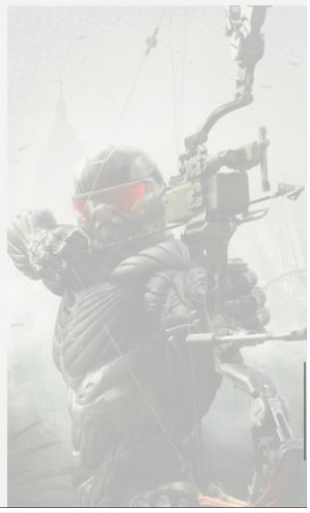
Data communication and network Prashanth.S
19MID0020

ipconfig

It's a way of determining the computer's IP address and other information, such as the address of its default gateway ,useful if we want to know the IP address of our router's web interface.

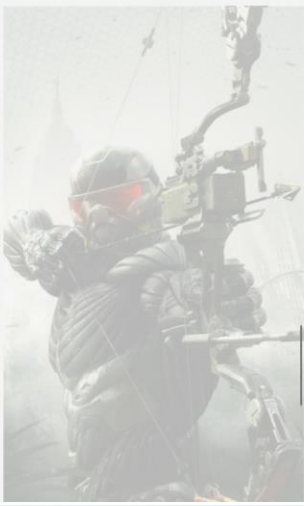
```
C:\Users\Prashanth>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Ethernet adapter VirtualBox Host-Only Network:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::2402:38a6:fc5b:6776%9
   IPv4 Address. . . . . . . . . . . : 192.168.56.1
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :

Wireless LAN adapter Local Area Connection* 1:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 2:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
```

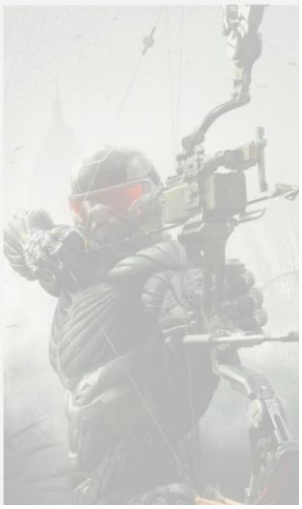


```
Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::932:6a69:e227:e608%18
   IPv4 Address. . . . . . . . . . . : 192.168.0.110
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.0.1
```

1) a) ipconfig/all

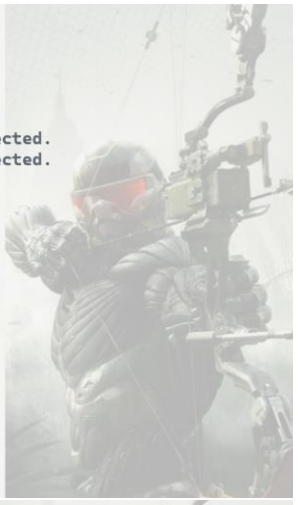
```
C:\Users\Prashanth>ipconfig [/all]

Error: unrecognized or incomplete command line.

USAGE:
    ipconfig [/allcompartments] [/? | /all |
                                 /renew [adapter] | /release [adapter] |
                                 /renew6 [adapter] | /release6 [adapter] |
                                 /flushdns | /displaydns | /registerdns |
                                 /showclassid adapter |
                                 /setclassid adapter [classid] |
                                 /showclassid6 adapter |
                                 /setclassid6 adapter [classid] ]

where
    adapter             Connection name
                       (wildcard characters * and ? allowed, see examples)

    Options:
       /?               Display this help message
       /all             Display full configuration information.
       /release         Release the IPv4 address for the specified adapter.
       /release6        Release the IPv6 address for the specified adapter.
       /renew           Renew the IPv4 address for the specified adapter.
       /renew6          Renew the IPv6 address for the specified adapter.
       /flushdns        Purges the DNS Resolver cache.
       /registerdns     Refreshes all DHCP leases and re-registers DNS names
       /displaydns      Display the contents of the DNS Resolver Cache.
       /showclassid     Displays all the dhcp class IDs allowed for adapter.
       /setclassid      Modifies the dhcp class id.
       /showclassid6    Displays all the IPv6 DHCP class IDs allowed for adapter.
       /setclassid6     Modifies the IPv6 DHCP class id.


The default is to display only the IP address, subnet mask and
default gateway for each adapter bound to TCP/IP.

For Release and Renew, if no adapter name is specified, then the IP address
leases for all adapters bound to TCP/IP will be released or renewed.

For Setclassid and Setclassid6, if no ClassId is specified, then the ClassId is removed.

Examples:
    > ipconfig                       ... Show information
    > ipconfig /all                  ... Show detailed information
    > ipconfig /renew                ... renew all adapters
    > ipconfig /renew EL*            ... renew any connection that has its
                                         name starting with EL
    > ipconfig /release *Con*        ... release all matching connections,
                                         eg. "Wired Ethernet Connection 1" or
                                             "Wired Ethernet Connection 2"
    > ipconfig /allcompartments      ... Show information about all
                                         compartments
    > ipconfig /allcompartments /all ... Show detailed information about all
```

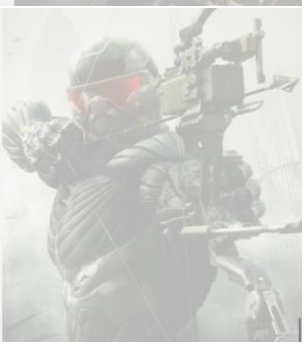




1) b) ipconfig /renew

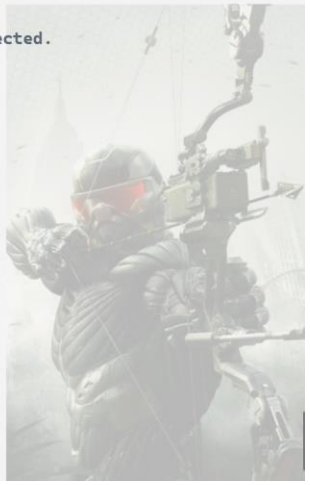
```
C:\Users\Prashanth>ipconfig/renew

Windows IP Configuration

No operation can be performed on Ethernet while it has its media disconnected.
No operation can be performed on Local Area Connection* 1 while it has its media disconnected.
No operation can be performed on Local Area Connection* 2 while it has its media disconnected.

Ethernet adapter Ethernet:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Ethernet adapter VirtualBox Host-Only Network:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::2402:38a6:fc5b:6776%9
   IPv4 Address. . . . . . . . . . . : 192.168.56.1
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :

Wireless LAN adapter Local Area Connection* 1:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 2:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::932:6a69:e227:e608%18
   IPv4 Address. . . . . . . . . . . : 192.168.0.110
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.0.1
```





ipconfig /release

```
C:\Users\Prashanth>ipconfig /release

Windows IP Configuration

No operation can be performed on Ethernet while it has its media disconnected.
No operation can be performed on Local Area Connection* 1 while it has its media disconnected.

Ethernet adapter Ethernet:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Ethernet adapter VirtualBox Host-Only Network:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::2402:38a6:fc5b:6776%9
   IPv4 Address. . . . . . . . . . . : 192.168.56.1
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :

Wireless LAN adapter Local Area Connection* 1:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 2:
```



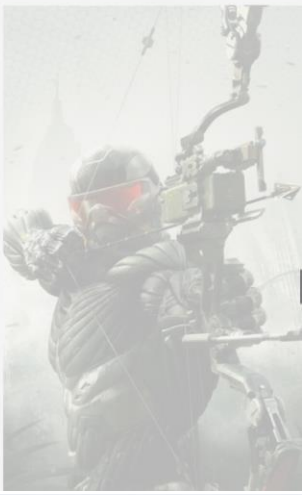
```
   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::932:6a69:e227:e608%18
   Default Gateway . . . . . . . . . :
```

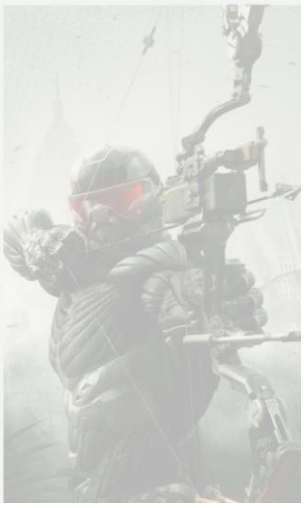
ipconfig /flushdns

```
C:\Users\Prashanth>ipconfig /flushdns

Windows IP Configuration

Successfully flushed the DNS Resolver Cache.
```

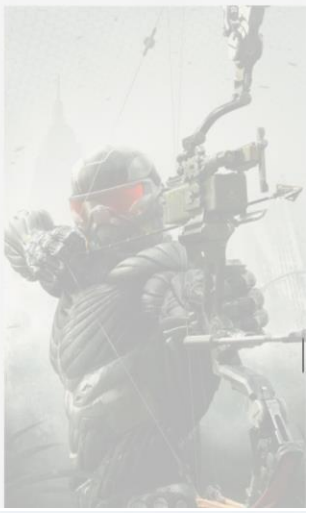
ipconfig /displaydns

```
C:\Users\Prashanth>ipconfig /displaydns

Windows IP Configuration

    www.fitgirl-repack.com
    ----------------------------------------
    No records of type AAAA


    www.fitgirl-repack.com
    ----------------------------------------
    Record Name . . . . . : www.fitgirl-repack.com
    Record Type . . . . . : 1
    Time To Live  . . . . : 509826
    Data Length . . . . . : 4
    Section . . . . . . . : Answer
    A (Host) Record . . . : 109.94.209.70


    www.fitgirlrepacks.co
    ----------------------------------------
    No records of type AAAA


    www.fitgirlrepacks.co
    ----------------------------------------
    Record Name . . . . . : www.fitgirlrepacks.co
    Record Type . . . . . : 1
    Time To Live  . . . . : 509826
    Data Length . . . . . : 4
    Section . . . . . . . : Answer
    A (Host) Record . . . : 109.94.209.70


    www.fitgirl-repacks.cc
    ----------------------------------------
    No records of type AAAA


    www.fitgirl-repacks.cc
    ----------------------------------------
    Record Name . . . . . : www.fitgirl-repacks.cc
    Record Type . . . . . : 1
    Time To Live  . . . . : 509826
    Data Length . . . . . : 4
    Section . . . . . . . : Answer
    A (Host) Record . . . : 109.94.209.70


    fitgirlrepacks.co
    ----------------------------------------
    No records of type AAAA
```

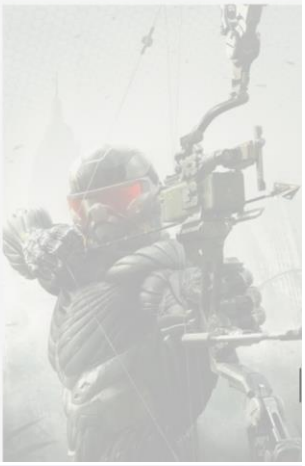




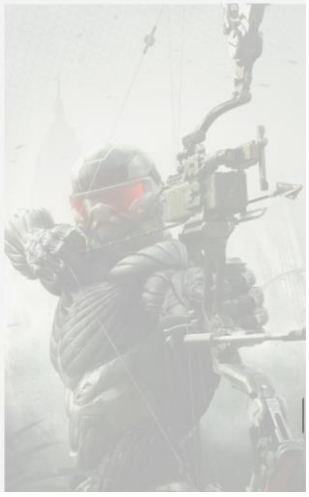
```
fitgirlrepacks.co
----------------------------------------
Record Name . . . . . : fitgirlrepacks.co
Record Type . . . . . : 1
Time To Live  . . . . : 509826
Data Length . . . . . : 4
Section . . . . . . . : Answer
A (Host) Record . . . : 109.94.209.70


70.209.94.109.in-addr.arpa
----------------------------------------
Record Name . . . . . : 70.209.94.109.in-addr.arpa.
Record Type . . . . . : 12
Time To Live  . . . . : 509826
Data Length . . . . . : 8
Section . . . . . . . : Answer
PTR Record  . . . . . : fitgirl-repack.com


Record Name . . . . . : 70.209.94.109.in-addr.arpa.
Record Type . . . . . : 12
Time To Live  . . . . : 509826
Data Length . . . . . : 8
Section . . . . . . . : Answer
PTR Record  . . . . . : fitgirlrepacks.co
```



```
Record Name . . . . . : 70.209.94.109.in-addr.arpa.
Record Type . . . . . : 12
Time To Live  . . . . : 509826
Data Length . . . . . : 8
Section . . . . . . . : Answer
PTR Record  . . . . . : fitgirl-repacks.cc


Record Name . . . . . : 70.209.94.109.in-addr.arpa.
Record Type . . . . . : 12
Time To Live  . . . . : 509826
Data Length . . . . . : 8
Section . . . . . . . : Answer
PTR Record  . . . . . : www.fitgirlrepacks.co


Record Name . . . . . : 70.209.94.109.in-addr.arpa.
Record Type . . . . . : 12
Time To Live  . . . . : 509826
Data Length . . . . . : 8
Section . . . . . . . : Answer
PTR Record  . . . . . : www.fitgirl-repacks.cc
```

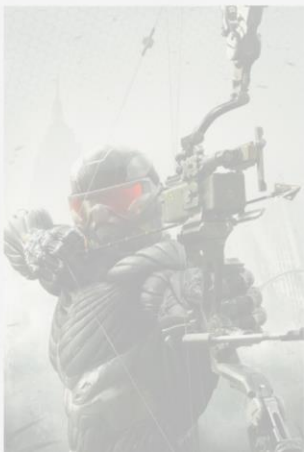


```
Record Name . . . . . : 70.209.94.109.in-addr.arpa.
Record Type . . . . . : 12
Time To Live  . . . . : 509826
Data Length . . . . . : 8
Section . . . . . . . : Answer
PTR Record  . . . . . : www.fitgirl-repack.com


updates2.signal.org
----------------------------------------
Record Name . . . . . : updates2.signal.org
Record Type . . . . . : 1
Time To Live  . . . . : 20
Data Length . . . . . : 4
Section . . . . . . . : Answer
A (Host) Record . . . : 13.33.171.31


Record Name . . . . . : updates2.signal.org
Record Type . . . . . : 1
Time To Live  . . . . : 20
Data Length . . . . . : 4
Section . . . . . . . : Answer
A (Host) Record . . . : 13.33.171.112
```



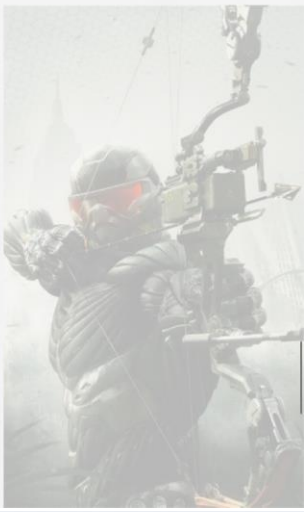
```
Record Name . . . . . : updates2.signal.org
Record Type . . . . . : 1
Time To Live  . . . . : 20
Data Length . . . . . : 4
Section . . . . . . . : Answer
A (Host) Record . . . : 13.33.171.3


Record Name . . . . . : updates2.signal.org
Record Type . . . . . : 1
Time To Live  . . . . : 20
Data Length . . . . . : 4
Section . . . . . . . : Answer
A (Host) Record . . . : 13.33.171.2


fitgirl-repack.com
----------------------------------------
No records of type AAAA


fitgirl-repack.com
----------------------------------------
Record Name . . . . . : fitgirl-repack.com
Record Type . . . . . : 1
Time To Live  . . . . : 509826
```

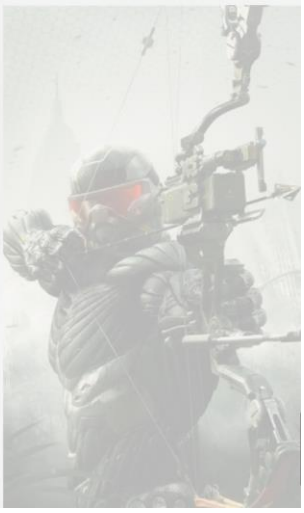
```
fitgirl-repack.com
----------------------------------------
Record Name . . . . . : fitgirl-repack.com
Record Type . . . . . : 1
Time To Live  . . . . : 509826
Data Length . . . . . : 4
Section . . . . . . . : Answer
A (Host) Record . . . : 109.94.209.70


fitgirl-repacks.cc
----------------------------------------
No records of type AAAA


fitgirl-repacks.cc
----------------------------------------
Record Name . . . . . : fitgirl-repacks.cc
Record Type . . . . . : 1
Time To Live  . . . . : 509826
Data Length . . . . . : 4
Section . . . . . . . : Answer
A (Host) Record . . . : 109.94.209.70
```



ipconfig registerdns

```
C:\Users\Prashanth>ipconfig registerdns

Error: unrecognized or incomplete command line.

USAGE:
    ipconfig [/allcompartments] [/? | /all |
                                 /renew [adapter] | /release [adapter] |
                                 /renew6 [adapter] | /release6 [adapter] |
                                 /flushdns | /displaydns | /registerdns |
                                 /showclassid adapter |
                                 /setclassid adapter [classid] |
                                 /showclassid6 adapter |
                                 /setclassid6 adapter [classid] ]

where
    adapter             Connection name
                       (wildcard characters * and ? allowed, see examples)

    Options:
       /?               Display this help message
       /all             Display full configuration information.
       /release         Release the IPv4 address for the specified adapter.
       /release6        Release the IPv6 address for the specified adapter.
       /renew           Renew the IPv4 address for the specified adapter.
       /renew6          Renew the IPv6 address for the specified adapter.
       /flushdns        Purges the DNS Resolver cache.
       /registerdns     Refreshes all DHCP leases and re-registers DNS names
       /displaydns      Display the contents of the DNS Resolver Cache.
       /showclassid     Displays all the dhcp class IDs allowed for adapter.
       /setclassid      Modifies the dhcp class id.
       /showclassid6    Displays all the IPv6 DHCP class IDs allowed for adapter.
       /setclassid6     Modifies the IPv6 DHCP class id.


The default is to display only the IP address, subnet mask and
default gateway for each adapter bound to TCP/IP.

For Release and Renew, if no adapter name is specified, then the IP address
leases for all adapters bound to TCP/IP will be released or renewed.

For Setclassid and Setclassid6, if no ClassId is specified, then the ClassId is removed.

Examples:
    > ipconfig                       ... Show information
    > ipconfig /all                  ... Show detailed information
    > ipconfig /renew                ... renew all adapters
    > ipconfig /renew EL*            ... renew any connection that has its
                                         name starting with EL
    > ipconfig /release *Con*        ... release all matching connections,
                                         eg. "Wired Ethernet Connection 1" or
                                             "Wired Ethernet Connection 2"
    > ipconfig /allcompartments      ... Show information about all
                                         compartments
    > ipconfig /allcompartments /all ... Show detailed information about all
```





ipconfig/showclassid

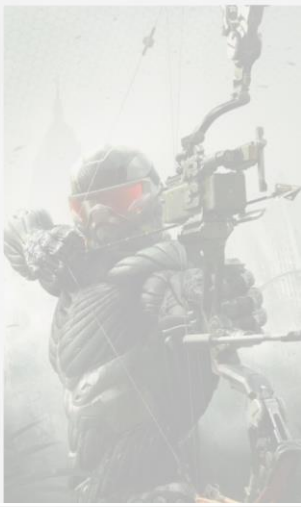
```
C:\Users\Prashanth>ipconfig/showclassid

Error: unrecognized or incomplete command line.

USAGE:
    ipconfig [/allcompartments] [/? | /all |
                                 /renew [adapter] | /release [adapter] |
                                 /renew6 [adapter] | /release6 [adapter] |
                                 /flushdns | /displaydns | /registerdns |
                                 /showclassid adapter |
                                 /setclassid adapter [classid] |
                                 /showclassid6 adapter |
                                 /setclassid6 adapter [classid] ]

where
    adapter             Connection name
                       (wildcard characters * and ? allowed, see examples)

    Options:
       /?               Display this help message
       /all             Display full configuration information.
       /release         Release the IPv4 address for the specified adapter.
       /release6        Release the IPv6 address for the specified adapter.
       /renew           Renew the IPv4 address for the specified adapter.
       /renew6          Renew the IPv6 address for the specified adapter.
       /flushdns        Purges the DNS Resolver cache.
       /registerdns     Refreshes all DHCP leases and re-registers DNS names
       /displaydns      Display the contents of the DNS Resolver Cache.
       /showclassid     Displays all the dhcp class IDs allowed for adapter.
       /setclassid      Modifies the dhcp class id.
       /showclassid6    Displays all the IPv6 DHCP class IDs allowed for adapter.
       /setclassid6     Modifies the IPv6 DHCP class id.


The default is to display only the IP address, subnet mask and
default gateway for each adapter bound to TCP/IP.

For Release and Renew, if no adapter name is specified, then the IP address
leases for all adapters bound to TCP/IP will be released or renewed.

For Setclassid and Setclassid6, if no ClassId is specified, then the ClassId is removed.

Examples:
    > ipconfig                      ... Show information
    > ipconfig /all                 ... Show detailed information
    > ipconfig /renew               ... renew all adapters
    > ipconfig /renew EL*           ... renew any connection that has its
                                        name starting with EL
    > ipconfig /release *Con*       ... release all matching connections,
                                        eg. "Wired Ethernet Connection 1" or
                                            "Wired Ethernet Connection 2"
    > ipconfig /allcompartments     ... Show information about all
                                        compartments
    > ipconfig /allcompartments /all ... Show detailed information about all
                                        compartments
```

ipconfig /setclassid

```
C:\Users\Prashanth>ipconfig /setclassid

Error: unrecognized or incomplete command line.

USAGE:
    ipconfig [/allcompartments] [/? | /all |
                                 /renew [adapter] | /release [adapter] |
                                 /renew6 [adapter] | /release6 [adapter] |
                                 /flushdns | /displaydns | /registerdns |
                                 /showclassid adapter |
                                 /setclassid adapter [classid] |
                                 /showclassid6 adapter |
                                 /setclassid6 adapter [classid] ]

where
    adapter             Connection name
                       (wildcard characters * and ? allowed, see examples)

    Options:
       /?               Display this help message
       /all             Display full configuration information.
       /release         Release the IPv4 address for the specified adapter.
       /release6        Release the IPv6 address for the specified adapter.
       /renew           Renew the IPv4 address for the specified adapter.
       /renew6          Renew the IPv6 address for the specified adapter.
       /flushdns        Purges the DNS Resolver cache.
       /registerdns     Refreshes all DHCP leases and re-registers DNS names
       /displaydns      Display the contents of the DNS Resolver Cache.
       /showclassid     Displays all the dhcp class IDs allowed for adapter.
       /setclassid      Modifies the dhcp class id.
       /showclassid6    Displays all the IPv6 DHCP class IDs allowed for adapter.
       /setclassid6     Modifies the IPv6 DHCP class id.


The default is to display only the IP address, subnet mask and
default gateway for each adapter bound to TCP/IP.

For Release and Renew, if no adapter name is specified, then the IP address
leases for all adapters bound to TCP/IP will be released or renewed.

For Setclassid and Setclassid6, if no ClassId is specified, then the ClassId is removed.

Examples:
    > ipconfig                        ... Show information
    > ipconfig /all                   ... Show detailed information
    > ipconfig /renew                 ... renew all adapters
    > ipconfig /renew EL*             ... renew any connection that has its
                                          name starting with EL
    > ipconfig /release *Con*         ... release all matching connections,
                                          eg. "Wired Ethernet Connection 1" or
                                              "Wired Ethernet Connection 2"
    > ipconfig /allcompartments       ... Show information about all
                                          compartments
    > ipconfig /allcompartments /all  ... Show detailed information about all
```

2) ping

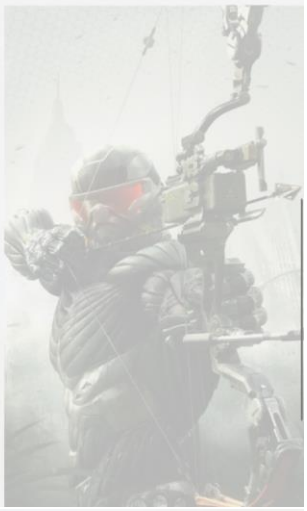
```
C:\Users\Prashanth>ping

Usage: ping [-t] [-a] [-n count] [-l size] [-f] [-i TTL] [-v TOS]
            [-r count] [-s count] [[-j host-list] | [-k host-list]]
            [-w timeout] [-R] [-S srcaddr] [-c compartment] [-p]
            [-4] [-6] target_name

Options:
    -t             Ping the specified host until stopped.
                   To see statistics and continue - type Control-Break;
                   To stop - type Control-C.
    -a             Resolve addresses to hostnames.
    -n count       Number of echo requests to send.
    -l size        Send buffer size.
    -f             Set Don't Fragment flag in packet (IPv4-only).
    -i TTL         Time To Live.
    -v TOS         Type Of Service (IPv4-only. This setting has been deprecated
                   and has no effect on the type of service field in the IP
                   Header).
    -r count       Record route for count hops (IPv4-only).
    -s count       Timestamp for count hops (IPv4-only).
    -j host-list   Loose source route along host-list (IPv4-only).
    -k host-list   Strict source route along host-list (IPv4-only).
    -w timeout     Timeout in milliseconds to wait for each reply.
    -R             Use routing header to test reverse route also (IPv6-only).
                   Per RFC 5095 the use of this routing header has been
                   deprecated. Some systems may drop echo requests if
                   this header is used.
```



```
    -S srcaddr     Source address to use.
    -c compartment Routing compartment identifier.
    -p             Ping a Hyper-V Network Virtualization provider address.
    -4             Force using IPv4.
    -6             Force using IPv6.
```

3) arp

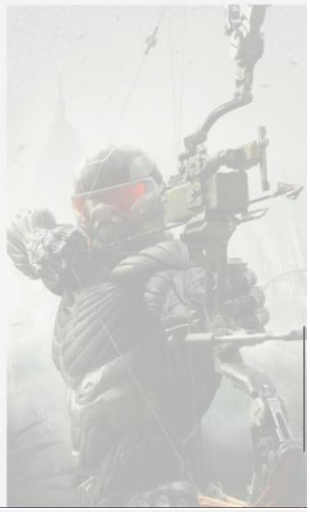
```
C:\Users\Prashanth>arp

Displays and modifies the IP-to-Physical address translation tables used by
address resolution protocol (ARP).

ARP -s inet_addr eth_addr [if_addr]
ARP -d inet_addr [if_addr]
ARP -a [inet_addr] [-N if_addr] [-v]

  -a            Displays current ARP entries by interrogating the current
                protocol data.  If inet_addr is specified, the IP and Physical
                addresses for only the specified computer are displayed.  If
                more than one network interface uses ARP, entries for each ARP
                table are displayed.
  -g            Same as -a.
  -v            Displays current ARP entries in verbose mode.  All invalid
                entries and entries on the loop-back interface will be shown.
  inet_addr     Specifies an internet address.
  -N if_addr    Displays the ARP entries for the network interface specified
                by if_addr.
  -d            Deletes the host specified by inet_addr. inet_addr may be
                wildcarded with * to delete all hosts.
  -s            Adds the host and associates the Internet address inet_addr
                with the Physical address eth_addr.  The Physical address is
                given as 6 hexadecimal bytes separated by hyphens. The entry
                is permanent.
```



```
  eth_addr      Specifies a physical address.
  if_addr       If present, this specifies the Internet address of the
                interface whose address translation table should be modified.
                If not present, the first applicable interface will be used.
Example:
  > arp -s 157.55.85.212   00-aa-00-62-c6-09  .... Adds a static entry.
  > arp -a                                    .... Displays the arp table.
```

arp -a[InetAddr]

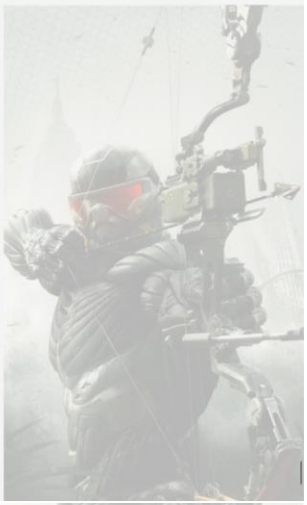
```
C:\Users\Prashanth>arp -a[InetAddr]

Displays and modifies the IP-to-Physical address translation tables used by
address resolution protocol (ARP).

ARP -s inet_addr eth_addr [if_addr]
ARP -d inet_addr [if_addr]
ARP -a [inet_addr] [-N if_addr] [-v]

  -a            Displays current ARP entries by interrogating the current
                protocol data.  If inet_addr is specified, the IP and Physical
                addresses for only the specified computer are displayed.  If
                more than one network interface uses ARP, entries for each ARP
                table are displayed.
  -g            Same as -a.
  -v            Displays current ARP entries in verbose mode.  All invalid
                entries and entries on the loop-back interface will be shown.
  inet_addr     Specifies an internet address.
  -N if_addr    Displays the ARP entries for the network interface specified
                by if_addr.
  -d            Deletes the host specified by inet_addr. inet_addr may be
                wildcarded with * to delete all hosts.
  -s            Adds the host and associates the Internet address inet_addr
                with the Physical address eth_addr.  The Physical address is
                given as 6 hexadecimal bytes separated by hyphens. The entry
                is permanent.
```



```
  eth_addr      Specifies a physical address.
  if_addr       If present, this specifies the Internet address of the
                interface whose address translation table should be modified.
                If not present, the first applicable interface will be used.
Example:
  > arp -s 157.55.85.212   00-aa-00-62-c6-09  .... Adds a static entry.
  > arp -a                                    .... Displays the arp table.
```

4) netstat

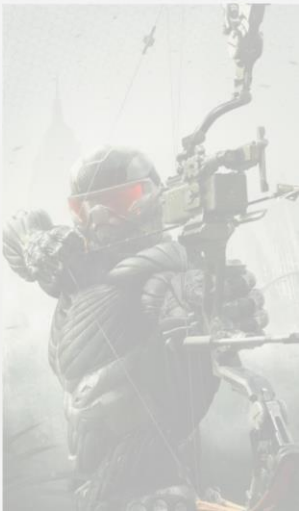
```
C:\Users\Prashanth>netstat

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    127.0.0.1:5354         PrashanthSingaravelan:57424  ESTABLISHED
  TCP    127.0.0.1:5354         PrashanthSingaravelan:57425  ESTABLISHED
  TCP    127.0.0.1:49446        PrashanthSingaravelan:49447  ESTABLISHED
  TCP    127.0.0.1:49447        PrashanthSingaravelan:49446  ESTABLISHED
  TCP    127.0.0.1:57424        PrashanthSingaravelan:5354  ESTABLISHED
  TCP    127.0.0.1:57425        PrashanthSingaravelan:5354  ESTABLISHED
  TCP    127.0.0.1:63526        PrashanthSingaravelan:63527  ESTABLISHED
  TCP    127.0.0.1:63527        PrashanthSingaravelan:63526  ESTABLISHED
  TCP    127.0.0.1:63528        PrashanthSingaravelan:63529  ESTABLISHED
  TCP    127.0.0.1:63529        PrashanthSingaravelan:63528  ESTABLISHED
  TCP    127.0.0.1:63535        PrashanthSingaravelan:63536  ESTABLISHED
  TCP    127.0.0.1:63536        PrashanthSingaravelan:63535  ESTABLISHED
  TCP    127.0.0.1:63538        PrashanthSingaravelan:63539  ESTABLISHED
  TCP    127.0.0.1:63539        PrashanthSingaravelan:63538  ESTABLISHED
  TCP    127.0.0.1:63575        PrashanthSingaravelan:63576  ESTABLISHED
  TCP    127.0.0.1:63576        PrashanthSingaravelan:63575  ESTABLISHED
  TCP    127.0.0.1:63777        PrashanthSingaravelan:63778  ESTABLISHED
  TCP    127.0.0.1:63778        PrashanthSingaravelan:63777  ESTABLISHED
  TCP    192.168.0.110:49389    40.119.211.203:https   ESTABLISHED
  TCP    192.168.0.110:49413    ec2-52-40-68-247:https  ESTABLISHED
  TCP    192.168.0.110:49427    ac88393aca5853df7:https  ESTABLISHED
  TCP    192.168.0.110:49643    whatsapp-cdn-shv-01-maa2:https  ESTABLISHED
  TCP    192.168.0.110:49693    52.170.57.27:https     ESTABLISHED
  TCP    192.168.0.110:49697    161.69.226.25:https    ESTABLISHED
  TCP    192.168.0.110:49699    221:https              ESTABLISHED
  TCP    192.168.0.110:49700    52.109.56.20:https     TIME_WAIT
  TCP    192.168.56.1:1521      PrashanthSingaravelan:49675  ESTABLISHED
  TCP    192.168.56.1:49675     PrashanthSingaravelan:1521  ESTABLISHED
```



netstat -a

```
C:\Users\Prashanth>netstat -a

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    0.0.0.0:135            PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:445            PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:808            PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:2869           PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:3306           PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:5040           PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:5357           PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:6646           PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:8733           PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:9001           PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:33060          PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:49664          PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:49665          PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:49666          PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:49667          PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:49668          PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:49669          PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:49675          PrashanthSingaravelan:0  LISTENING
  TCP    0.0.0.0:62242          PrashanthSingaravelan:0  LISTENING
  TCP    127.0.0.1:5354         PrashanthSingaravelan:0  LISTENING
  TCP    127.0.0.1:5354         PrashanthSingaravelan:49728  ESTABLISHED
  TCP    127.0.0.1:5354         PrashanthSingaravelan:49729  ESTABLISHED
```

```
  TCP    127.0.0.1:5354         PrashanthSingaravelan:49729  ESTABLISHED
  TCP    127.0.0.1:5939         PrashanthSingaravelan:0  LISTENING
  TCP    127.0.0.1:27015        PrashanthSingaravelan:0  LISTENING
  TCP    127.0.0.1:27017        PrashanthSingaravelan:0  LISTENING
  TCP    127.0.0.1:49671        PrashanthSingaravelan:49672  ESTABLISHED
  TCP    127.0.0.1:49672        PrashanthSingaravelan:49671  ESTABLISHED
  TCP    127.0.0.1:49673        PrashanthSingaravelan:49674  ESTABLISHED
  TCP    127.0.0.1:49674        PrashanthSingaravelan:49673  ESTABLISHED
  TCP    127.0.0.1:49728        PrashanthSingaravelan:5354  ESTABLISHED
  TCP    127.0.0.1:49729        PrashanthSingaravelan:5354  ESTABLISHED
  TCP    127.0.0.1:50972        PrashanthSingaravelan:0  LISTENING
  TCP    127.0.0.1:50977        PrashanthSingaravelan:57452  ESTABLISHED
  TCP    127.0.0.1:57452        PrashanthSingaravelan:50977  ESTABLISHED
  TCP    127.0.0.1:65302        PrashanthSingaravelan:0  LISTENING
  TCP    192.168.0.110:139      PrashanthSingaravelan:0  LISTENING
  TCP    192.168.0.110:59979    a23-45-162-47:https    CLOSE_WAIT
  TCP    192.168.0.110:59980    a23-45-162-47:https    CLOSE_WAIT
  TCP    192.168.0.110:59981    a23-45-162-47:https    CLOSE_WAIT
  TCP    192.168.0.110:59983    a23-45-161-205:http    CLOSE_WAIT
  TCP    192.168.0.110:59984    a23-45-161-205:http    CLOSE_WAIT
  TCP    192.168.0.110:59985    a23-45-161-205:http    CLOSE_WAIT
  TCP    192.168.0.110:59986    a23-45-161-205:http    CLOSE_WAIT
  TCP    192.168.0.110:59987    a23-45-161-205:http    CLOSE_WAIT
  TCP    192.168.0.110:59988    broadband:https        CLOSE_WAIT
  TCP    192.168.0.110:59989    a23-45-161-205:http    CLOSE_WAIT
  TCP    192.168.0.110:62631    52.139.250.253:https   ESTABLISHED
  TCP    192.168.0.110:63114    20.190.145.169:https   CLOSE_WAIT
  TCP    192.168.0.110:63115    20.190.145.169:https   CLOSE_WAIT
```

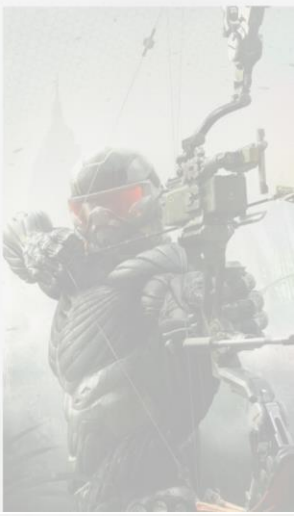


netstat -e

```
C:\Users\Prashanth>netstat -e
Interface Statistics

                           Received            Sent

Bytes                      65709701      3368781064
Unicast packets            60935644        22463574
Non-unicast packets           23954           45199
Discards                          0               0
Errors                            0               0
Unknown protocols                 0
```

netstat -n

```
C:\Users\Prashanth>netstat -n

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    127.0.0.1:5354         127.0.0.1:49728        ESTABLISHED
  TCP    127.0.0.1:5354         127.0.0.1:49729        ESTABLISHED
  TCP    127.0.0.1:49671        127.0.0.1:49672        ESTABLISHED
  TCP    127.0.0.1:49672        127.0.0.1:49671        ESTABLISHED
  TCP    127.0.0.1:49673        127.0.0.1:49674        ESTABLISHED
  TCP    127.0.0.1:49674        127.0.0.1:49673        ESTABLISHED
  TCP    127.0.0.1:49728        127.0.0.1:5354         ESTABLISHED
  TCP    127.0.0.1:49729        127.0.0.1:5354         ESTABLISHED
  TCP    127.0.0.1:50977        127.0.0.1:57452        ESTABLISHED
  TCP    127.0.0.1:57452        127.0.0.1:50977        ESTABLISHED
  TCP    192.168.0.110:59979    23.45.162.47:443       CLOSE_WAIT
  TCP    192.168.0.110:59980    23.45.162.47:443       CLOSE_WAIT
  TCP    192.168.0.110:59981    23.45.162.47:443       CLOSE_WAIT
  TCP    192.168.0.110:59983    23.45.161.205:80       CLOSE_WAIT
  TCP    192.168.0.110:59984    23.45.161.205:80       CLOSE_WAIT
  TCP    192.168.0.110:59985    23.45.161.205:80       CLOSE_WAIT
  TCP    192.168.0.110:59986    23.45.161.205:80       CLOSE_WAIT
  TCP    192.168.0.110:59987    23.45.161.205:80       CLOSE_WAIT
  TCP    192.168.0.110:59988    202.83.24.138:443      CLOSE_WAIT
  TCP    192.168.0.110:59989    23.45.161.205:80       CLOSE_WAIT
  TCP    192.168.0.110:62631    52.139.250.253:443     ESTABLISHED
  TCP    192.168.0.110:63114    20.190.145.169:443     CLOSE_WAIT
```



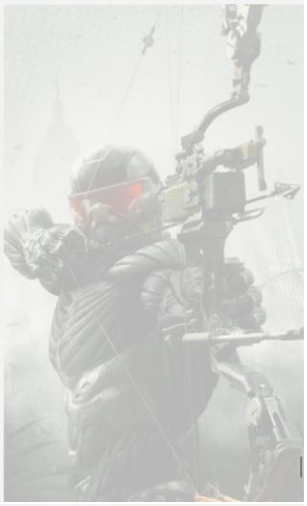
```
  TCP    192.168.0.110:62631    52.139.250.253:443     ESTABLISHED
  TCP    192.168.0.110:63114    20.190.145.169:443     CLOSE_WAIT
  TCP    192.168.0.110:63115    20.190.145.169:443     CLOSE_WAIT
  TCP    192.168.0.110:63116    20.190.145.169:443     CLOSE_WAIT
  TCP    192.168.0.110:63289    76.223.92.165:443      ESTABLISHED
  TCP    192.168.0.110:63613    23.199.67.120:443      CLOSE_WAIT
  TCP    192.168.0.110:63652    157.240.23.53:443      ESTABLISHED
  TCP    192.168.0.110:63675    142.250.71.42:443      CLOSE_WAIT
  TCP    192.168.0.110:63676    74.125.200.109:993     CLOSE_WAIT
  TCP    192.168.0.110:63678    40.100.136.2:443       ESTABLISHED
  TCP    192.168.0.110:63679    40.100.136.2:443       ESTABLISHED
  TCP    192.168.0.110:63685    13.248.212.111:443     ESTABLISHED
  TCP    192.168.0.110:63686    52.109.56.20:443       TIME_WAIT
  TCP    192.168.0.110:63690    23.45.161.10:443       ESTABLISHED
  TCP    192.168.0.110:63691    23.45.161.10:443       ESTABLISHED
```

netstat-o

```
C:\Users\Prashanth>netstat -o

Active Connections

  Proto  Local Address          Foreign Address        State           PID
  TCP    127.0.0.1:5354         PrashanthSingaravelan:49728  ESTABLISHED     4916
  TCP    127.0.0.1:5354         PrashanthSingaravelan:49729  ESTABLISHED     4916
  TCP    127.0.0.1:49671        PrashanthSingaravelan:49672  ESTABLISHED     6652
  TCP    127.0.0.1:49672        PrashanthSingaravelan:49671  ESTABLISHED     6652
  TCP    127.0.0.1:49673        PrashanthSingaravelan:49674  ESTABLISHED     6652
  TCP    127.0.0.1:49674        PrashanthSingaravelan:49673  ESTABLISHED     6652
  TCP    127.0.0.1:49728        PrashanthSingaravelan:5354   ESTABLISHED     13212
  TCP    127.0.0.1:49729        PrashanthSingaravelan:5354   ESTABLISHED     13212
  TCP    127.0.0.1:50977        PrashanthSingaravelan:57452  ESTABLISHED     11252
  TCP    127.0.0.1:57452        PrashanthSingaravelan:50977  ESTABLISHED     12836
  TCP    192.168.0.110:59979    a23-45-162-47:https    CLOSE_WAIT      9988
  TCP    192.168.0.110:59980    a23-45-162-47:https    CLOSE_WAIT      9988
  TCP    192.168.0.110:59981    a23-45-162-47:https    CLOSE_WAIT      9988
  TCP    192.168.0.110:59983    a23-45-161-205:http    CLOSE_WAIT      9988
  TCP    192.168.0.110:59984    a23-45-161-205:http    CLOSE_WAIT      9988
  TCP    192.168.0.110:59985    a23-45-161-205:http    CLOSE_WAIT      9988
  TCP    192.168.0.110:59986    a23-45-161-205:http    CLOSE_WAIT      9988
  TCP    192.168.0.110:59987    a23-45-161-205:http    CLOSE_WAIT      9988
  TCP    192.168.0.110:59988    broadband:https        CLOSE_WAIT      9988
  TCP    192.168.0.110:59989    a23-45-161-205:http    CLOSE_WAIT      9988
```

netstat interval

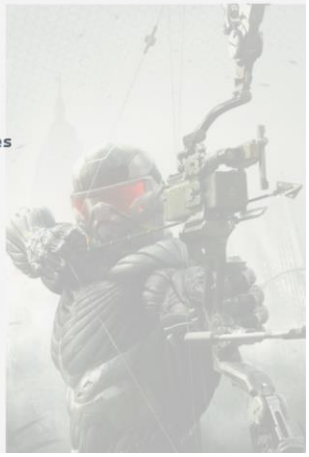
```
C:\Users\Prashanth>netstat interval

Displays protocol statistics and current TCP/IP network connections.

NETSTAT [-a] [-b] [-e] [-f] [-n] [-o] [-p proto] [-r] [-s] [-t] [-x] [-y] [interval]

  -a            Displays all connections and listening ports.
  -b            Displays the executable involved in creating each connection or
                listening port. In some cases well-known executables host
                multiple independent components, and in these cases the
                sequence of components involved in creating the connection
                or listening port is displayed. In this case the executable
                name is in [] at the bottom, on top is the component it called,
                and so forth until TCP/IP was reached. Note that this option
                can be time-consuming and will fail unless you have sufficient
                permissions.
  -e            Displays Ethernet statistics. This may be combined with the -s
                option.
  -f            Displays Fully Qualified Domain Names (FQDN) for foreign
                addresses.
  -n            Displays addresses and port numbers in numerical form.
  -o            Displays the owning process ID associated with each connection.
  -p proto      Shows connections for the protocol specified by proto; proto
                may be any of: TCP, UDP, TCPv6, or UDPv6.  If used with the -s
                option to display per-protocol statistics, proto may be any of:
                IP, IPv6, ICMP, ICMPv6, TCP, TCPv6, UDP, or UDPv6.
  -q            Displays all connections, listening ports, and bound
```



```
  -r            Displays the routing table.
  -s            Displays per-protocol statistics.  By default, statistics are
                shown for IP, IPv6, ICMP, ICMPv6, TCP, TCPv6, UDP, and UDPv6;
                the -p option may be used to specify a subset of the default.
  -t            Displays the current connection offload state.
  -x            Displays NetworkDirect connections, listeners, and shared
                endpoints.
  -y            Displays the TCP connection template for all connections.
                Cannot be combined with the other options.
  interval      Redisplays selected statistics, pausing interval seconds
                between each display.  Press CTRL+C to stop redisplaying
                statistics.  If omitted, netstat will print the current
                configuration information once.
```

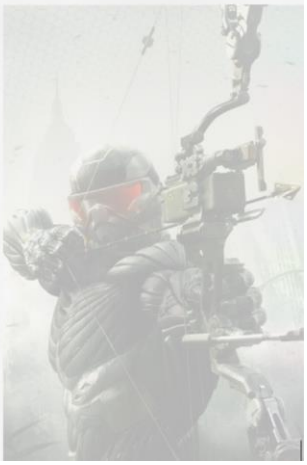
5) nbstat

```
C:\Users\Prashanth>nbtstat

Displays protocol statistics and current TCP/IP connections using NBT
(NetBIOS over TCP/IP).

NBTSTAT [ [-a RemoteName] [-A IP address] [-c] [-n]
        [-r] [-R] [-RR] [-s] [-S] [interval] ]

  -a   (adapter status) Lists the remote machine's name table given its name
  -A   (Adapter status) Lists the remote machine's name table given its
                        IP address.
  -c   (cache)          Lists NBT's cache of remote [machine] names and their IP addresses
  -n   (names)          Lists local NetBIOS names.
  -r   (resolved)       Lists names resolved by broadcast and via WINS
  -R   (Reload)         Purges and reloads the remote cache name table
  -S   (Sessions)       Lists sessions table with the destination IP addresses
  -s   (sessions)       Lists sessions table converting destination IP
                        addresses to computer NETBIOS names.
  -RR  (ReleaseRefresh) Sends Name Release packets to WINS and then, starts Refresh

  RemoteName   Remote host machine name.
  IP address   Dotted decimal representation of the IP address.
  interval     Redisplays selected statistics, pausing interval seconds
               between each display. Press Ctrl+C to stop redisplaying
               statistics.
```



nbstat-c

```
C:\Users\Prashanth>nbtstat -c

Ethernet:
Node IpAddress: [0.0.0.0] Scope Id: []

    No names in cache

VirtualBox Host-Only Network:
Node IpAddress: [192.168.56.1] Scope Id: []

    No names in cache

Wi-Fi:
Node IpAddress: [192.168.0.110] Scope Id: []

    No names in cache

Local Area Connection* 1:
Node IpAddress: [0.0.0.0] Scope Id: []

    No names in cache

Local Area Connection* 2:
Node IpAddress: [0.0.0.0] Scope Id: []

    No names in cache
```



nbstat -n

```
C:\Users\Prashanth>nbtstat -n

Ethernet:
Node IpAddress: [0.0.0.0] Scope Id: []

    No names in cache

VirtualBox Host-Only Network:
Node IpAddress: [192.168.56.1] Scope Id: []

                NetBIOS Local Name Table

       Name               Type         Status
    ---------------------------------------------
    PRASHANTHSINGAR<20>  UNIQUE      Registered
    PRASHANTHSINGAR<00>  UNIQUE      Registered
    WORKGROUP      <00>  GROUP       Registered

Wi-Fi:
Node IpAddress: [192.168.0.110] Scope Id: []

                NetBIOS Local Name Table

       Name               Type         Status
    ---------------------------------------------
    PRASHANTHSINGAR<20>  UNIQUE      Registered
    PRASHANTHSINGAR<00>  UNIQUE      Registered
    WORKGROUP      <00>  GROUP       Registered
```

nbstat -r

```
C:\Users\Prashanth>nbstat -r
'nbstat' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Prashanth>nbtstat -r

    NetBIOS Names Resolution and Registration Statistics
    ----------------------------------------------------

    Resolved By Broadcast     = 0
    Resolved By Name Server   = 0

    Registered By Broadcast   = 24
    Registered By Name Server = 0
```

nbstat -R

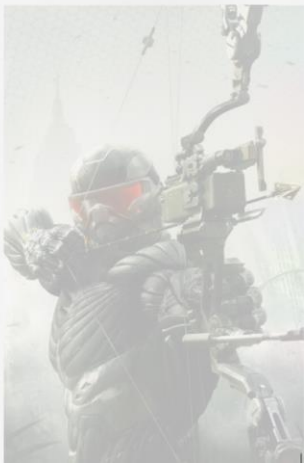
```
C:\Users\Prashanth>nbtstat -R
    Failed to Purge the NBT Remote Cache Table.
    Failed to Purge the NBT Remote Cache Table.
    Failed to Purge the NBT Remote Cache Table.
    Failed to Purge the NBT Remote Cache Table.
    Failed to Purge the NBT Remote Cache Table.
```

nbstat -RR

```
C:\Users\Prashanth>nbtstat -RR
    Failed Release and Refresh of Registered names
    Access is denied
    Failed Release and Refresh of Registered names
    Access is denied
    Failed Release and Refresh of Registered names
    Access is denied
    Failed Release and Refresh of Registered names
    Access is denied
    Failed Release and Refresh of Registered names
    Access is denied
```

nbstat-s

```
C:\Users\Prashanth>nbtstat -s

Ethernet:
Node IpAddress: [0.0.0.0] Scope Id: []

    No Connections

VirtualBox Host-Only Network:
Node IpAddress: [192.168.56.1] Scope Id: []

    No Connections

Wi-Fi:
Node IpAddress: [192.168.0.110] Scope Id: []

    No Connections

Local Area Connection* 1:
Node IpAddress: [0.0.0.0] Scope Id: []

    No Connections

Local Area Connection* 2:
Node IpAddress: [0.0.0.0] Scope Id: []

    No Connections
```



nbstat-S

```
C:\Users\Prashanth>nbtstat -S

Ethernet:
Node IpAddress: [0.0.0.0] Scope Id: []

    No Connections

VirtualBox Host-Only Network:
Node IpAddress: [192.168.56.1] Scope Id: []

    No Connections

Wi-Fi:
Node IpAddress: [192.168.0.110] Scope Id: []

    No Connections

Local Area Connection* 1:
Node IpAddress: [0.0.0.0] Scope Id: []

    No Connections

Local Area Connection* 2:
Node IpAddress: [0.0.0.0] Scope Id: []

    No Connections
```

tracert

```
C:\Users\Prashanth>tracert

Usage: tracert [-d] [-h maximum_hops] [-j host-list] [-w timeout]
               [-R] [-S srcaddr] [-4] [-6] target_name

Options:
    -d                 Do not resolve addresses to hostnames.
    -h maximum_hops    Maximum number of hops to search for target.
    -j host-list       Loose source route along host-list (IPv4-only).
    -w timeout         Wait timeout milliseconds for each reply.
    -R                 Trace round-trip path (IPv6-only).
    -S srcaddr         Source address to use (IPv6-only).
    -4                 Force using IPv4.
    -6                 Force using IPv6.
```