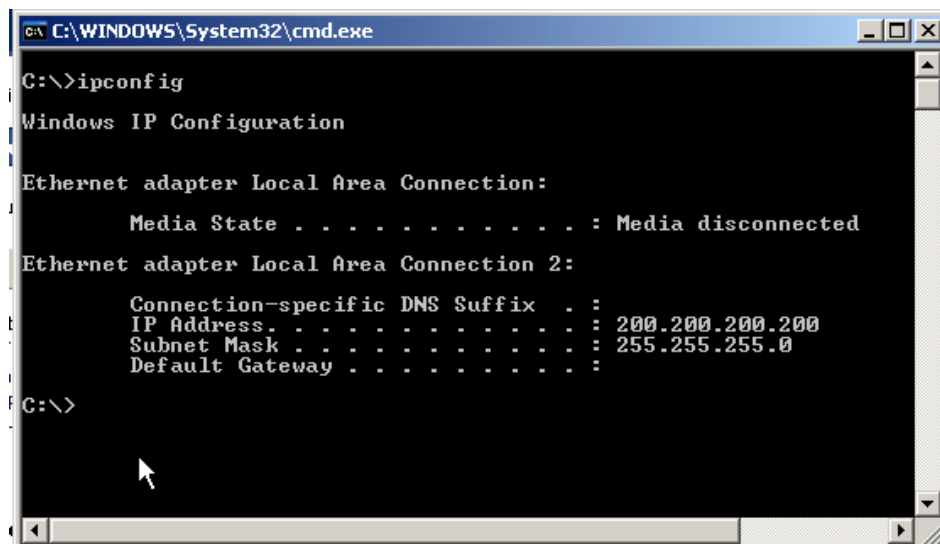


Ethernet



```
C:\WINDOWS\System32\cmd.exe
C:\>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Media State . . . . . : Media disconnected

Ethernet adapter Local Area Connection 2:

    Connection-specific DNS Suffix  . : 
    IP Address. . . . . : 200.200.200.200
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

C:\>
```

Module 1

Command Line Utilities

Student Materials

Student Materials for Module 1: Command Line Utilities

Lesson Objective

By the end of this session, students should be able to:

1. Use the PING command
2. Use the IPCONFIG command.

	<u>Page</u>
Introduction	3
Open the Command Prompt.....	3
PING.....	4
IPCONFIG.....	7

Introduction:

This lesson covers two of the most commonly used command line utilities for Ethernet troubleshooting, PING and IPCONFIG.

There are many command line utilities for viewing, setting parameters and troubleshooting networks such as ARP, TRACRT, NET command, etc.

Open The Command Prompt.

Note: Windows 9.X operating systems refer to the command prompt as the MS-DOS prompt.

From the Start button, choose the Run button.

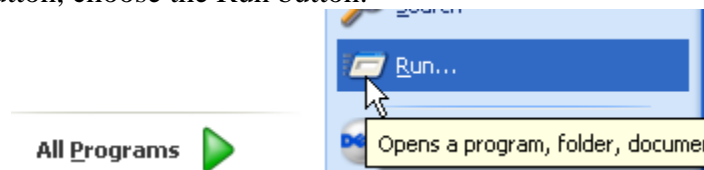


Figure 1-A

Type CMD in the run window to open the Windows XP command prompt. (Figure 2-A)

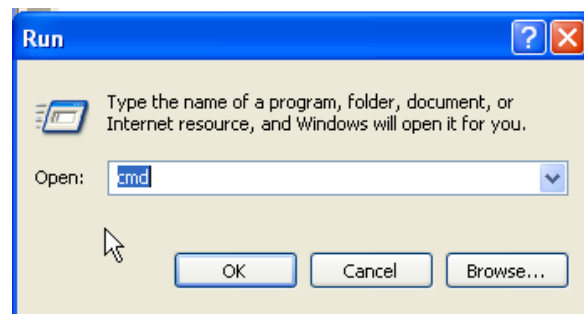


Figure 2-A

Also you can use Start>Programs>Accessories>Command Prompt to open the prompt.

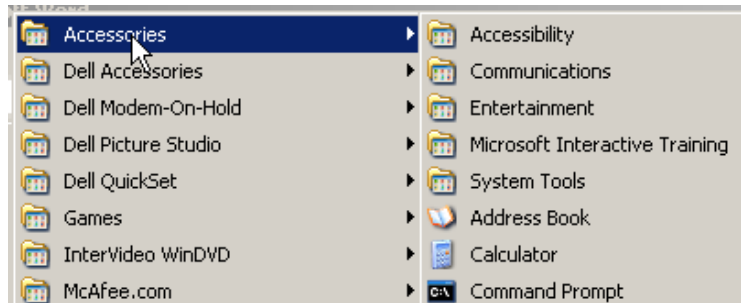


Figure 3-A

This will open the Command Prompt.

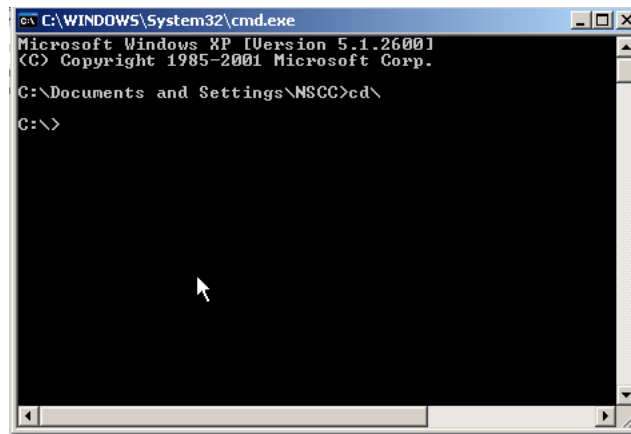


Figure 4-A

PING

PING is one of the most useful command for troubleshooting an Ethernet network. It determines if a network connection can be made to a device.

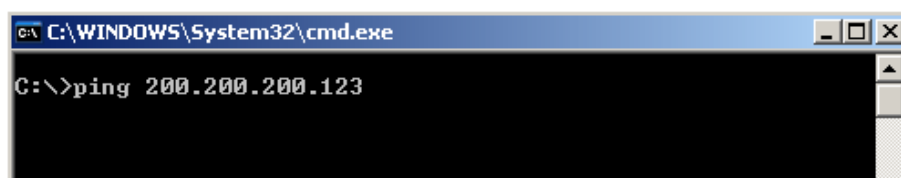
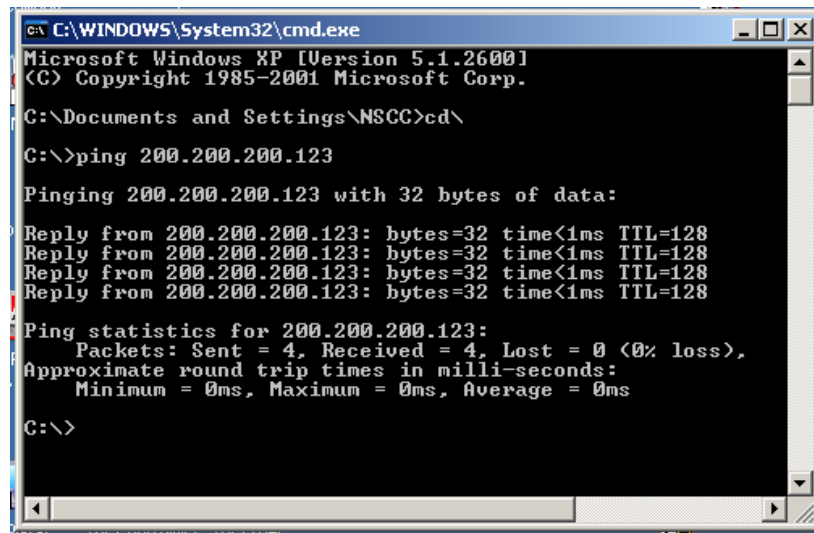


Figure 5-A

At the prompt type the command as shown in Figure 5-A, the hit [Enter] key. The IP address is the address of the device you want to communicate with (200.200.200.123) in Figure 5-A.

If the command is successful a reply is returned from the device. See Figure 6-A



```
C:\WINDOWS\System32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\NSCC>cd\

C:\>ping 200.200.200.123

Pinging 200.200.200.123 with 32 bytes of data:

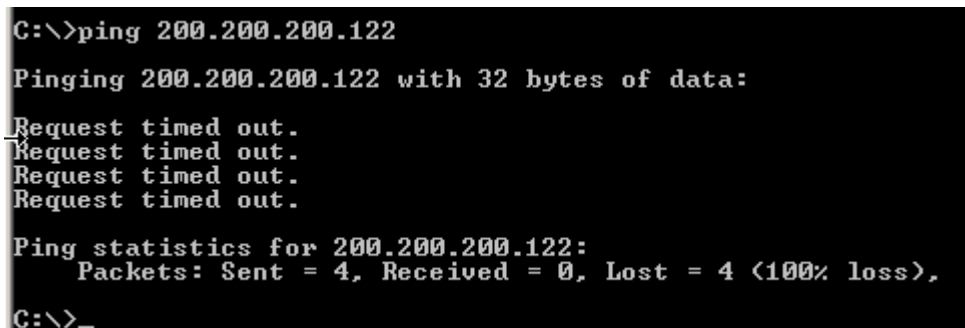
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128

Ping statistics for 200.200.200.123:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Figure 6-A

If the command is not successful the command will return a time-out (Figure 7-A) or host unreachable (Figure 8-A).



```
C:\>ping 200.200.200.122

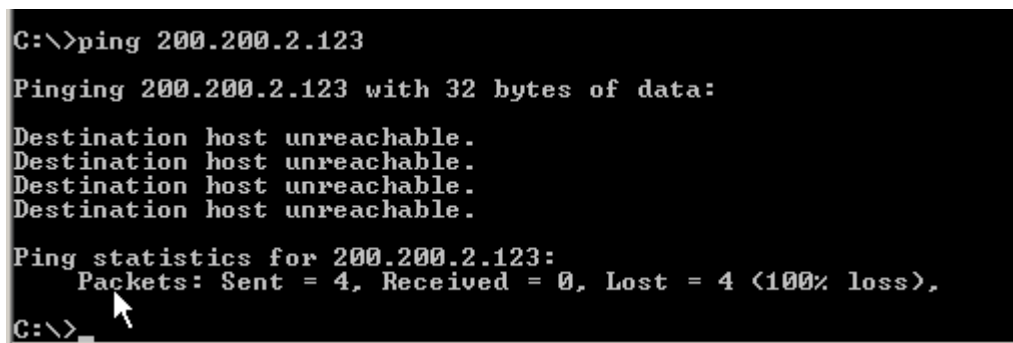
Pinging 200.200.200.122 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 200.200.200.122:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

Figure 7-A



```
C:\>ping 200.200.2.123

Pinging 200.200.2.123 with 32 bytes of data:

Destination host unreachable.
Destination host unreachable.
Destination host unreachable.
Destination host unreachable.

Ping statistics for 200.200.2.123:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

Figure 8-A

Check cabling and/or addressing if the command appears as Figure 7-A or 8-A.

The PING command can also perform a Loop-Back to determine if the computer's network software is functioning properly. See Figure 9-A for Loop-Back address.

```
G:\>ping 127.0.0.1

Pinging 127.0.0.1 with 32 bytes of data:

Reply from 127.0.0.1: bytes=32 time<1ms TTL=128
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128

Ping statistics for 127.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

G:\>_
```

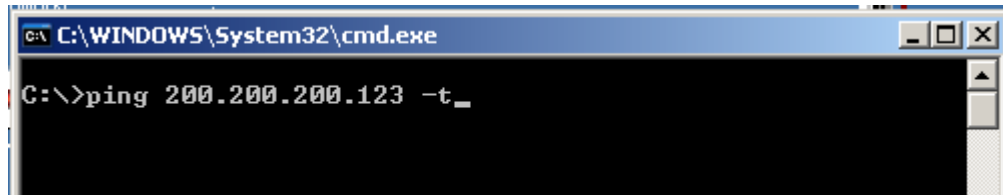
Figure 9-A

If the Loop-Back address fails the networking software needs to be reinstalled on the computer.

Note: Commands must be typed exactly as shown, proper addressing format, proper spacing, to operate.

By default the PING command returns 4 replies. By using the -t switch the command will operate until terminated by the operator with the Ctrl-C key combination.

See Figures 10-A and 11-A.



```
C:\WINDOWS\System32\cmd.exe

C:\>ping 200.200.200.123 -t_
```

Figure 10-A

```

C:\WINDOWS\System32\cmd.exe
C:\>ping 200.200.200.123 -t

Pinging 200.200.200.123 with 32 bytes of data:

Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128
Reply from 200.200.200.123: bytes=32 time<1ms TTL=128

Ping statistics for 200.200.200.123:
    Packets: Sent = 16, Received = 16, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
Control-C
^C
C:\>_
  
```

Figure 11-A

IPCONFIG Command:

The IPCONFIG command will return network settings of the computer.
To get IP address, router and subnet mask type the command as shown in Figure 12-A.

```

C:\WINDOWS\System32\cmd.exe
C:\>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Media State . . . . . : Media disconnected

Ethernet adapter Local Area Connection 2:

    Connection-specific DNS Suffix  . : 
    IP Address. . . . . : 200.200.200.200
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

C:\>

```

Figure 12-A

Note: For the command to function Ethernet port must be powered. (Cable connected).

The /ALL switch be show additional network information. See Figure 13-A.

```

C:\WINDOWS\System32\cmd.exe
C:\>ipconfig /all

Windows IP Configuration

    Host Name . . . . . : NWPORT22
    Primary Dns Suffix . . . . . : 
    Node Type . . . . . : Hybrid
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No

Ethernet adapter Local Area Connection:

    Media State . . . . . : Media disconnected
    Description . . . . . : Broadcom 440x 10/100 Integrated C
    Physical Address. . . . . : 00-0D-56-34-74-5D

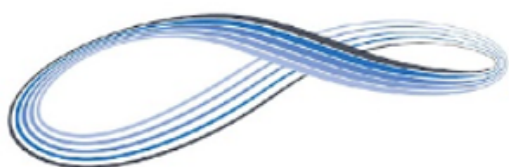
Ethernet adapter Local Area Connection 2:

    Connection-specific DNS Suffix  . : 
    Description . . . . . : FE575C-3Com 10/100 LAN CardBus-Fa
    Physical Address. . . . . : 00-50-DA-EB-25-B4
    Dhcp Enabled. . . . . : No
    IP Address. . . . . : 200.200.200.200
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

C:\>

```

Figure 13-A



STRENGTHENING
COMMUNITY COLLEGES
TRAINING GRANTS

DOL DISCLAIMER:

The document was originally created under “I AM iSTAR” a DOL funded project and used in this SCC project. “This workforce product was funded by a grant awarded by the U.S. Department of Labor’s

Employment and Training Administration. The product was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The U.S. Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership. This product is copyrighted by the institution that created it.”



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).