

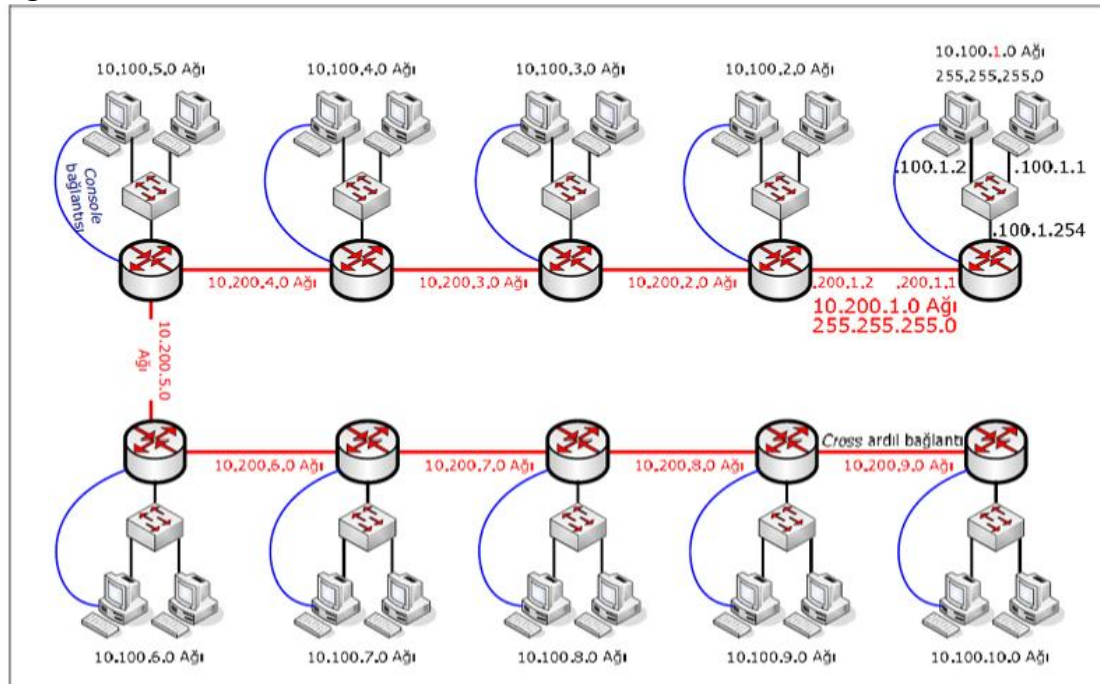
Group Number: 10, 41

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Lab09 Router

1. You should use one router, one switch and at least one PC for your group, and plug required cables and activate required connections. So you are going to create your own local area network with Router as a gateway. In the next lab, you're going to connect your groups and create a WAN (wide area network) as seen in Figure-2.

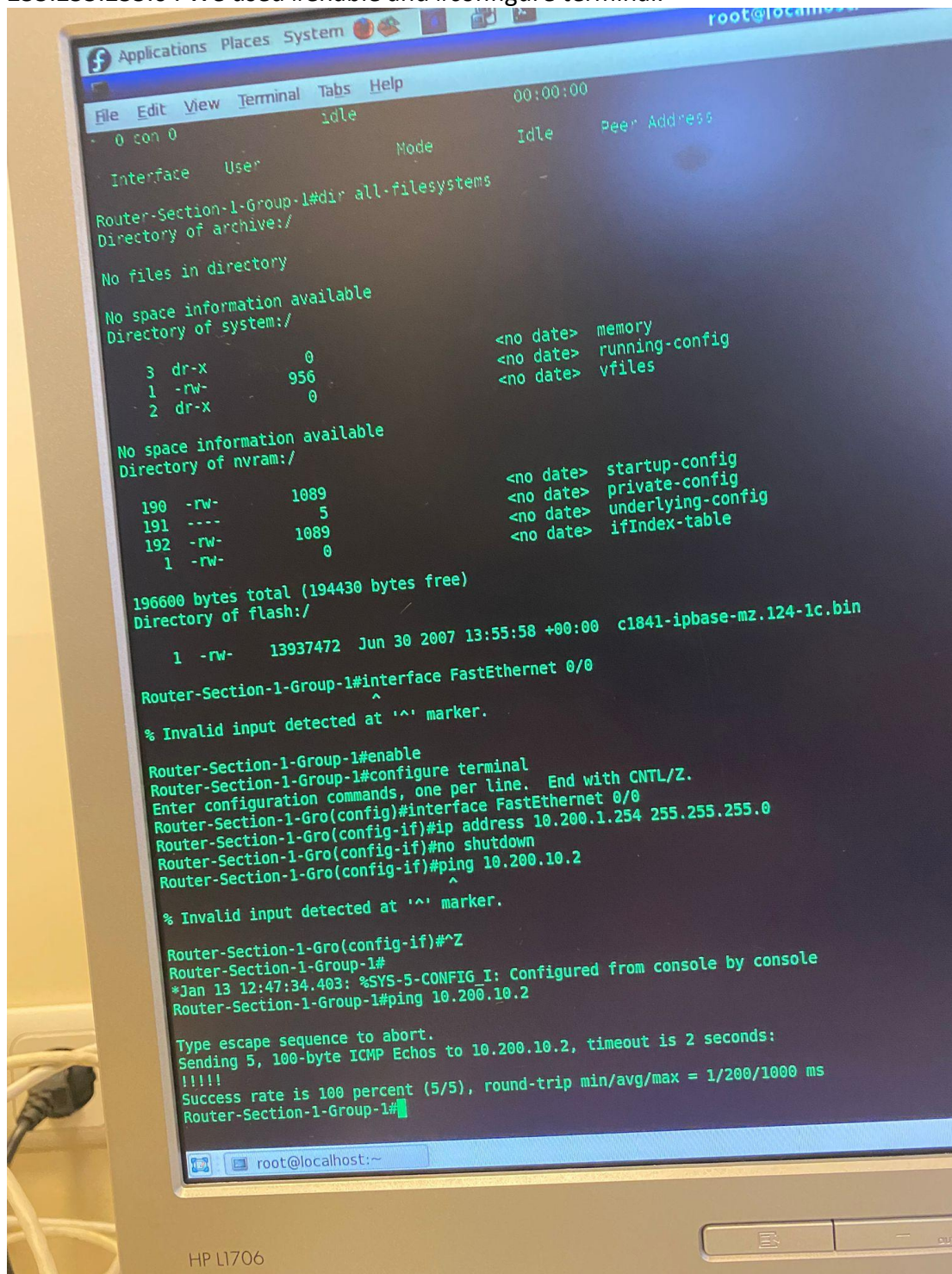


We plugged required cables and connection is activated. There is no issue happening and all these connections are green lights which shows us everything is okay.

Note: Since our router did not work properly, we switched to another PC on this lab.

2. You should enter enable mode if you want to configure anything on router. Show commands can be used in user or enable mode (outside of config mode). You can also use ? symbol for displaying usable commands in that mode and their simple explanations.

Our group number is 1 and IP address is 10.200.1.254. Subnet Mask is 255.255.255.0 . We used #enable and #configure terminal.



3.If there is any configuration settings stored in your Router, which may be left from previous lab sessions, you have to reset your router to factory default setting according to Cisco procedures documented in files in FTP directory of the course.

Every modification that was required was made from scratch.

4. First you have to give appropriate names to your Router, according to your section/group number using hostname command.

Router>enable

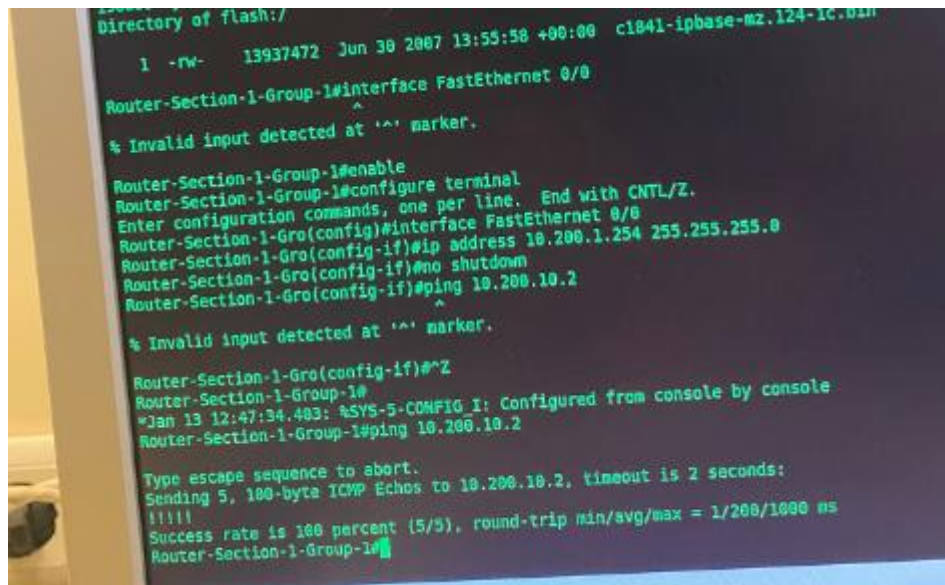
Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router (config)#hostname Router-Section-1-Group-1

Router-Section-1-Group-1(config)#^Z

Router-Section-1-Group-1#



```
Directory of flash:/
1 -rw- 13937472 Jun 30 2007 13:55:58 +00:00 c1841-ipbase-mz.124-1c.bin

Router-Section-1-Group-1#interface FastEthernet 0/0
^
% Invalid input detected at '^' marker.

Router-Section-1-Group-1#enable
Router-Section-1-Group-1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router-Section-1-Group-1(config)#interface FastEthernet 0/0
Router-Section-1-Group-1(config-if)#ip address 10.200.1.254 255.255.255.0
Router-Section-1-Group-1(config-if)#no shutdown
Router-Section-1-Group-1(config-if)#ping 10.200.10.2
^
% Invalid input detected at '^' marker.


Router-Section-1-Group-1(config-if)#^Z
Router-Section-1-Group-1#
*Jan 13 12:47:34.403: %SYS-5-CONFIG I: Configured from console by console
Router-Section-1-Group-1#ping 10.200.10.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echoes to 10.200.10.2, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/200/1000 ms
Router-Section-1-Group-1#
```

Here, we can easily visualize from leftmost side of terminal that our Router is named as Router-Section-1-Group-1.

5. In this step, each group runs simple show commands, snapshot and discuss the results.

show version: Displays general information about router and Cisco IOS version



```
Router-Section-1-Group-1#show ver
Router-Section-1-Group-1#show version
Cisco IOS Software, 1841 Software (C1841-IPBASE-M), Version 12.4(13r), RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2005 by Cisco Systems, Inc.
Compiled Tue 25-Oct-05 17:10 by evmiller

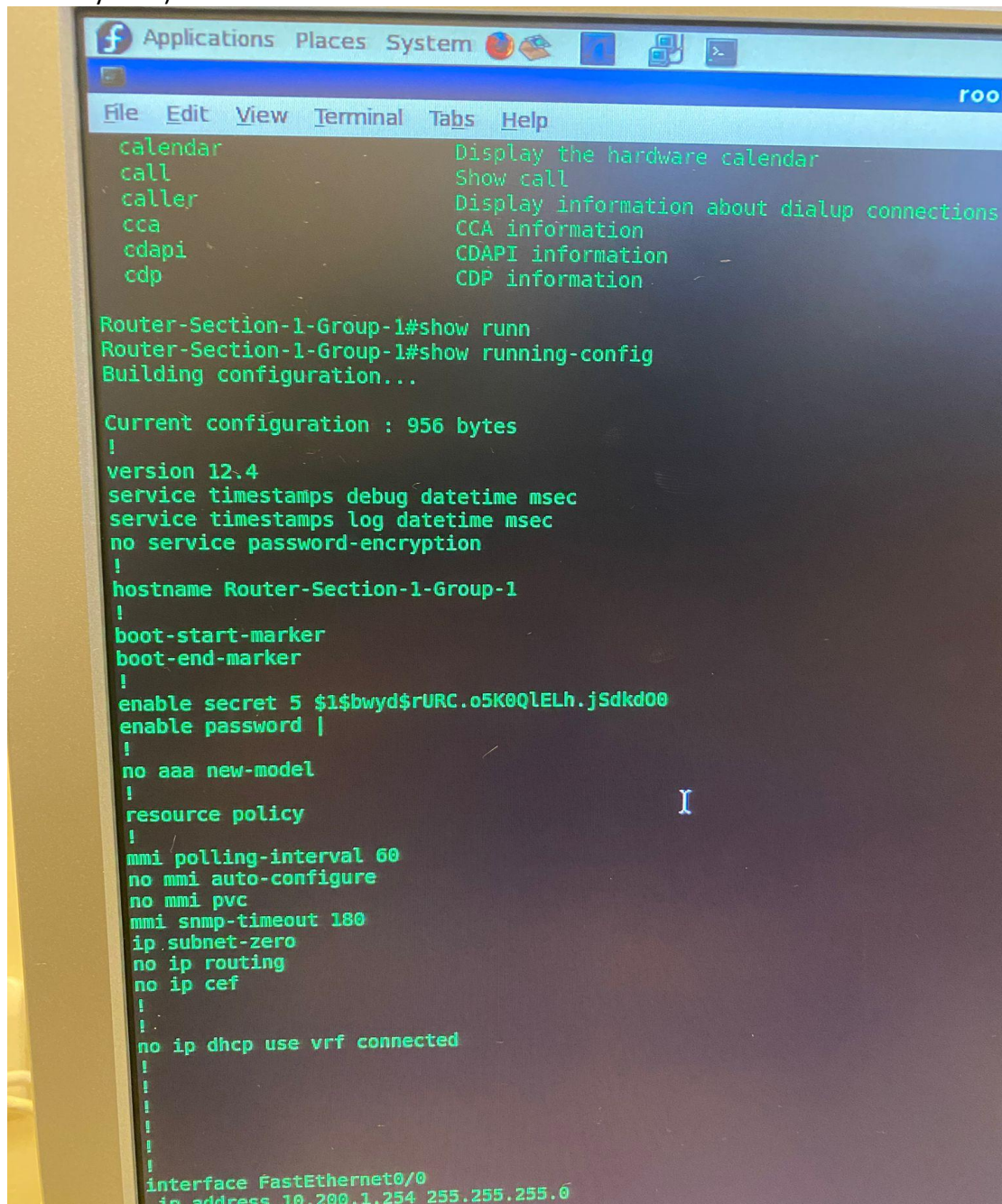
ROM: System Bootstrap, Version 12.4(13r)T, RELEASE SOFTWARE (fc1)

Router-Section-1-Group-1 uptime is 37 minutes
System returned to ROM by reload at 12:19:34 UTC Tue Jan 13 1970
System image file is "flash:c1841-ipbase-mz.124-1c.bin"

Cisco 1841 (revision 7.0) with 114688K/16384K bytes of memory.
Processor board ID FC2112613TX
2 FastEthernet interfaces
2 Serial(sync/async) interfaces
DRAM configuration is 64 bits wide with parity disabled.
191K bytes of NVRAM.
31360K bytes of ATA CompactFlash (Read/Write)

Configuration register is 0x2102
Router-Section-1-Group-1#
```


show running-config: Shows the current configuration settings (stored in main memory RAM) on the router



```
calendar          Display the hardware calendar
call              Show call
caller            Display information about dialup connections
cca               CCA information
cdapi             CDAPI information
cdp               CDP information

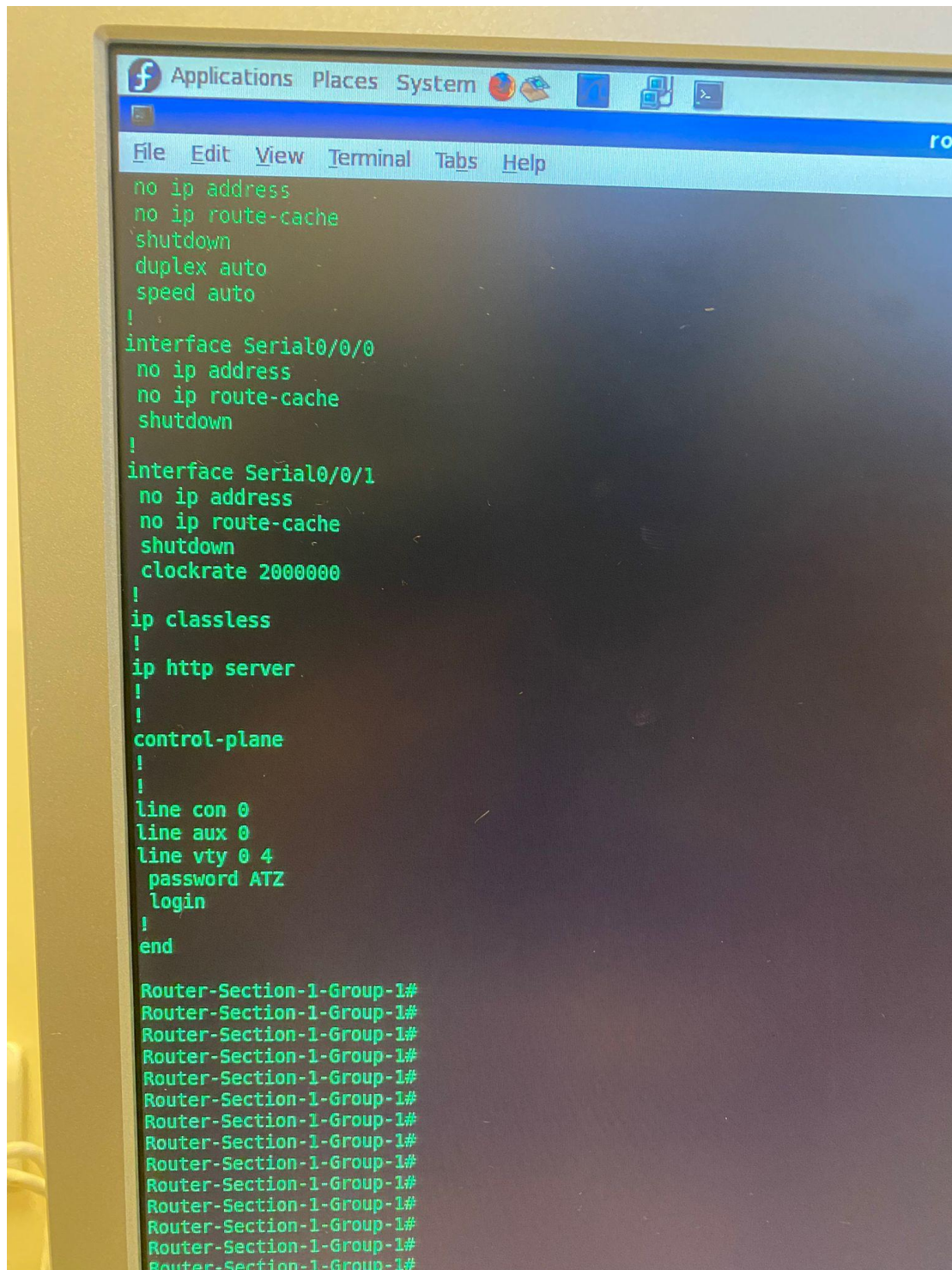
Router-Section-1-Group-1#show runn
Router-Section-1-Group-1#show running-config
Building configuration...

Current configuration : 956 bytes
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname Router-Section-1-Group-1
!
boot-start-marker
boot-end-marker
!
enable secret 5 $1$bwyd$rURC.o5K0Q1ELh.jSdkd00
enable password |
!
no aaa new-model
!
resource policy
!
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
ip subnet-zero
no ip routing
no ip cef
!
!
no ip dhcp use vrf connected
!
!
!
!
!
interface FastEthernet0/0
ip address 10.200.1.254 255.255.255.0
```

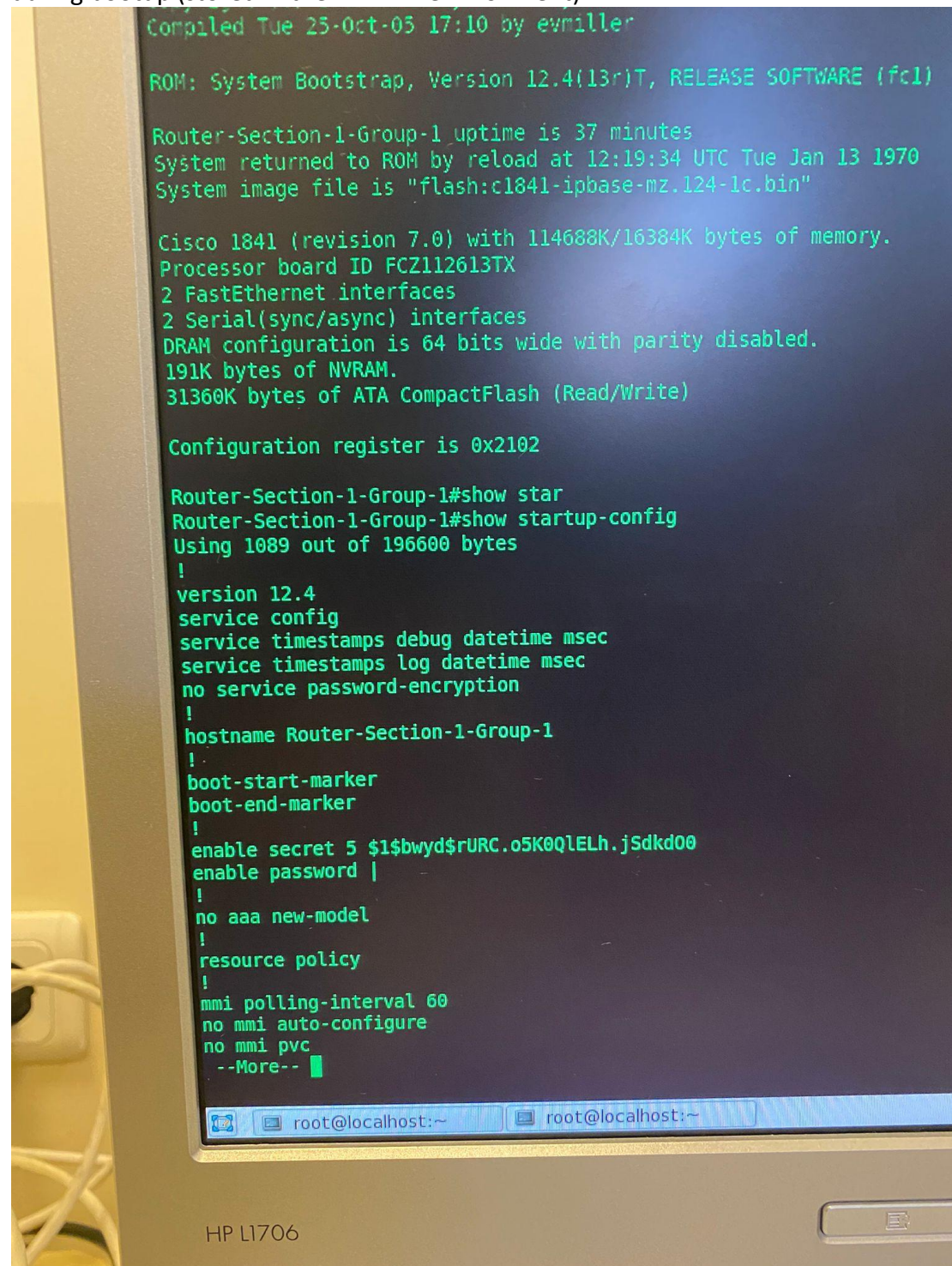
Applications Places System

File Edit View Terminal Tabs Help

```
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
ip subnet-zero
no ip routing
no ip cef
!
!
no ip dhcp use vrf connected
!
!
!
!
!
!
interface FastEthernet0/0
ip address 10.200.1.254 255.255.255.0
no ip route-cache
speed auto
half-duplex
no mop enabled
!
interface FastEthernet0/1
no ip address
no ip route-cache
shutdown
duplex auto
speed auto
!
interface Serial0/0/0
no ip address
no ip route-cache
shutdown
!
interface Serial0/0/1
no ip address
no ip route-cache
shutdown
clockrate 2000000
!
ip classless
!
ip http server
!
control-plane
```

show startup-config: Shows the configuration settings to be loaded on the router during bootup (stored in the NVRAM environment).



```
Compiled Tue 25-Oct-03 17:10 by ewmiller

ROM: System Bootstrap, Version 12.4(13r)T, RELEASE SOFTWARE (fc1)

Router-Section-1-Group-1 uptime is 37 minutes
System returned to ROM by reload at 12:19:34 UTC Tue Jan 13 1970
System image file is "flash:c1841-ipbase-mz.124-1c.bin"

Cisco 1841 (revision 7.0) with 114688K/16384K bytes of memory.
Processor board ID FC2112613TX
2 FastEthernet interfaces
2 Serial(sync/async) interfaces
DRAM configuration is 64 bits wide with parity disabled.
191K bytes of NVRAM.
31360K bytes of ATA CompactFlash (Read/Write)

Configuration register is 0x2102

Router-Section-1-Group-1#show star
Router-Section-1-Group-1#show startup-config
Using 1089 out of 196600 bytes
!
version 12.4
service config
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname Router-Section-1-Group-1
!
boot-start-marker
boot-end-marker
!
enable secret 5 $1$bwyd$rURC.o5K0QLh.jSdKd00
enable password |
!
no aaa new-model
!
resource policy
!
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
--More--
```


show users: Gives information about the connected users

```
Router-Section-1-Group-1#show users
Router-Section-1-Group-1#show users
  Line      User      Host(s)      Idle      Location
  *  0 con 0              idle        00:00:00

Interface    User      Mode      Idle      Peer Address
```

dir all-filesystems: It lists all files and directories in the memory units on the router

```
% Invalid input detected at ^ marker.

Router-Section-1-Group-1#show us
Router-Section-1-Group-1#show user
Router-Section-1-Group-1#show users
Router-Section-1-Group-1#show users
  Line      User      Host(s)      Idle      Location
  *  0 con 0              idle        00:00:00

Interface    User      Mode      Idle      Peer Address

Router-Section-1-Group-1#dir al
Router-Section-1-Group-1#dir all-filesystems
Directory of archive:/

No files in directory

No space information available
Directory of system:/

   3  dr-x           0          <no date> memory
   1  -rw-          956          <no date> running-config
   2  dr-x           0          <no date> vfiles

No space information available
Directory of nvram:/

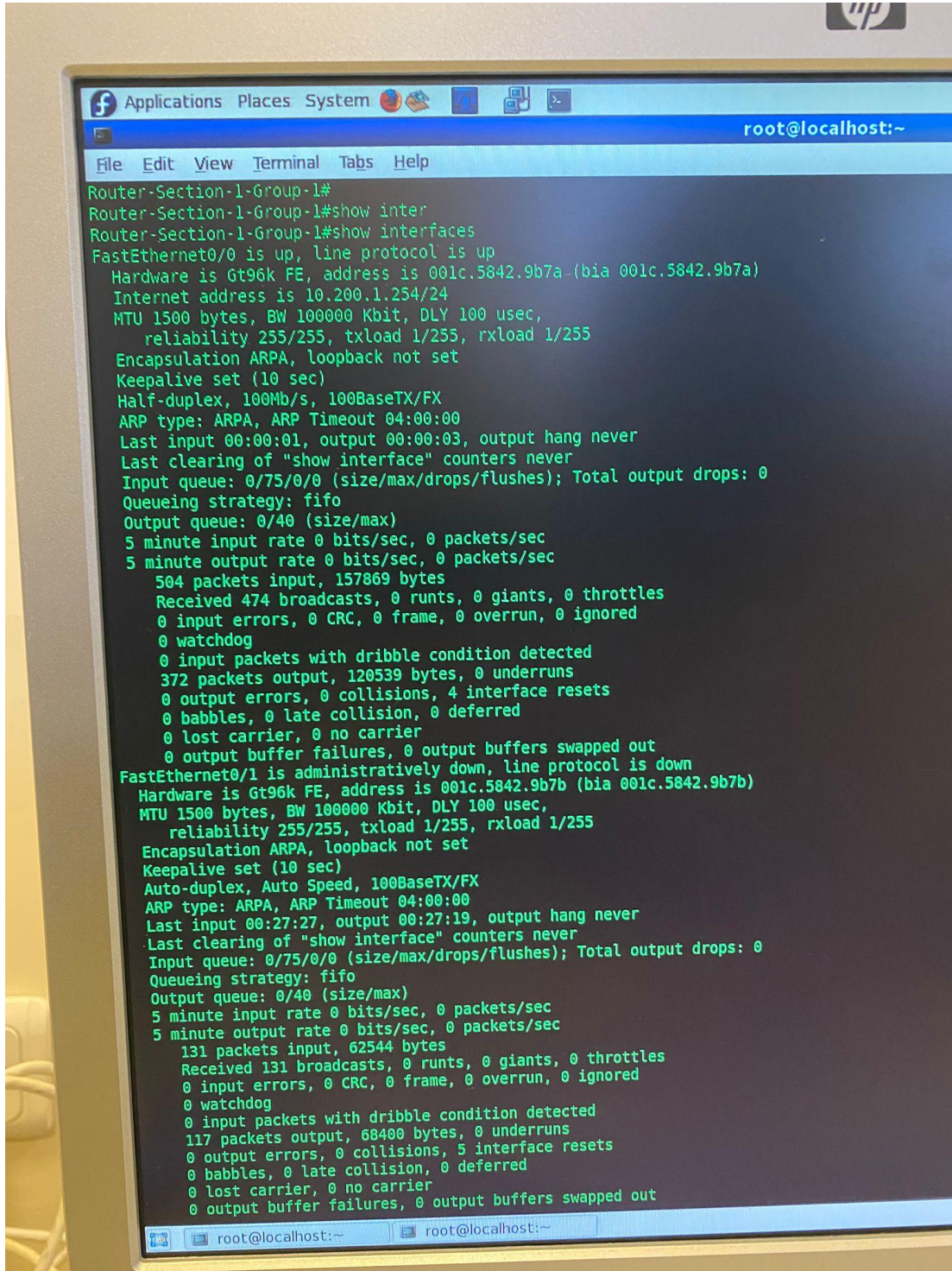
  190  -rw-         1089          <no date> startup-config
  191  ----           5          <no date> private-config
  192  -rw-         1089          <no date> underlying-config
    1  -rw-           0          <no date> ifIndex-table

196600 bytes total (194430 bytes free)
Directory of flash:/

   1  -rw-    13937472  Jun 30 2007 13:55:58 +00:00  c1841-ipbase-mz.124-1c.bi
   2  -rw-         1821  Jun 30 2007 14:11:06 +00:00  sdmconfig-18xx.cfg
   3  -rw-    861696   Jun 30 2007 14:11:28 +00:00  es.tar
   4  -rw-   1164288   Jun 30 2007 14:11:52 +00:00  common.tar
   5  -rw-         1038  Jun 30 2007 14:12:10 +00:00  home.shtml
   6  -rw-   113152   Jun 30 2007 14:12:30 +00:00  home.tar
   7  -rw-         913   Dec 13 2011 11:50:50 +00:00  running-config
   8  -rw-         746   Nov 22 2012 11:38:04 +00:00  root
   9  -rw-         799   May 31 2013 09:52:44 +00:00  start-up

31932416 bytes total (15826944 bytes free)
Router-Section-1-Group-1#
Router-Section-1-Group-1#
Router-Section-1-Group-1#
Router-Section-1-Group-1#
```


show interfaces: Shows all details about interfaces on the router



```
Router-Section-1-Group-1#
Router-Section-1-Group-1#show inter
Router-Section-1-Group-1#show interfaces
FastEthernet0/0 is up, line protocol is up
  Hardware is Gt96k FE, address is 001c.5842.9b7a (bia 001c.5842.9b7a)
  Internet address is 10.200.1.254/24
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Half-duplex, 100Mb/s, 100BaseTX/FX
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:01, output 00:00:03, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    504 packets input, 157869 bytes
    Received 474 broadcasts, 0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 watchdog
    0 input packets with dribble condition detected
    372 packets output, 120539 bytes, 0 underruns
    0 output errors, 0 collisions, 4 interface resets
    0 babbles, 0 late collision, 0 deferred
    0 lost carrier, 0 no carrier
    0 output buffer failures, 0 output buffers swapped out
FastEthernet0/1 is administratively down, line protocol is down
  Hardware is Gt96k FE, address is 001c.5842.9b7b (bia 001c.5842.9b7b)
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto Speed, 100BaseTX/FX
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:27:27, output 00:27:19, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    131 packets input, 62544 bytes
    Received 131 broadcasts, 0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 watchdog
    0 input packets with dribble condition detected
    117 packets output, 68400 bytes, 0 underruns
    0 output errors, 0 collisions, 5 interface resets
    0 babbles, 0 late collision, 0 deferred
    0 lost carrier, 0 no carrier
    0 output buffer failures, 0 output buffers swapped out
```

```

Hardware is GT96K Serial
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation HDLC, loopback not set
Keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
  Conversations 0/0/256 (active/max active/max total)
  Reserved Conversations 0/0 (allocated/max allocated)
  Available Bandwidth 1158 kilobits/sec
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
  Received 0 broadcasts, 0 runs, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
  0 packets output, 0 bytes, 0 underruns
  0 output errors, 0 collisions, 3 interface resets
  0 output buffer failures, 0 output buffers swapped out
  0 carrier transitions
DCD=down DSR=down DTR=down RTS=down CTS=down

```

show ip interface brief: Shows interfaces' ip address and status briefly.

```

Router-Section-1-Group-1#show ip interface br
Router-Section-1-Group-1#show ip interface brief
Interface          IP-Address      OK? Method Status        Protocol
FastEthernet0/0    10.200.1.254   YES manual up             up
FastEthernet0/1    unassigned      YES manual administratively down down
Serial0/0/0        unassigned      YES manual administratively down down
Serial0/0/1        unassigned      YES manual administratively down down
Router-Section-1-Group-1#

```

6. Configure IP address of your PC and Router according to Figure 2 - Lab Topology

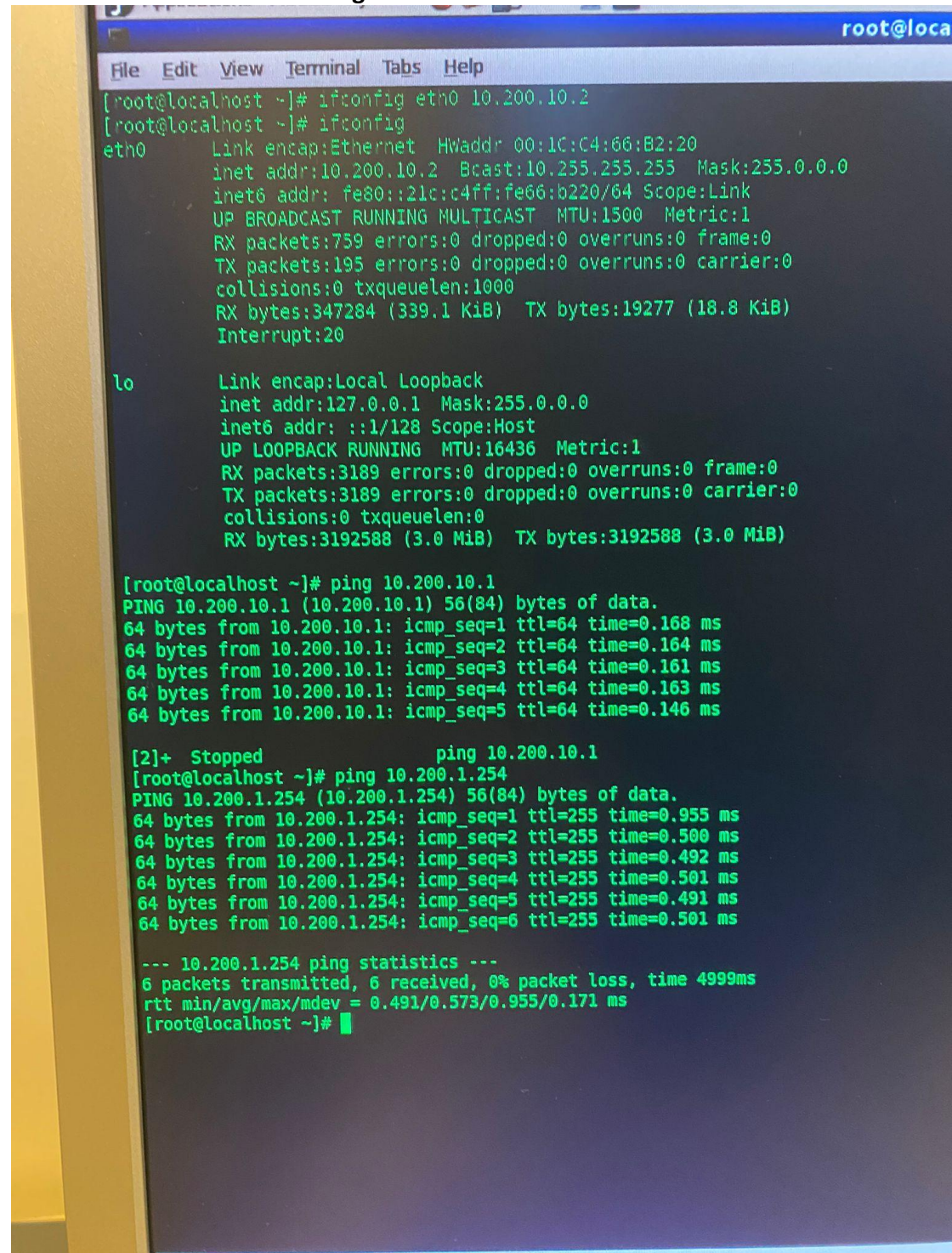
```

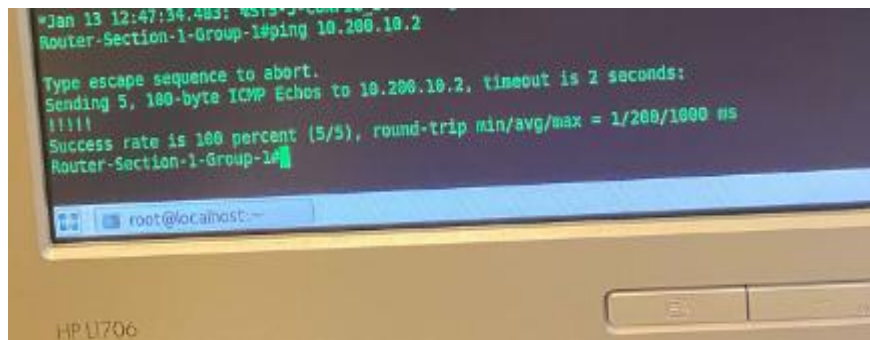
Router-Section-1-Group-1#
Enter configuration commands, one per line. End with Ctrl-Z.
Router-Section-1-Group-1(config)#interface FastEthernet 0/0
Router-Section-1-Group-1(config-if)#ip address 10.200.1.254 255.255.255.0
Router-Section-1-Group-1(config-if)#no shutdown
Router-Section-1-Group-1(config-if)#ping 10.200.10.2
^

```

Ip addresses are configured properly.

7. Finally you are able to ping in both ways (PC to Router, Router to PC), if every cable connections and IP configurations are correct.





In Router console, "!" means successful, so we can imply that ping in both ways is successful.