

# **INTERNETWORKING ESSENTIALS CA1**

## **BACHELOR OF TECHNOLOGY**

IN

Computer Science & Engineering

By

**GORRELA GEETHA SRI**

SECTION-K23UP

Roll no: 44

Reg.No: 12321952

TO

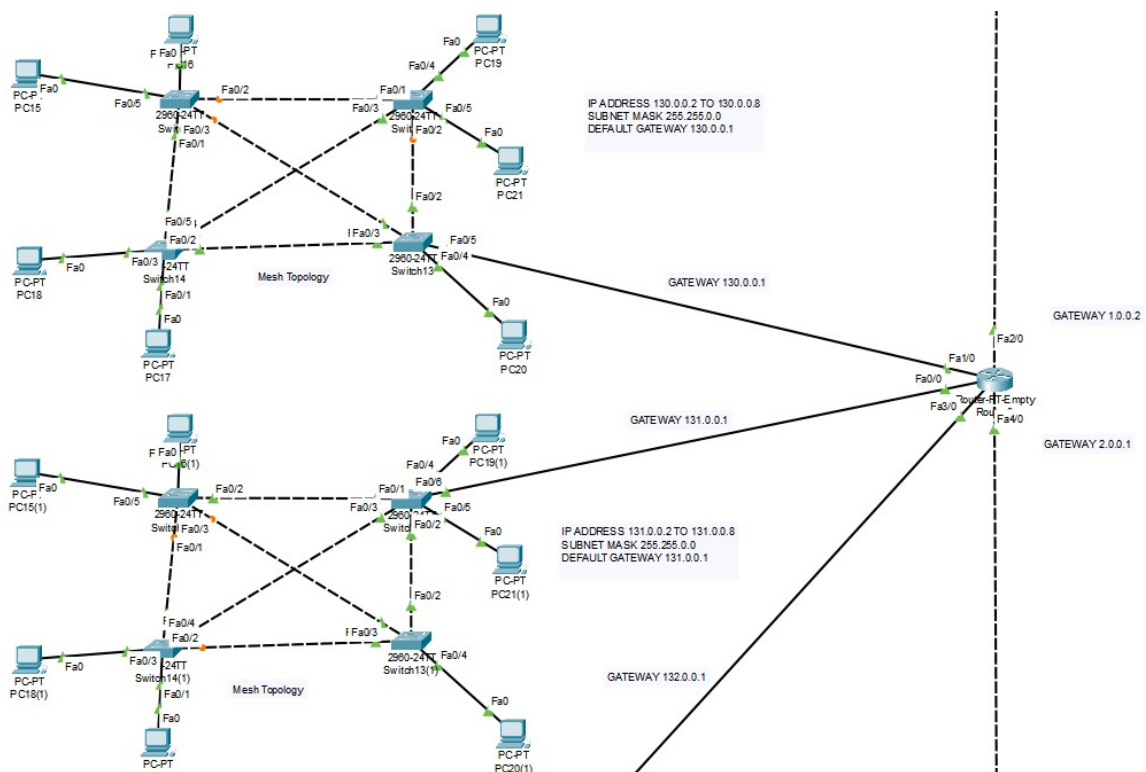
**Mr. Simarjit Singh Malhi**

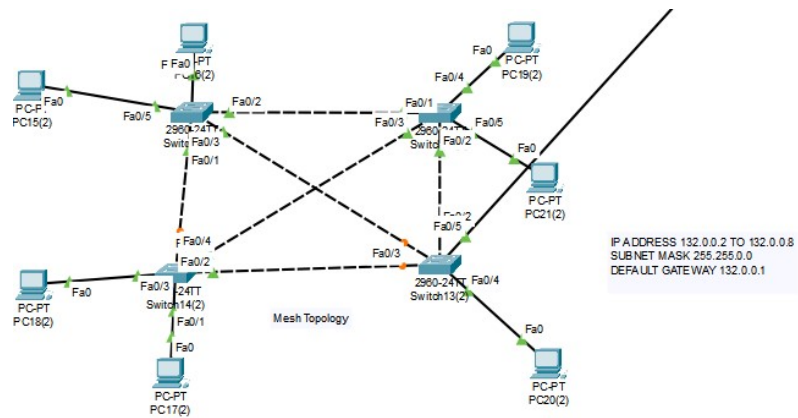


**LOVELY PROFESSIONAL UNIVERSITY**

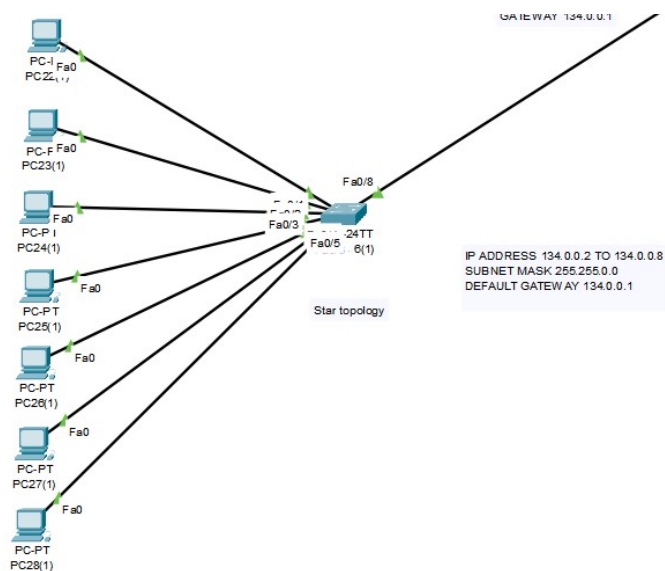
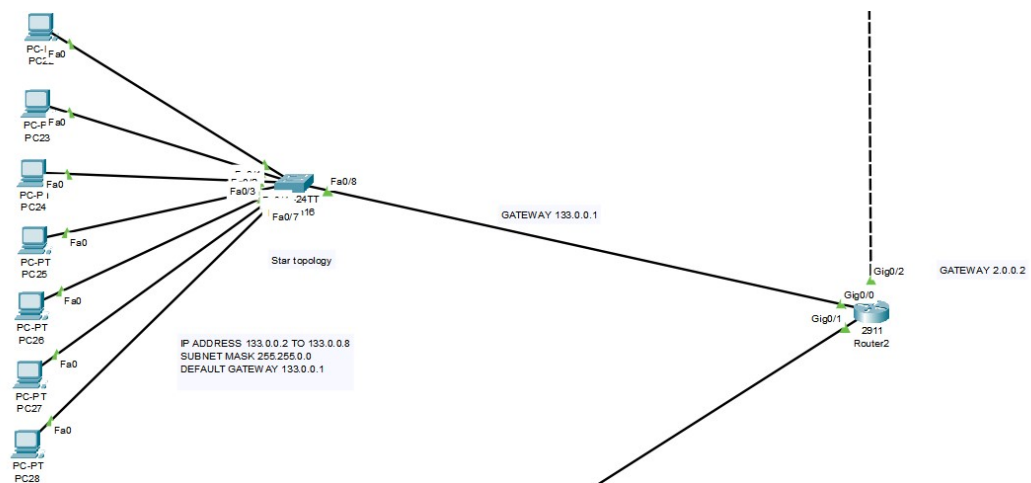
**PUNJAB INDIA**

### Ring Topology for first 2 floors:

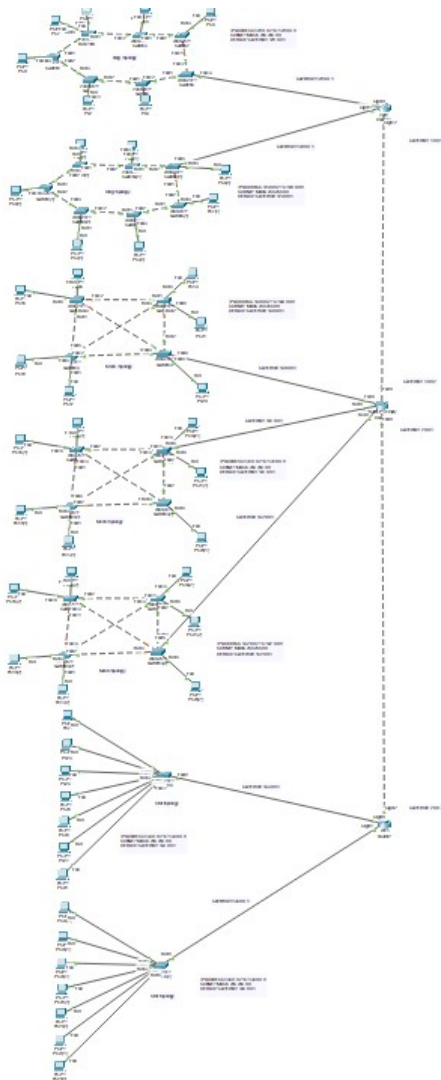




## Star Topology for next 2 floors:



## Full connection:



## 2. Allocation of IP Address:

1<sup>st</sup> Floor:

The screenshot shows the 'IP Configuration' window for PC1. The 'Interface' is set to 'FastEthernet0'. Under 'IP Configuration', the 'Static' radio button is selected. The fields are filled with: IP Address: 128.0.0.2, Subnet Mask: 255.255.0.0, Default Gateway: 128.0.0.1, and DNS Server: 0.0.0.0. Under 'IPv6 Configuration', the 'Static' radio button is also selected. The fields are filled with: IPv6 Address: (empty), Link Local Address: FE80::260:47FF:FE88:441C, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty). The '802.1X' section has 'Use 802.1X Security' unchecked and 'Authentication' set to 'MD5'. A 'Top' button is at the bottom left.

Field	Value
Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	
<input checked="" type="radio"/> Static	
IP Address	128.0.0.2
Subnet Mask	255.255.0.0
Default Gateway	128.0.0.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> DHCP	
<input type="radio"/> Auto Config	
<input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address	FE80::260:47FF:FE88:441C
IPv6 Gateway	
IPv6 DNS Server	
802.1X	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5
Top	

2<sup>nd</sup> Floor:

The screenshot shows the 'IP Configuration' window for PC1(1). The 'Interface' is set to 'FastEthernet0'. Under 'IP Configuration', the 'Static' radio button is selected. The fields are filled with: IP Address: 129.0.0.2, Subnet Mask: 255.255.0.0, Default Gateway: 129.0.0.1, and DNS Server: 0.0.0.0. Under 'IPv6 Configuration', the 'Static' radio button is also selected. The fields are filled with: IPv6 Address: (empty), Link Local Address: FE80::201:42FF:FE43:D0E, IPv6 Gateway: (empty), and IPv6 DNS Server: (empty). The '802.1X' section has 'Use 802.1X Security' unchecked and 'Authentication' set to 'MD5'. A 'Top' button is at the bottom left.

Field	Value
Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	
<input checked="" type="radio"/> Static	
IP Address	129.0.0.2
Subnet Mask	255.255.0.0
Default Gateway	129.0.0.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> DHCP	
<input type="radio"/> Auto Config	
<input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address	FE80::201:42FF:FE43:D0E
IPv6 Gateway	
IPv6 DNS Server	
802.1X	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5
Top	

### 3rd Floor:

The screenshot shows the 'IP Configuration' window for PC16. The 'Interface' is set to 'FastEthernet0'. Under 'IP Configuration', the 'Static' radio button is selected. The IP Address is 130.0.0.2, Subnet Mask is 255.255.0.0, Default Gateway is 130.0.0.1, and DNS Server is 0.0.0.0. Under 'IPv6 Configuration', the 'Static' radio button is selected. The IPv6 Address is empty, Link Local Address is FE80::2E0:F9FF:FEE0:4922, IPv6 Gateway is empty, and IPv6 DNS Server is empty. The '802.1X' section has 'Use 802.1X Security' unchecked and 'Authentication' set to 'MD5'. A 'Top' button is at the bottom left.

IP Configuration	
Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	130.0.0.2
Subnet Mask	255.255.0.0
Default Gateway	130.0.0.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> DHCP	<input type="radio"/> Auto Config
<input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address	FE80::2E0:F9FF:FEE0:4922
IPv6 Gateway	
IPv6 DNS Server	
802.1X	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5
<input type="checkbox"/> Top	

### 4th Floor:

The screenshot shows the 'IP Configuration' window for PC16(1). The 'Interface' is set to 'FastEthernet0'. Under 'IP Configuration', the 'Static' radio button is selected. The IP Address is 131.0.0.2, Subnet Mask is 255.255.0.0, Default Gateway is 131.0.0.1, and DNS Server is 0.0.0.0. Under 'IPv6 Configuration', the 'Static' radio button is selected. The IPv6 Address is empty, Link Local Address is FE80::206:2AFF:FE9A:D889, IPv6 Gateway is empty, and IPv6 DNS Server is empty. The '802.1X' section has 'Use 802.1X Security' unchecked and 'Authentication' set to 'MD5'. A 'Top' button is at the bottom left.

IP Configuration	
Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	131.0.0.2
Subnet Mask	255.255.0.0
Default Gateway	131.0.0.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> DHCP	<input type="radio"/> Auto Config
<input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address	FE80::206:2AFF:FE9A:D889
IPv6 Gateway	
IPv6 DNS Server	
802.1X	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5
<input type="checkbox"/> Top	

5<sup>th</sup> Floor:

PC19(2)

Physical Config Desktop Programming Attributes

IP Configuration [X]

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address: 132.0.0.2

Subnet Mask: 255.255.0.0

Default Gateway: 132.0.0.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::20B:BEFF:FE32:7B14

IPv6 Gateway:

IPv6 DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

☐ Top

6th Floor:

PC22

Physical Config Desktop Programming Attributes

IP Configuration [X]

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address: 133.0.0.2

Subnet Mask: 255.255.0.0

Default Gateway: 133.0.0.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::290:2BFF:FEE2:DAE7

IPv6 Gateway:

IPv6 DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

☐ Top

7th Floor:

PC22(1)

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 134.0.0.2

Subnet Mask 255.255.0.0

Default Gateway 134.0.0.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::205:5EFF:FEE9:2A74

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

☐ Top



### 3. Dynamic Routing:

#### 1<sup>st</sup> Router:

Router0

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/2

RIP Routing

Network

Add

Network Address
1.0.0.0
128.0.0.0
129.0.0.0

Remove

Equivalent IOS Commands

```
Router(config)#router rip
Router(config-router)#
Router(config-router)#end
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#
%SYS-5-CONFIG_I: Configured from console by console
```

☐ Top

## 2<sup>nd</sup> Router:

The screenshot shows the configuration window for Router3. The 'Config' tab is active, and the 'RIP' option under the 'ROUTING' section is selected. The 'RIP Routing' configuration area includes a 'Network' input field, an 'Add' button, and a table of network addresses. The table lists 1.0.0.0, 2.0.0.0, and 130.0.0.0. A 'Remove' button is located below the table. The 'Equivalent IOS Commands' section shows the following commands:

```
changed state to up

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#
```

At the bottom left, there is a 'Top' button with a checkbox icon.

### 3rd Router:

Router2

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/2

RIP Routing

Network

Add

Network Address

2.0.0.0

133.0.0.0

134.0.0.0

Remove

Equivalent IOS Commands

GigabitEthernet0/2, changed state to up

Router>enable

Router#

Router#configure terminal

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

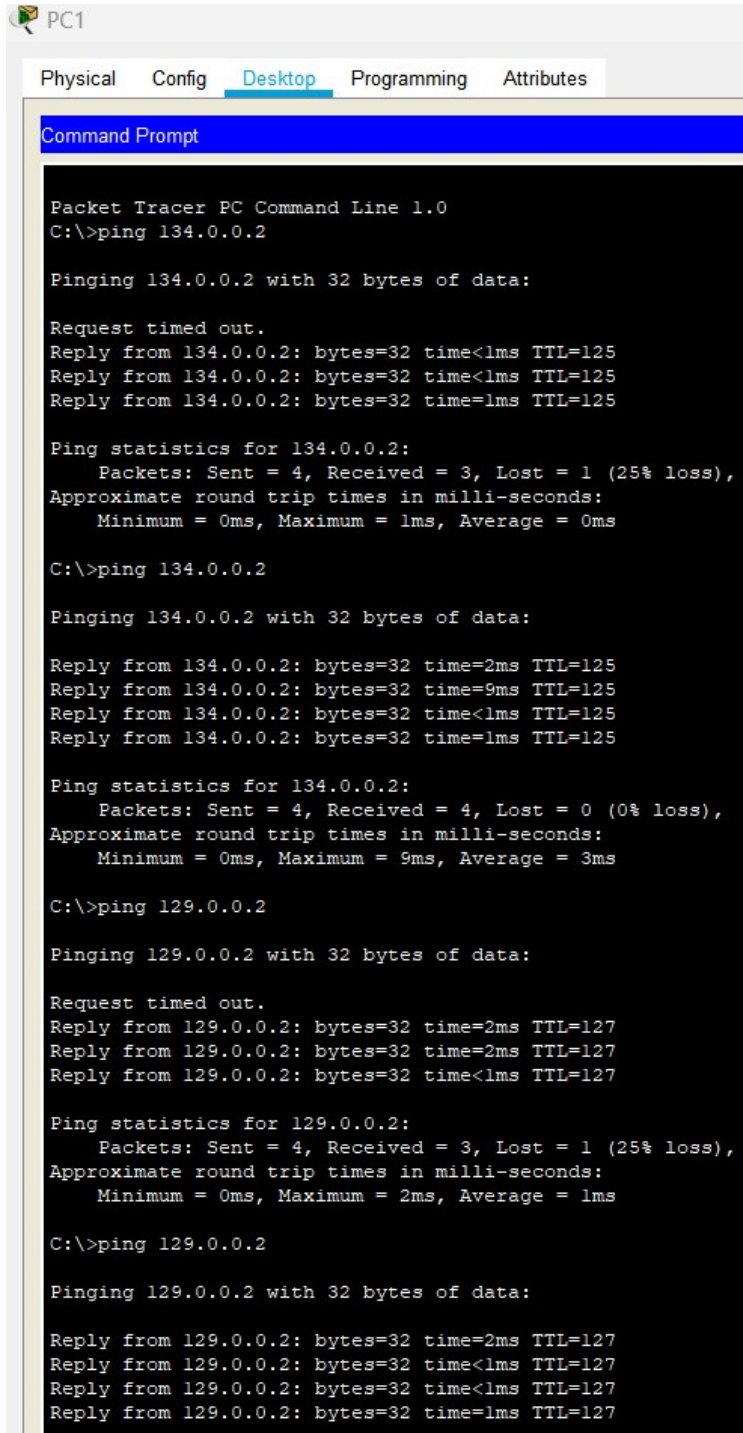
Router(config)#router rip

Router(config-router)#

☐ Top

## 4. Communication between all computers:

### 1<sup>st</sup> Floor PC to Floor to all PC's:



```
PC1
Physical Config Desktop Programming Attributes
Command Prompt

Packet Tracer PC Command Line 1.0
C:\>ping 134.0.0.2

Pinging 134.0.0.2 with 32 bytes of data:

Request timed out.
Reply from 134.0.0.2: bytes=32 time<1ms TTL=125
Reply from 134.0.0.2: bytes=32 time<1ms TTL=125
Reply from 134.0.0.2: bytes=32 time=1ms TTL=125

Ping statistics for 134.0.0.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 134.0.0.2

Pinging 134.0.0.2 with 32 bytes of data:

Reply from 134.0.0.2: bytes=32 time=2ms TTL=125
Reply from 134.0.0.2: bytes=32 time=9ms TTL=125
Reply from 134.0.0.2: bytes=32 time<1ms TTL=125
Reply from 134.0.0.2: bytes=32 time=1ms TTL=125

Ping statistics for 134.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 9ms, Average = 3ms

C:\>ping 129.0.0.2

Pinging 129.0.0.2 with 32 bytes of data:

Request timed out.
Reply from 129.0.0.2: bytes=32 time=2ms TTL=127
Reply from 129.0.0.2: bytes=32 time=2ms TTL=127
Reply from 129.0.0.2: bytes=32 time<1ms TTL=127

Ping statistics for 129.0.0.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 1ms

C:\>ping 129.0.0.2

Pinging 129.0.0.2 with 32 bytes of data:

Reply from 129.0.0.2: bytes=32 time=2ms TTL=127
Reply from 129.0.0.2: bytes=32 time<1ms TTL=127
Reply from 129.0.0.2: bytes=32 time<1ms TTL=127
Reply from 129.0.0.2: bytes=32 time=1ms TTL=127
```

```
Ping statistics for 129.0.0.2:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
  Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\>ping 130.0.0.2

Pinging 130.0.0.2 with 32 bytes of data:

Request timed out.
Reply from 130.0.0.2: bytes=32 time<1ms TTL=126
Reply from 130.0.0.2: bytes=32 time<1ms TTL=126
Reply from 130.0.0.2: bytes=32 time<1ms TTL=126

Ping statistics for 130.0.0.2:
  Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
  Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 130.0.0.2

Pinging 130.0.0.2 with 32 bytes of data:

Reply from 130.0.0.2: bytes=32 time=1ms TTL=126
Reply from 130.0.0.2: bytes=32 time=2ms TTL=126
Reply from 130.0.0.2: bytes=32 time=1ms TTL=126
Reply from 130.0.0.2: bytes=32 time=7ms TTL=126

Ping statistics for 130.0.0.2:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
  Minimum = 1ms, Maximum = 7ms, Average = 2ms

C:\>ping 131.0.0.2

Pinging 131.0.0.2 with 32 bytes of data:

Request timed out.
Reply from 131.0.0.2: bytes=32 time=1ms TTL=126
Reply from 131.0.0.2: bytes=32 time<1ms TTL=126
Reply from 131.0.0.2: bytes=32 time=1ms TTL=126

Ping statistics for 131.0.0.2:
  Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
  Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 131.0.0.2

Pinging 131.0.0.2 with 32 bytes of data:

Reply from 131.0.0.2: bytes=32 time=2ms TTL=126
Reply from 131.0.0.2: bytes=32 time=1ms TTL=126
```

```
Pinging 131.0.0.2 with 32 bytes of data:

Reply from 131.0.0.2: bytes=32 time=2ms TTL=126
Reply from 131.0.0.2: bytes=32 time=1ms TTL=126
Reply from 131.0.0.2: bytes=32 time=1ms TTL=126
Reply from 131.0.0.2: bytes=32 time=1ms TTL=126

Ping statistics for 131.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms

C:\>ping 132.0.0.2

Pinging 132.0.0.2 with 32 bytes of data:

Request timed out.
Reply from 132.0.0.2: bytes=32 time<1ms TTL=126
Reply from 132.0.0.2: bytes=32 time=1ms TTL=126
Reply from 132.0.0.2: bytes=32 time<1ms TTL=126

Ping statistics for 132.0.0.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 132.0.0.2

Pinging 132.0.0.2 with 32 bytes of data:

Reply from 132.0.0.2: bytes=32 time=5ms TTL=126
Reply from 132.0.0.2: bytes=32 time<1ms TTL=126
Reply from 132.0.0.2: bytes=32 time=1ms TTL=126
Reply from 132.0.0.2: bytes=32 time=1ms TTL=126

Ping statistics for 132.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 5ms, Average = 1ms

C:\>ping 133.0.0.2

Pinging 133.0.0.2 with 32 bytes of data:

Request timed out.
Reply from 133.0.0.2: bytes=32 time=1ms TTL=125
Reply from 133.0.0.2: bytes=32 time=5ms TTL=125
Reply from 133.0.0.2: bytes=32 time<1ms TTL=125

Ping statistics for 133.0.0.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 5ms, Average = 2ms
```



```
Request timed out.
Reply from 132.0.0.2: bytes=32 time<1ms TTL=126
Reply from 132.0.0.2: bytes=32 time=1ms TTL=126
Reply from 132.0.0.2: bytes=32 time<1ms TTL=126

Ping statistics for 132.0.0.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 132.0.0.2

Pinging 132.0.0.2 with 32 bytes of data:

Reply from 132.0.0.2: bytes=32 time=5ms TTL=126
Reply from 132.0.0.2: bytes=32 time<1ms TTL=126
Reply from 132.0.0.2: bytes=32 time=1ms TTL=126
Reply from 132.0.0.2: bytes=32 time=1ms TTL=126

Ping statistics for 132.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 5ms, Average = 1ms

C:\>ping 133.0.0.2

Pinging 133.0.0.2 with 32 bytes of data:

Request timed out.
Reply from 133.0.0.2: bytes=32 time=1ms TTL=125
Reply from 133.0.0.2: bytes=32 time=5ms TTL=125
Reply from 133.0.0.2: bytes=32 time<1ms TTL=125

Ping statistics for 133.0.0.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 5ms, Average = 2ms

C:\>ping 133.0.0.2

Pinging 133.0.0.2 with 32 bytes of data:

Reply from 133.0.0.2: bytes=32 time<1ms TTL=125
Reply from 133.0.0.2: bytes=32 time<1ms TTL=125
Reply from 133.0.0.2: bytes=32 time=1ms TTL=125
Reply from 133.0.0.2: bytes=32 time=2ms TTL=125

Ping statistics for 133.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\>
```