

F29DC 2024 Lab 2

Cisco Routers

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-

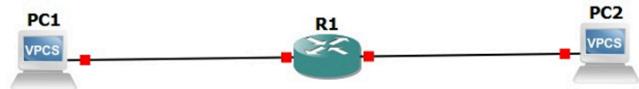


Image 1.1 : Setting up the connection with the router to 2 VPC's naming PC1 and PC2 .

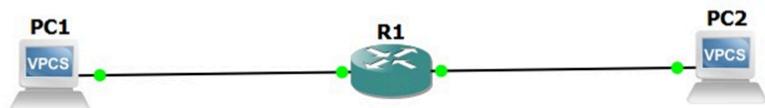


Image 1.2 : Starting the connection between the router and the 2 VPC's .

```
SHYAM - PuTTY

Welcome to Virtual PC Simulator, version 0.6.2
Dedicated to Daling.
Build time: Apr 10 2019 02:42:20
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VPCS is free software, distributed under the terms of the "BSD" licence.
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.

Executing the startup file

PC1> show

NAME   IP/MASK          GATEWAY        MAC           LPORT  RHOST:PO
RT
PC1    0.0.0.0/0         0.0.0.0       00:50:79:66:68:00  10008  127.0.0.
1:10009
      fe80::250:79ff:fe66:6800/64

PC1> ip 192.168.1.1
Checking for duplicate address...
PC1 : 192.168.1.1 255.255.255.0
```

Image 1.3 : Providing IP for PC1.

```
SHYAM - PuTTY

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Press '?' to get help.

Executing the startup file

PC2> show

NAME   IP/MASK          GATEWAY        MAC           LPORT  RHOST:PO
RT
PC2    0.0.0.0/0         0.0.0.0       00:50:79:66:68:01  10010  127.0.0.
1:10011
      fe80::250:79ff:fe66:6801/64

PC2> ip 192.168.2.1
Checking for duplicate address...
PC1 : 192.168.2.1 255.255.255.0
```

Image 1.4 : Providing IP for PC2.

```
PC1> ping 192.168.2.1  
No gateway found
```

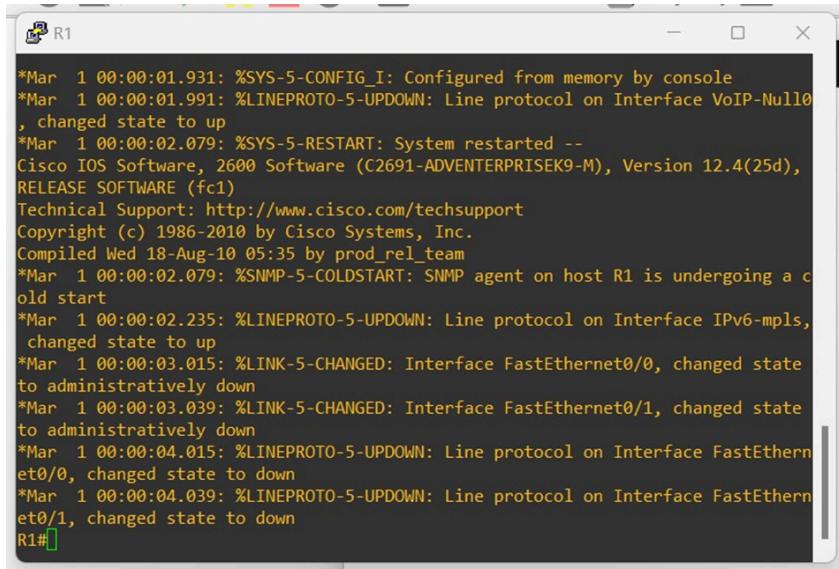
```
PC1> █
```

```
PC2> ping 192.168.1.1  
No gateway found
```

```
PC2> █
```

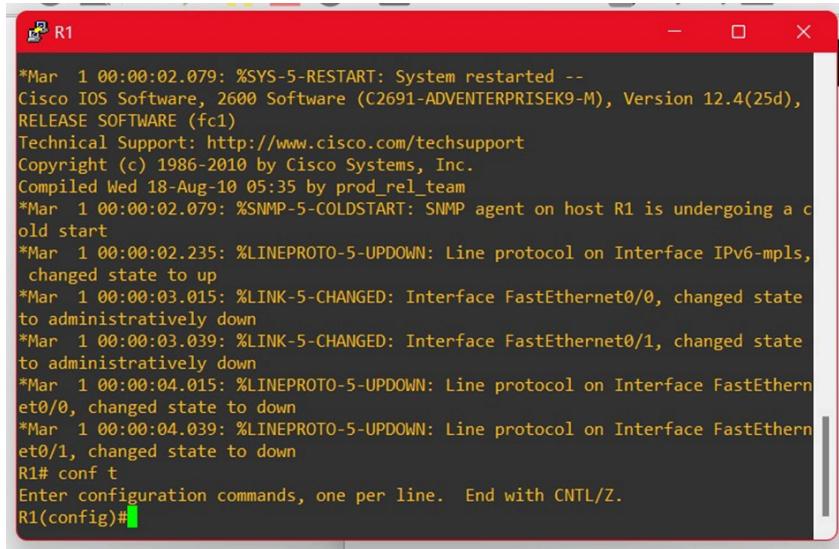
Image 1.5 : Checking if PC2 is reachable from PC1.

Its not reachable .



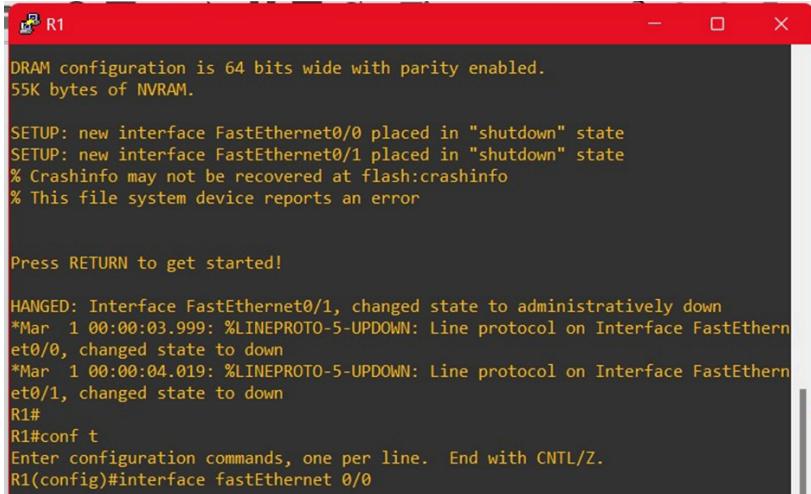
```
*Mar 1 00:00:01.931: %SYS-5-CONFIG_I: Configured from memory by console
*Mar 1 00:00:01.991: %LINEPROTO-5-UPDOWN: Line protocol on Interface VoIP-Null0
, changed state to up
*Mar 1 00:00:02.079: %SYS-5-RESTART: System restarted --
Cisco IOS Software, 2600 Software (C2691-ADVENTERPRISEK9-M), Version 12.4(25d),
RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2010 by Cisco Systems, Inc.
Compiled Wed 18-Aug-10 05:35 by prod_rel_team
*Mar 1 00:00:02.079: %SNMP-5-COLDSTART: SNMP agent on host R1 is undergoing a c
old start
*Mar 1 00:00:02.235: %LINEPROTO-5-UPDOWN: Line protocol on Interface IPv6-mpls,
changed state to up
*Mar 1 00:00:03.015: %LINK-5-CHANGED: Interface FastEthernet0/0, changed state
to administratively down
*Mar 1 00:00:03.039: %LINK-5-CHANGED: Interface FastEthernet0/1, changed state
to administratively down
*Mar 1 00:00:04.015: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to down
*Mar 1 00:00:04.039: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/1, changed state to down
R1#
```

Image 1.6 : Starting the console for router and pressing return/enter key to respond .



```
*Mar 1 00:00:02.079: %SYS-5-RESTART: System restarted --
Cisco IOS Software, 2600 Software (C2691-ADVENTERPRISEK9-M), Version 12.4(25d),
RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2010 by Cisco Systems, Inc.
Compiled Wed 18-Aug-10 05:35 by prod_rel_team
*Mar 1 00:00:02.079: %SNMP-5-COLDSTART: SNMP agent on host R1 is undergoing a c
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*Mar 1 00:00:02.235: %LINEPROTO-5-UPDOWN: Line protocol on Interface IPv6-mpls,
changed state to up
*Mar 1 00:00:03.015: %LINK-5-CHANGED: Interface FastEthernet0/0, changed state
to administratively down
*Mar 1 00:00:03.039: %LINK-5-CHANGED: Interface FastEthernet0/1, changed state
to administratively down
*Mar 1 00:00:04.015: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to down
*Mar 1 00:00:04.039: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/1, changed state to down
R1# conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#
```

Image 1.7 : Switching from privileged mode to config mode.



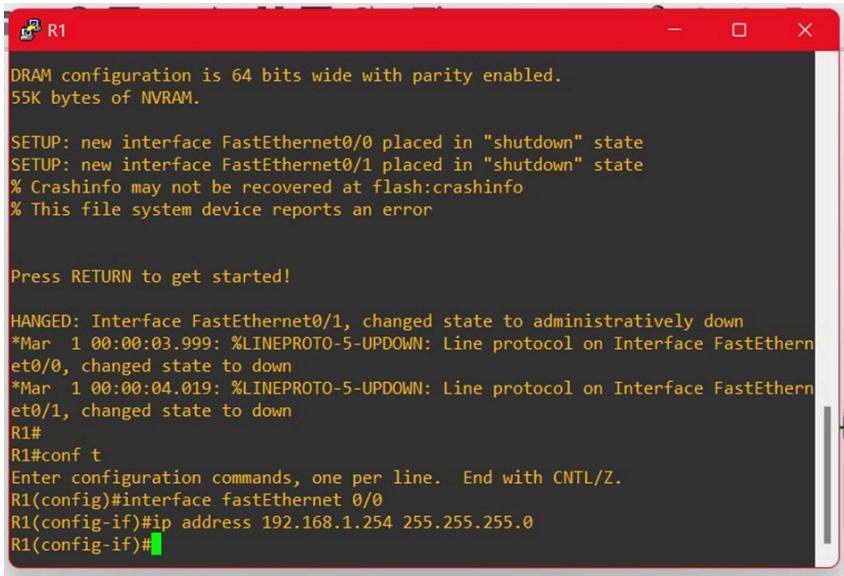
```
R1
DRAM configuration is 64 bits wide with parity enabled.
55K bytes of NVRAM.

SETUP: new interface FastEthernet0/0 placed in "shutdown" state
SETUP: new interface FastEthernet0/1 placed in "shutdown" state
% Crashinfo may not be recovered at flash:crashinfo
% This file system device reports an error

Press RETURN to get started!

HANGED: Interface FastEthernet0/1, changed state to administratively down
*Mar 1 00:00:03.999: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
*Mar 1 00:00:04.019: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
R1#
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface fastEthernet 0/0
```

Image 1.8 : Typing interface fastEthernet 0/0 and taking it to a if (interface) sub-mode that allows you to configure routers first fast ethernet interface.



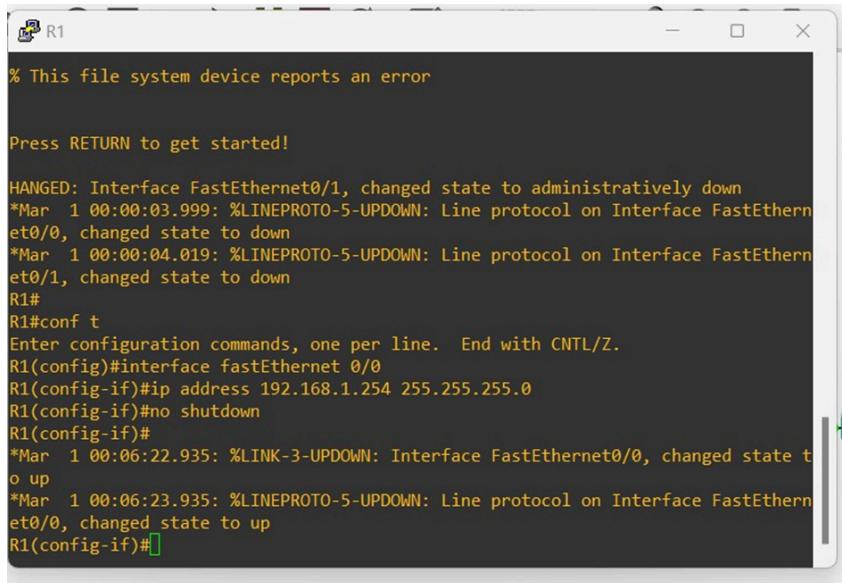
```
R1
DRAM configuration is 64 bits wide with parity enabled.
55K bytes of NVRAM.

SETUP: new interface FastEthernet0/0 placed in "shutdown" state
SETUP: new interface FastEthernet0/1 placed in "shutdown" state
% Crashinfo may not be recovered at flash:crashinfo
% This file system device reports an error

Press RETURN to get started!

HANGED: Interface FastEthernet0/1, changed state to administratively down
*Mar 1 00:00:03.999: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
*Mar 1 00:00:04.019: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
R1#
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface fastEthernet 0/0
R1(config-if)#ip address 192.168.1.254 255.255.255.0
R1(config-if)#
```

Image 1.9 : Typing the address to assign an IP address to the interface .

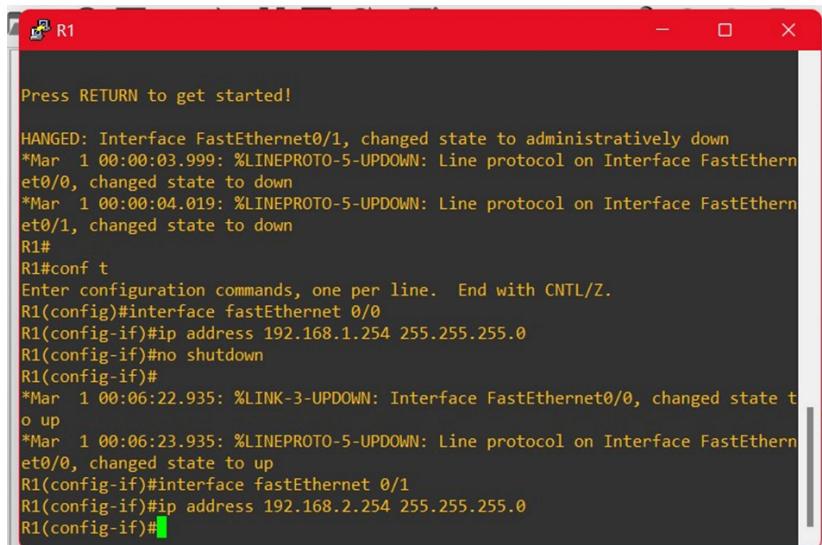


```
% This file system device reports an error

Press RETURN to get started!

HANGED: Interface FastEthernet0/1, changed state to administratively down
*Mar 1 00:00:03.999: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to down
*Mar 1 00:00:04.019: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
R1#
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface fastEthernet 0/0
R1(config-if)#ip address 192.168.1.254 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#
*Mar 1 00:06:22.935: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar 1 00:06:23.935: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
R1(config-if)#[
```

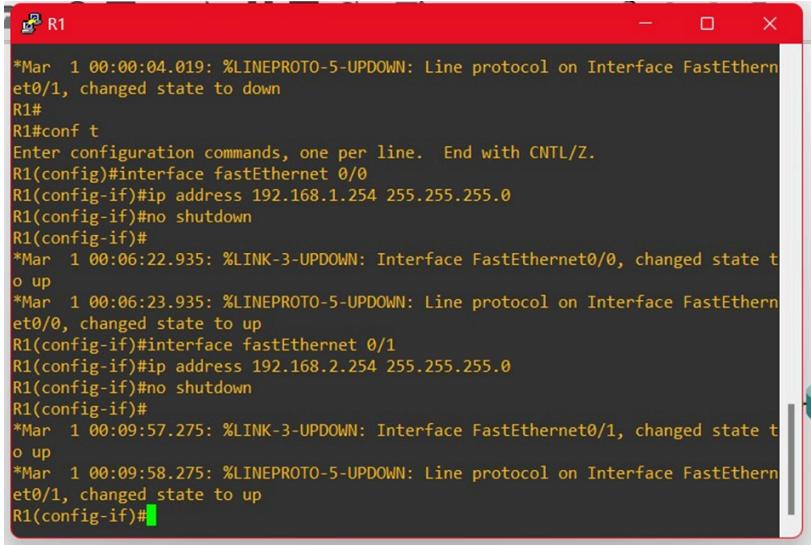
Image 1.10 : Typing no shutdown for activating the interface .



```
Press RETURN to get started!

HANGED: Interface FastEthernet0/1, changed state to administratively down
*Mar 1 00:00:03.999: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to down
*Mar 1 00:00:04.019: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
R1#
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface fastEthernet 0/0
R1(config-if)#ip address 192.168.1.254 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#
*Mar 1 00:06:22.935: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar 1 00:06:23.935: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
R1(config-if)#interface fastEthernet 0/1
R1(config-if)#ip address 192.168.2.254 255.255.255.0
R1(config-if)#[
```

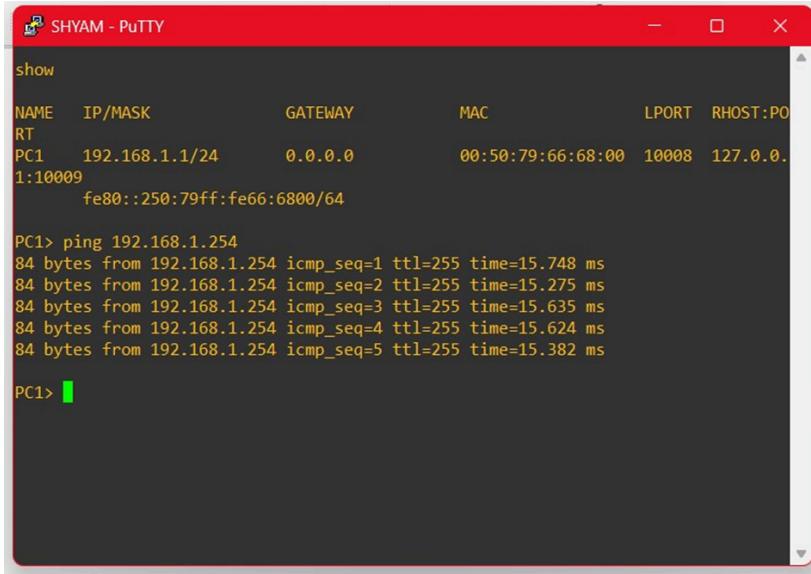
Image 1.11 : Following the same for a interface FE0/1 using 192.168.2.254 as the IP address .



R1

```
*Mar 1 00:00:04.019: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
R1#
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface fastEthernet 0/0
R1(config-if)#ip address 192.168.1.254 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#
*Mar 1 00:06:22.935: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar 1 00:06:23.935: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
R1(config-if)#interface fastEthernet 0/1
R1(config-if)#ip address 192.168.2.254 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#
*Mar 1 00:09:57.275: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
*Mar 1 00:09:58.275: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
R1(config-if)#[
```

Image 1.12 : Typing no shutdown for activating the interface .



SHYAM - PUTTY

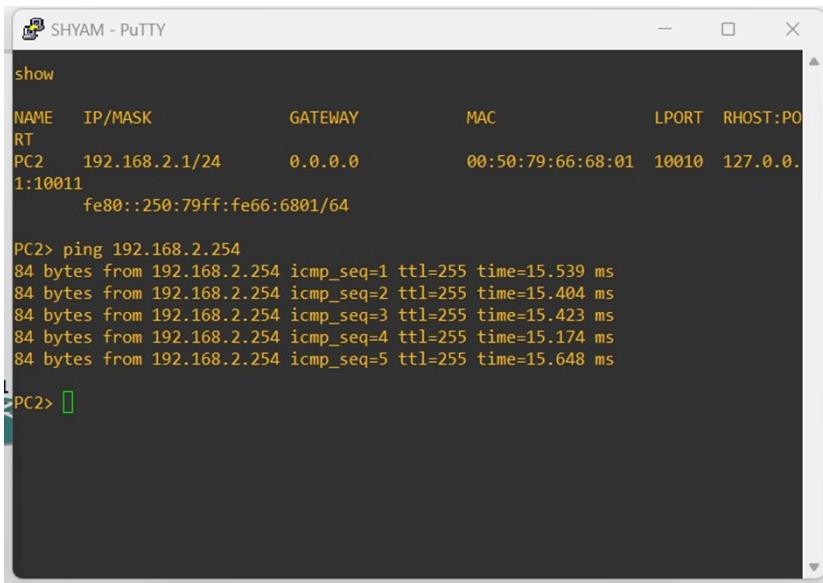
```
show
NAME IP/MASK GATEWAY MAC LPORT RHOST:PO
RT
PC1 192.168.1.1/24 0.0.0.0 00:50:79:66:68:00 10008 127.0.0.1:10009
fe80::250:79ff:fe66:6800/64

PC1> ping 192.168.1.254
84 bytes from 192.168.1.254 icmp_seq=1 ttl=255 time=15.748 ms
84 bytes from 192.168.1.254 icmp_seq=2 ttl=255 time=15.275 ms
84 bytes from 192.168.1.254 icmp_seq=3 ttl=255 time=15.635 ms
84 bytes from 192.168.1.254 icmp_seq=4 ttl=255 time=15.624 ms
84 bytes from 192.168.1.254 icmp_seq=5 ttl=255 time=15.382 ms

PC1> [
```

Image 1.13 : Pinging FE0/0 from PC1.

We are able to ping FE0/0 from PC1 as both interface and PC's respectively are connected under the same network.



SHYAM - PuTTY

```
show
NAME IP/MASK GATEWAY MAC LPORT RHOST:PO
RT
PC2 192.168.2.1/24 0.0.0.0 00:50:79:66:68:01 10010 127.0.0.
1:10011 fe80::250:79ff:fe66:6801/64

PC2> ping 192.168.2.254
84 bytes from 192.168.2.254 icmp_seq=1 ttl=255 time=15.539 ms
84 bytes from 192.168.2.254 icmp_seq=2 ttl=255 time=15.404 ms
84 bytes from 192.168.2.254 icmp_seq=3 ttl=255 time=15.423 ms
84 bytes from 192.168.2.254 icmp_seq=4 ttl=255 time=15.174 ms
84 bytes from 192.168.2.254 icmp_seq=5 ttl=255 time=15.648 ms

PC2>
```

Image 1.14 : Pinging FE0/1 from PC2.

We are able to ping FE0/1 from PC2 as both interface and PC's respectively are connected under the same network.



```
PC1> ping 192.168.2.254
No gateway found

PC1>
```

Image 1.15 : Pinging FE0/1 from PC1.

We are not able to ping FE0/1 from PC1 as both interface and PC's respectively are not connected under the same network.

```
NAME IP/MASK GATEWAY MAC LPORT RHOST:PO  
RT  
PC1 192.168.1.1/24 0.0.0.0 00:50:79:66:68:00 10008 127.0.0.  
1:10009 fe80::250:79ff:fe66:6800/64  
  
PC1> ping 192.168.1.254  
84 bytes from 192.168.1.254 icmp_seq=1 ttl=255 time=15.748 ms  
84 bytes from 192.168.1.254 icmp_seq=2 ttl=255 time=15.275 ms  
84 bytes from 192.168.1.254 icmp_seq=3 ttl=255 time=15.635 ms  
84 bytes from 192.168.1.254 icmp_seq=4 ttl=255 time=15.624 ms  
84 bytes from 192.168.1.254 icmp_seq=5 ttl=255 time=15.382 ms  
  
PC1> ping 192.168.2.254  
No gateway found  
  
PC1> ip 192.168.1.1 192.168.1.254/24  
Checking for duplicate address...  
PC1 : 192.168.1.1 255.255.255.0 gateway 192.168.1.254  
  
PC1>
```

Image 1.16 : Setting up a gateway for PC1.

```
1 PC1> ping 192.168.2.1/24  
192.168.2.1 icmp_seq=1 timeout  
192.168.2.1 icmp_seq=2 timeout  
192.168.2.1 icmp_seq=3 timeout  
192.168.2.1 icmp_seq=4 timeout  
192.168.2.1 icmp_seq=5 timeout  
  
PC1>
```

Image 1.17 : Trying to ping PC2 from PC1.

This returns as timeout as they are in different subnets.
While for PC1 we have provided and IP with a gateway
192.168.1.254, PC2 has a an IP of 192.168.1.1 with no gateway.
Therefore, to overcome this issue, we should provide a
subnet for PC2 inorder to get pinged from PC1.

```
PC2> ip 192.168.2.1 192.168.2.254/24
Checking for duplicate address...
PC1 : 192.168.2.1 255.255.255.0 gateway 192.168.2.254
```

Image 1.18 : Setting up a gateway for PC2 similar to the one we gave for PC1.

```
PC1> ping 192.168.2.1/24
84 bytes from 192.168.2.1 icmp_seq=1 ttl=63 time=30.570 ms
84 bytes from 192.168.2.1 icmp_seq=2 ttl=63 time=30.181 ms
84 bytes from 192.168.2.1 icmp_seq=3 ttl=63 time=30.576 ms
84 bytes from 192.168.2.1 icmp_seq=4 ttl=63 time=30.350 ms
84 bytes from 192.168.2.1 icmp_seq=5 ttl=63 time=30.871 ms
```

```
PC1> 
```

Image1.19 : Trying to ping PC2 from PC1.