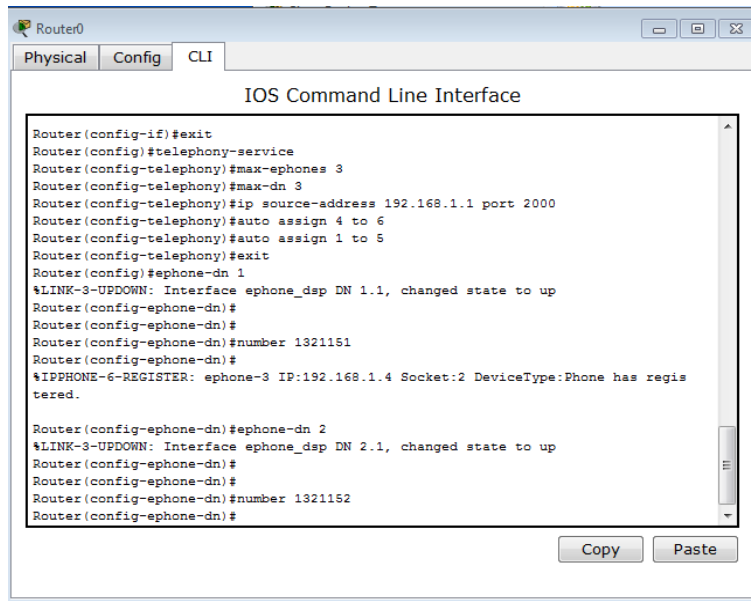
Router0
Physical Config CLI
IOS Command Line Interface

Router(config-if)#exit
Router(config)#telephony-service
Router(config-telephony)#max-ephones 3
Router(config-telephony)#max-dn 3
Router(config-telephony)#ip source-address 192.168.1.1 port 2000
Router(config-telephony)#auto assign 4 to 6
Router(config-telephony)#auto assign 1 to 5
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)#
Router(config-ephone-dn)#
Router(config-ephone-dn)#number 1321151
Router(config-ephone-dn)#
%IPPHONE-6-REGISTER: ephone-3 IP:192.168.1.4 Socket:2 DeviceType:Phone has registered.

Router(config-ephone-dn)#ephone-dn 2
%LINK-3-UPDOWN: Interface ephone_dsp DN 2.1, changed state to up
Router(config-ephone-dn)#
Router(config-ephone-dn)#
Router(config-ephone-dn)#
Copy Paste

```

Ketikkan “**number 222**” (kita memberikan dial number pada ip phone 2 yaitu 222).

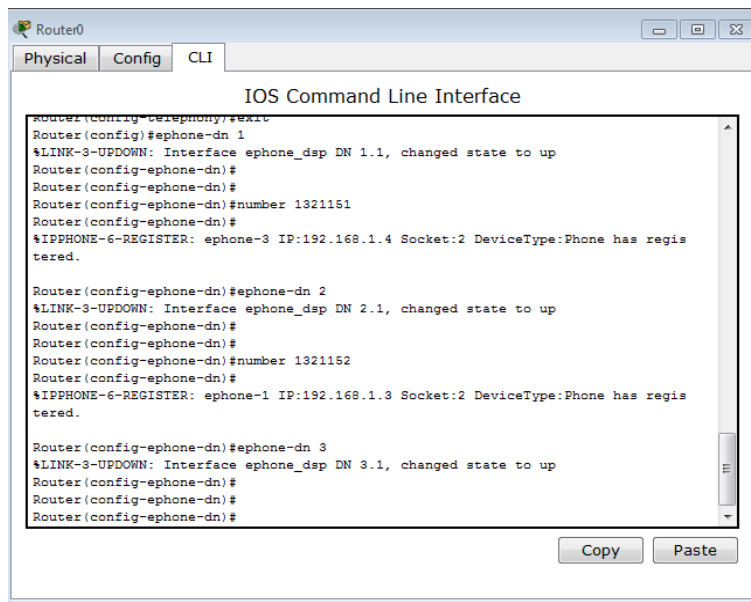


```
Router0
Physical Config CLI
IOS Command Line Interface

Router(config-if)#exit
Router(config)#telephony-service
Router(config-telephony)#max-ephones 3
Router(config-telephony)#max-dn 3
Router(config-telephony)#ip source-address 192.168.1.1 port 2000
Router(config-telephony)#auto assign 4 to 6
Router(config-telephony)#auto assign 1 to 5
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)#
Router(config-ephone-dn)#
Router(config-ephone-dn)#number 1321151
Router(config-ephone-dn)#
%IPPHONE-6-REGISTER: ephone-3 IP:192.168.1.4 Socket:2 DeviceType:Phone has registered.

Router(config-ephone-dn)#ephone-dn 2
%LINK-3-UPDOWN: Interface ephone_dsp DN 2.1, changed state to up
Router(config-ephone-dn)#
Router(config-ephone-dn)#
Router(config-ephone-dn)#number 1321152
Router(config-ephone-dn)#
Router(config-ephone-dn)#
```

Ketikkan “ephone-dn 3”. Kemudian tekan enter 2 kali.



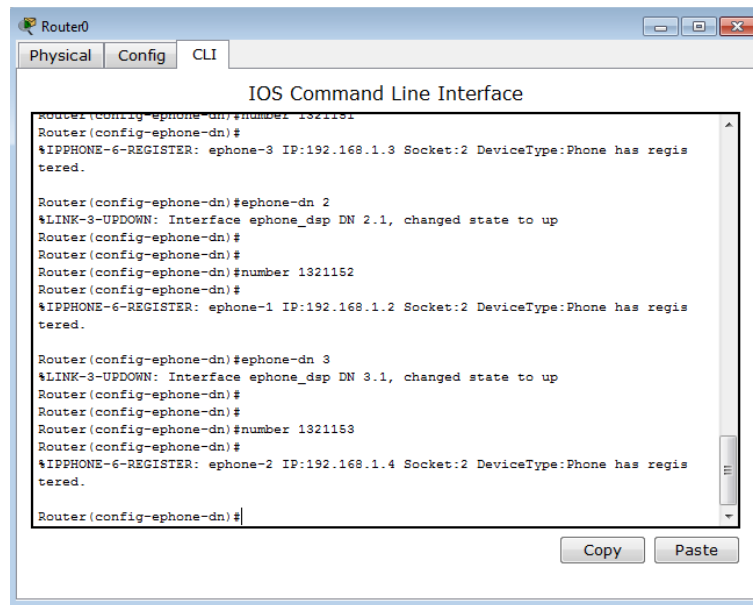
```
Router0
Physical Config CLI
IOS Command Line Interface

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)#
Router(config-ephone-dn)#
Router(config-ephone-dn)#number 1321151
Router(config-ephone-dn)#
%IPPHONE-6-REGISTER: ephone-3 IP:192.168.1.4 Socket:2 DeviceType:Phone has registered.

Router(config-ephone-dn)#ephone-dn 2
%LINK-3-UPDOWN: Interface ephone_dsp DN 2.1, changed state to up
Router(config-ephone-dn)#
Router(config-ephone-dn)#
Router(config-ephone-dn)#number 1321152
Router(config-ephone-dn)#
%IPPHONE-6-REGISTER: ephone-1 IP:192.168.1.3 Socket:2 DeviceType:Phone has registered.

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

Ketikkan “**number 333**” (kita memberikan dial number pada ip phone 3 yaitu 333).



The screenshot shows a window titled 'Router0' with tabs for 'Physical', 'Config', and 'CLI'. The 'CLI' tab is active, displaying the 'IOS Command Line Interface'. The terminal output shows the following commands and responses:

```
Router(config-ephone-dn)#number 1321151
Router(config-ephone-dn)#
%IPPHONE-6-REGISTER: ephone-3 IP:192.168.1.3 Socket:2 DeviceType:Phone has registered.

Router(config-ephone-dn)#ephone-dn 2
%LINK-3-UPDOWN: Interface ephone_dsp DN 2.1, changed state to up
Router(config-ephone-dn)#
Router(config-ephone-dn)#number 1321152
Router(config-ephone-dn)#
%IPPHONE-6-REGISTER: ephone-1 IP:192.168.1.2 Socket:2 DeviceType:Phone has registered.

Router(config-ephone-dn)#ephone-dn 3
%LINK-3-UPDOWN: Interface ephone_dsp DN 3.1, changed state to up
Router(config-ephone-dn)#
Router(config-ephone-dn)#number 1321153
Router(config-ephone-dn)#
%IPPHONE-6-REGISTER: ephone-2 IP:192.168.1.4 Socket:2 DeviceType:Phone has registered.

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

At the bottom of the CLI window, there are 'Copy' and 'Paste' buttons.

Sekarang kita akan mengetes koneksi dengan dial number yang tadi sudah dibuat