

R1

CLI

IOS Command Line Interface

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface
% Incomplete command.
Router(config)#int
% Incomplete command.
Router(config)#hostname R1
R1(config)#enable secret class
R1(config)#line console 0
R1(config-line)#password cisco
R1(config-line)#login
R1(config-line)#line vty 0 4
R1(config-line)#password cisco
R1(config-line)#login
R1(config-line)#interface FastEthernet0/0
R1(config-if)#description Enlace R1-R2 192.168.10.1 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#interface FastEthernet 1/0
R1(config-if)#description Enlace R1-R3
R1(config-if)#ip address 192.168.20.1 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#interface FastEthernet 6/0
R1(config-if)#description Enlace LAN 192.168.50.0
R1(config-if)#ip address 192.168.50.1 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#
```

Ctrl+F6 to exit CLI focus

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19:28  
28/10/2021

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R2
R2(config)#enable secret class
R2(config)#line console 0
R2(config-line)#password cisco
R2(config-line)#login
R2(config-line)#line vty 0 4
R2(config-line)#password cisco
R2(config-line)#login
R2(config-line)#interface FastEthernet0/0
R2(config-if)#description Enlace R2-R1 192.168.10.0
R2(config-if)#ip address 192.168.10.2 255.255.255.0
R2(config-if)#no shutdown exit
R2(config-if)#interface FastEthernet1/0
R2(config-if)#description Enlace R2-R4
R2(config-if)#ip address 192.168.30.1 255.255.255.0
R2(config-if)#no shutdown
R2(config-if)#exit
R2(config)#
```

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```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R3
R3(config)#enable secret class
R3(config)#line console 0
R3(config-line)#password cisco
R3(config-line)#login
R3(config-line)#line vty 0 4
R3(config-line)#password cisco
R3(config-line)#login
R3(config-line)#interface FastEthernet0/0
R3(config-if)#description Enlace R3-R4
R3(config-if)#ip address 192.168.40.1 255.255.255.0
% 192.168.40.0 overlaps with FastEthernet1/0
R3(config-if)#no shutdown
R3(config-if)#exit
R3(config)#
```

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## IOS Command Line Interface

Press RETURN to get started!

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet6/0, changed state to up

Router>en

Router#config t

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

Router(config)#hostname R4

R4(config)#enable secret class

R4(config)#line console 0

R4(config-line)#password cisco

R4(config-line)#login

R4(config-line)#interface FastEthernet0/0

R4(config-if)#description Enlace R4-R2 192.168.10.0

R4(config-if)#ip address 192.168.30.2 255.255.255.0

R4(config-if)#no shutdown

R4(config-if)#exit

R4(config)#interface fastEthernet1/0

R4(config-if)#description Enlace R4-R3

R4(config-if)#ip address 192.168.40.2 255.255.255.0

R4(config-if)#no shutdown

R4(config-if)#exit

R4(config)#interface fastEthernet6/0

R4(config-if)#description enlace LAN 162.168.60.0

R4(config-if)#ip address 192.168.60.1 255.255.255.0

R4(config-if)#no shutdown

R4(config-if)#exit

R4(config)#

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R1

CLI

## IOS Command Line Interface

```
R1(config)#ip route 192.168.30.0 255.255.255.0 192.168.10.2
^
% Invalid input detected at '^' marker.

R1(config)#ip route 192.168.30.0 255.255.255.0 192.168.10.2
R1(config)#ip route 192.168.40.0 255.255.255.0 192.168.20.2
R1(config)#ip route 192.168.60.0 255.255.255.0 192.168.10.2
R1(config)#ip route 192.168.60.0 255.255.255.0 192.168.20.2
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console
show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    192.168.10.0/24 is directly connected, FastEthernet0/0
C    192.168.20.0/24 is directly connected, FastEthernet1/0
S    192.168.30.0/24 [1/0] via 192.168.10.2
S    192.168.40.0/24 [1/0] via 192.168.20.2
C    192.168.50.0/24 is directly connected, FastEthernet6/0
S    192.168.60.0/24 [1/0] via 192.168.10.2
      [1/0] via 192.168.20.2

R1#copy running-config st
Destination filename [startup-config]?
Building configuration...
[OK]
R1#
```

Ctrl+F6 to exit CLI focus

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R2

CLI

IOS Command Line Interface

```
Password:
Password:
Password:
R2#config t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#ip route 192.168.20.0 255.255.255.0 192.168.10.1
R2(config)#ip route 192.168.40.0 255.255.255.0 192.168.30.2
R2(config)#ip route 192.168.50.0 255.255.255.0 192.168.10.1
R2(config)#ip route 192.168.60.0 255.255.255.0 192.168.30.2
R2(config)#exit
R2#
%SYS-5-CONFIG_I: Configured from console by console
show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    192.168.10.0/24 is directly connected, FastEthernet0/0
S    192.168.20.0/24 [1/0] via 192.168.10.1
C    192.168.30.0/24 is directly connected, FastEthernet1/0
S    192.168.40.0/24 [1/0] via 192.168.30.2
S    192.168.50.0/24 [1/0] via 192.168.10.1
S    192.168.60.0/24 [1/0] via 192.168.30.2

R2#copy running-config st
Destination filename [startup-config]?
Building configuration...
[OK]
R2#
```

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R3

CLI

# IOS Command Line Interface

```
R3>en
Password:
R3#config t
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#ip route 192.168.10.0 255.255.255.0 192.168.20.1
R3(config)#ip route 192.168.30.0 255.255.255.0 192.168.40.2
R3(config)#ip route 192.168.50.0 255.255.255.0 192.168.20.1
R3(config)#ip route 192.168.60.0 255.255.255.0 192.168.40.2
R3(config)#
R3(config)#exit
R3#
%SYS-5-CONFIG_I: Configured from console by console
show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

S    192.168.10.0/24 [1/0] via 192.168.20.1
C    192.168.20.0/24 is directly connected, FastEthernet0/0
S    192.168.30.0/24 [1/0] via 192.168.40.2
C    192.168.40.0/24 is directly connected, FastEthernet1/0
S    192.168.50.0/24 [1/0] via 192.168.20.1
S    192.168.60.0/24 [1/0] via 192.168.40.2

R3#copy running-config st
Destination filename [startup-config]?
Building configuration...
[OK]
R3#
```

Ctrl+F6 to exit CLI focus

Copy

Top

R4

CLI

IOS Command Line Interface

```
R4(config)#ip route 192.168.10.0 255.255.255.0 192.168.30.1
R4(config)#ip route 192.168.20.0 255.255.255.0 192.168.40.1
R4(config)#ip route 192.168.50.0 255.255.255.0 192.168.30.1
R4(config)#ip route 192.168.50.0 255.255.255.0 192.168.40.1
R4(config)#exit
R4#
%SYS-5-CONFIG_I: Configured from console by console
show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

S    192.168.10.0/24 [1/0] via 192.168.30.1
S    192.168.20.0/24 [1/0] via 192.168.40.1
C    192.168.30.0/24 is directly connected, FastEthernet0/0
C    192.168.40.0/24 is directly connected, FastEthernet1/0
S    192.168.50.0/24 [1/0] via 192.168.30.1
                        [1/0] via 192.168.40.1
C    192.168.60.0/24 is directly connected, FastEthernet6/0

R4#copy running-config st
^
% Invalid input detected at '^' marker.

R4#copy running-config st
Destination filename [startup-config]?
Building configuration...
[OK]
R4#
```

Ctrl+F6 to exit CLI focus

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20:17  
28/10/2021



PC1

Desktop Programming

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.50.1

Pinging 192.168.50.1 with 32 bytes of data:

Reply from 192.168.50.1: bytes=32 time=123ms TTL=255
Reply from 192.168.50.1: bytes=32 time<1ms TTL=255
Reply from 192.168.50.1: bytes=32 time<1ms TTL=255
Reply from 192.168.50.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.50.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 123ms, Average = 31ms

C:\>ping 192.168.10.2

Pinging 192.168.10.2 with 32 bytes of data:

Reply from 192.168.10.2: bytes=32 time=58ms TTL=254
Reply from 192.168.10.2: bytes=32 time<1ms TTL=254
Reply from 192.168.10.2: bytes=32 time<1ms TTL=254
Reply from 192.168.10.2: bytes=32 time<1ms TTL=254

Ping statistics for 192.168.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 58ms, Average = 14ms

C:\>ping 192.168.20.2

Pinging 192.168.20.2 with 32 bytes of data:

Reply from 192.168.20.2: bytes=32 time<1ms TTL=254
Reply from 192.168.20.2: bytes=32 time<1ms TTL=254
Reply from 192.168.20.2: bytes=32 time<1ms TTL=254
Reply from 192.168.20.2: bytes=32 time<1ms TTL=254
```

☐ Top

PC1

Desktop Programming

Command Prompt

```
Ping statistics for 192.168.20.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.40.2

Pinging 192.168.40.2 with 32 bytes of data:

Reply from 192.168.40.2: bytes=32 time<1ms TTL=253
Reply from 192.168.40.2: bytes=32 time<1ms TTL=253
Reply from 192.168.40.2: bytes=32 time<1ms TTL=253
Reply from 192.168.40.2: bytes=32 time<1ms TTL=253

Ping statistics for 192.168.40.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.30.2

Pinging 192.168.30.2 with 32 bytes of data:

Reply from 192.168.30.2: bytes=32 time<1ms TTL=253
Reply from 192.168.30.2: bytes=32 time<1ms TTL=253
Reply from 192.168.30.2: bytes=32 time<1ms TTL=253
Reply from 192.168.30.2: bytes=32 time=30ms TTL=253

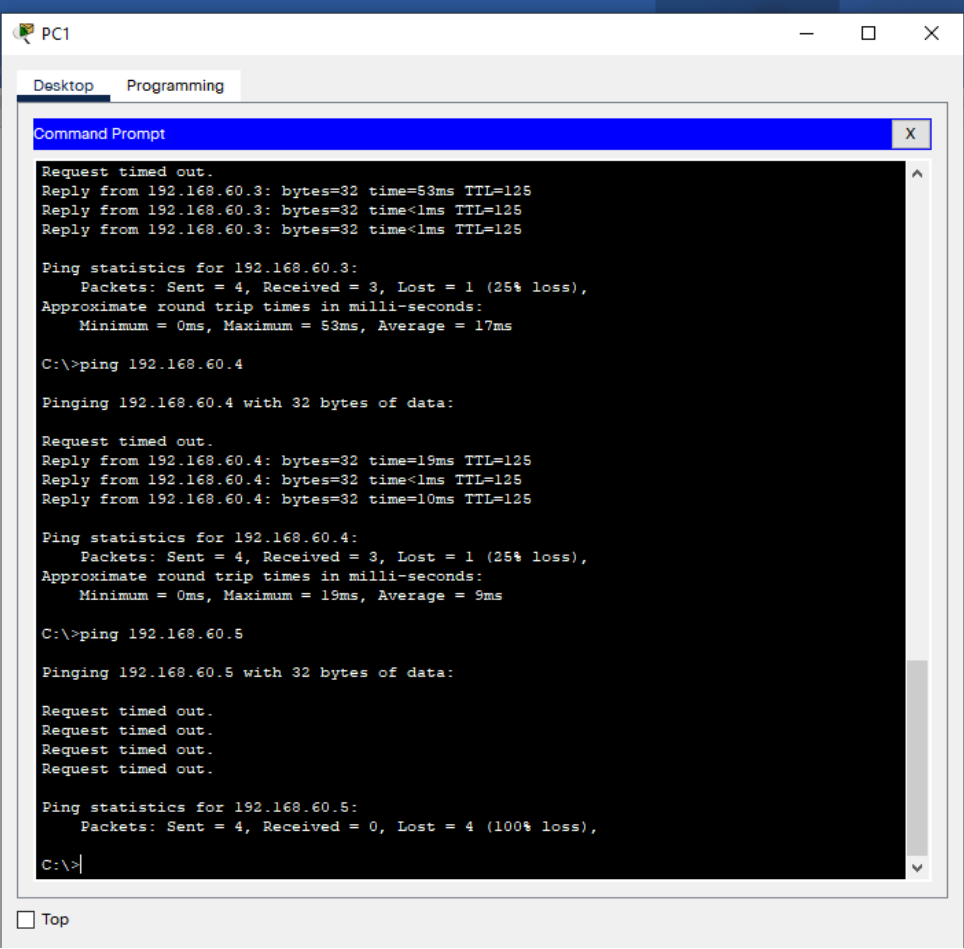
Ping statistics for 192.168.30.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 30ms, Average = 7ms

C:\>ping 192.168.60.2

Pinging 192.168.60.2 with 32 bytes of data:
```

☐ Top

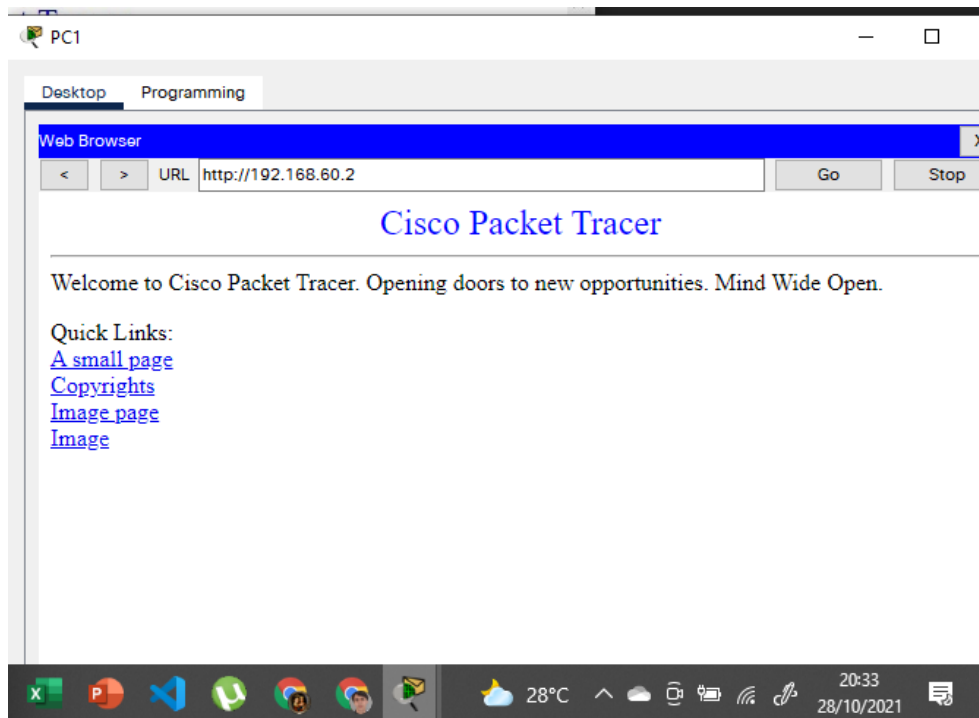
V



The screenshot shows a Windows desktop environment with a taskbar at the top. The desktop has two tabs: 'Desktop' and 'Programming'. A 'Command Prompt' window is open, displaying the results of several ping commands. The window title bar shows 'PC1' and standard window controls. The Command Prompt output shows ping tests for three IP addresses: 192.168.60.3, 192.168.60.4, and 192.168.60.5. The first two tests show successful replies with some packet loss, while the third test shows all requests timed out.

```
Request timed out.  
Reply from 192.168.60.3: bytes=32 time=53ms TTL=125  
Reply from 192.168.60.3: bytes=32 time<1ms TTL=125  
Reply from 192.168.60.3: bytes=32 time<1ms TTL=125  
  
Ping statistics for 192.168.60.3:  
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),  
    Approximate round trip times in milli-seconds:  
        Minimum = 0ms, Maximum = 53ms, Average = 17ms  
  
C:\>ping 192.168.60.4  
  
Pinging 192.168.60.4 with 32 bytes of data:  
  
Request timed out.  
Reply from 192.168.60.4: bytes=32 time=19ms TTL=125  
Reply from 192.168.60.4: bytes=32 time<1ms TTL=125  
Reply from 192.168.60.4: bytes=32 time=10ms TTL=125  
  
Ping statistics for 192.168.60.4:  
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),  
    Approximate round trip times in milli-seconds:  
        Minimum = 0ms, Maximum = 19ms, Average = 9ms  
  
C:\>ping 192.168.60.5  
  
Pinging 192.168.60.5 with 32 bytes of data:  
  
Request timed out.  
Request timed out.  
Request timed out.  
Request timed out.  
  
Ping statistics for 192.168.60.5:  
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),  
  
C:\>
```

☐ Top



```
R1(config)#interface fastEthernet 6/0
R1(config-if)#ip helper-address 192.168.60.3
R1(config-if)#end
```

```
C:\>ping 192.168.60.2

Pinging 192.168.60.2 with 32 bytes of data:

Reply from 192.168.60.2: bytes=32 time=1ms TTL=125
Reply from 192.168.60.2: bytes=32 time=14ms TTL=125
Reply from 192.168.60.2: bytes=32 time=1ms TTL=125
Reply from 192.168.60.2: bytes=32 time=10ms TTL=125

Ping statistics for 192.168.60.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 14ms, Average = 6ms
```

PC0

The screenshot shows the 'Desktop' tab of a configuration window for PC0. The 'IP Configuration' section is active, showing settings for the 'FastEthernet0' interface. The 'DHCP' radio button is selected, and the 'Static' radio button is unselected. The fields for IPv4 Address, Subnet Mask, Default Gateway, and DNS Server are all populated with values.

Interface	FastEthernet0
IP Configuration	
<input checked="" type="radio"/> DHCP	<input type="radio"/> Static
IPv4 Address	192.168.50.4
Subnet Mask	255.255.255.0
Default Gateway	192.168.50.1
DNS Server	192.168.60.5

Server3

The screenshot shows the 'Services' tab of a configuration window for Server3. The 'FTP' service is selected in the 'SERVICES' list on the left. The 'Service' is set to 'On'. The 'User Setup' section shows a table with two users: 'cisco' and 'xico'. The 'cisco' user has a password of 'cisco' and a permission of 'RWDNL'. The 'xico' user has a password of '1234' and a permission of 'RWDNL'. There are 'Add' and 'Save' buttons at the bottom right.

Username	Password	Permission
1 cisco	cisco	RWDNL
2 xico	1234	RWDNL

```
R1(config)#interface fastEthernet 6/0
R1(config-if)#ip helper-address 192.168.60.3
R1(config-if)#end
```

```
C:\>ping 192.168.60.2

Pinging 192.168.60.2 with 32 bytes of data:

Reply from 192.168.60.2: bytes=32 time=1ms TTL=125
Reply from 192.168.60.2: bytes=32 time=14ms TTL=125
Reply from 192.168.60.2: bytes=32 time=1ms TTL=125
Reply from 192.168.60.2: bytes=32 time=10ms TTL=125

Ping statistics for 192.168.60.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 14ms, Average = 6ms
```

PC0

The screenshot shows the 'Desktop' tab of a configuration window for PC0. The 'IP Configuration' section is active, showing settings for the 'FastEthernet0' interface. The 'DHCP' radio button is selected, and the 'Static' radio button is unselected. The fields for IPv4 Address, Subnet Mask, Default Gateway, and DNS Server are populated with the following values:

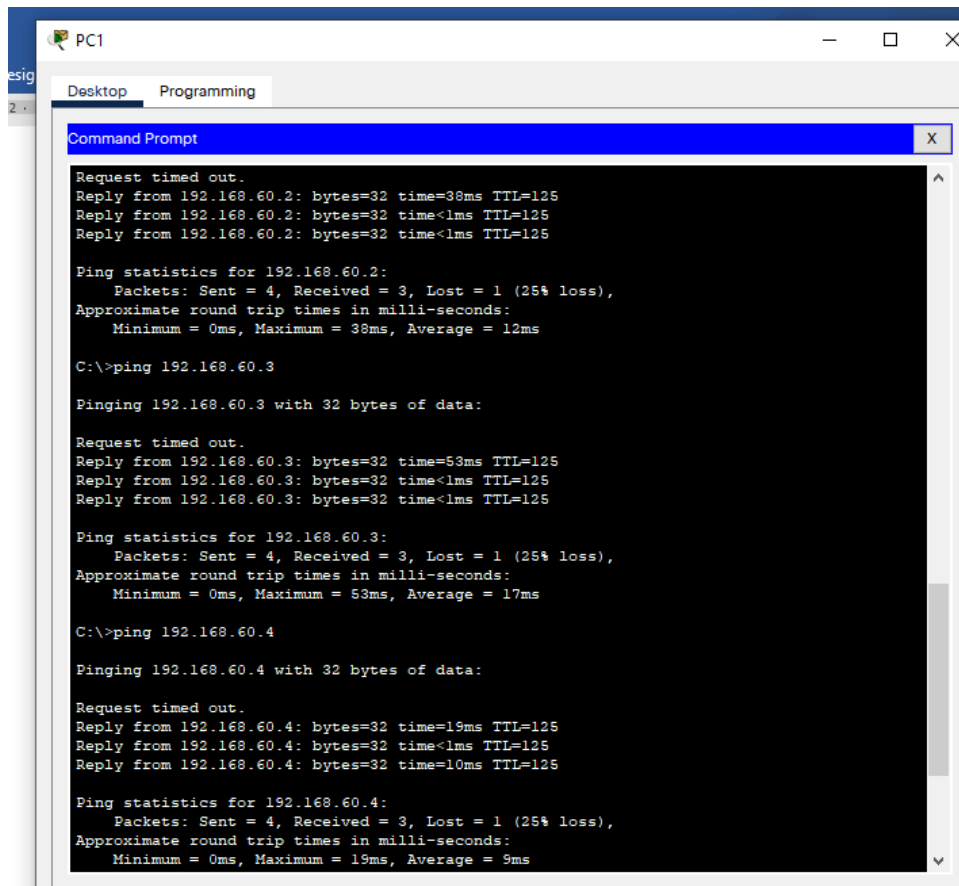
Field	Value
IPv4 Address	192.168.50.4
Subnet Mask	255.255.255.0
Default Gateway	192.168.50.1
DNS Server	192.168.60.5

Server3

The screenshot shows the 'Services' tab of a configuration window for Server3. The 'FTP' service is selected in the 'SERVICES' list on the left. The 'Service' status is set to 'On'. The 'User Setup' section is visible, showing a table of users and their permissions.

	Username	Password	Permission
1	cisco	cisco	RWDNL
2	xico	1234	RWDNL

Buttons for 'Add' and 'Save' are located to the right of the table.



```
PC1
Desktop Programming
Command Prompt
Request timed out.
Reply from 192.168.60.2: bytes=32 time=38ms TTL=125
Reply from 192.168.60.2: bytes=32 time<1ms TTL=125
Reply from 192.168.60.2: bytes=32 time<1ms TTL=125

Ping statistics for 192.168.60.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 38ms, Average = 12ms

C:\>ping 192.168.60.3

Pinging 192.168.60.3 with 32 bytes of data:

Request timed out.
Reply from 192.168.60.3: bytes=32 time=53ms TTL=125
Reply from 192.168.60.3: bytes=32 time<1ms TTL=125
Reply from 192.168.60.3: bytes=32 time<1ms TTL=125

Ping statistics for 192.168.60.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 53ms, Average = 17ms

C:\>ping 192.168.60.4

Pinging 192.168.60.4 with 32 bytes of data:

Request timed out.
Reply from 192.168.60.4: bytes=32 time=19ms TTL=125
Reply from 192.168.60.4: bytes=32 time<1ms TTL=125
Reply from 192.168.60.4: bytes=32 time=10ms TTL=125

Ping statistics for 192.168.60.4:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 19ms, Average = 9ms
```

```

Physical  Config  Desktop  Programming  Attributes
Command Prompt

ftp ftp.lambda.com
Trying to connect...ftp.lambda.com
Connected to ftp.lambda.com
220- Welcome to PT Ftp server
Username:xico
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>dir

Listing /ftp directory from ftp.lambda.com:
0 : asa842-k8.bin 5571584
1 : asa923-k8.bin 30468056
2 : c1841-advipservicesk9-mz.124-15.T1.bin 33591768
3 : c1841-ipbase-mz.123-14.T7.bin 13832032
4 : c1841-ipbasek9-mz.124-12.bin 16599160
5 : c1900-universalk9-mz.SPA.155-3.M4a.bin 33591768
6 : c2600-advipservicesk9-mz.124-15.T1.bin 33591768
7 : c2600-i-mz.122-28.bin 5571584
8 : c2600-ipbasek9-mz.124-8.bin 13169700
9 : c2800nm-advipservicesk9-mz.124-15.T1.bin 50938004
10 : c2800nm-advipservicesk9-mz.151-4.M4.bin 33591768
11 : c2800nm-ipbase-mz.123-14.T7.bin 5571584
12 : c2800nm-ipbasek9-mz.124-8.bin 15522644
13 : c2900-universalk9-mz.SPA.155-3.M4a.bin 33591768
14 : c2950-i6q412-mz.121-22.EA4.bin 3058048
15 : c2950-i6q412-mz.121-22.EA8.bin 3117390
16 : c2960-lanbase-mz.122-25.FX.bin 4414921
17 : c2960-lanbase-mz.122-25.SEE1.bin 4670455
18 : c2960-lanbasek9-mz.150-2.SE4.bin 4670455
19 : c3560-advipservicesk9-mz.122-37.SE1.bin 8662192
20 : c3560-advipservicesk9-mz.122-46.SE.bin 10713279
21 : c800-universalk9-mz.SPA.152-4.M4.bin 33591768
22 : c800-universalk9-mz.SPA.154-3.M6a.bin 83029236
23 : cat3k_caa-universalk9.16.03.02.SPA.bin 505532849

23 : cat3k_caa-universalk9.16.03.02.SPA.bin 505532849
24 : cgr1000-universalk9-mz.SPA.154-2.CG 159487552
25 : cgr1000-universalk9-mz.SPA.156-3.CG 184530138
26 : ir800-universalk9-bundle.SPA.156-3.M.bin 160968869
27 : ir800-universalk9-mz.SPA.155-3.M 61750062
28 : ir800-universalk9-mz.SPA.156-3.M 63753767
29 : ir800_yocto-1.7.2.tar 2877440
30 : ir800_yocto-1.7.2_python-2.7.3.tar 6912000
31 : pt1000-i-mz.122-28.bin 5571584
32 : pt3000-i6q412-mz.121-22.EA4.bin 3117390

ftp>help
?
cd
delete
dir
get
help
passive
put
pwd
quit
rename

ftp>

```