Arp

The Arp command manages the Address Resolution Protocol cache. The Arp cache maintains a list of computer names and their corresponding IP addresses. In some situations, primarily on school or corporate networks, an administrator may need to view or modify the contents of the Arp cache. Arp is considered an advanced network administration tool.

```
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]

  -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.
  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.
```

Finger

Displays information about a user on a specified system running the Finger service. Output varies based on the remote system.

```
FINGER [-l] [user]@host [...]

  -l        Displays information in long list format.
  user      Specifies the user you want information about. Omit the user
            parameter to display information about all users on the
            specifed host.
  @host     Specifies the server on the remote system whose users you
            want information about.
```

Hostname

The Hostname utility in Windows XP displays the computer's name. This tool is often used on a computer to verify its name when attempts to map network drives on that computer fail.

```
USAGE: hostname
```

IPconfig

The IPconfig tool shows a computer's TCP/IP configuration. It displays the IP address, the network (subnet) mask and the internet/network gateway address (if one is set for that network). Use this tool to verify that the TCP/IP configuration has been set up correctly.

```
USAGE: ipconfig [/? | /all | /renew [adapter] | /release [adapter] |
```

```
                /flushdns | /displaydns | /registerdns |
                /showclassid adapter |
                /setclassid 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 IP address for the specified adapter.
       /renew       Renew the IP 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.

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, 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. "Local Area Connection 1" or
                                        "Local Area Connection 2"
```

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.
```

Net

The net command is used to update, fix, or view the network or network settings.

```
NET [ ACCOUNTS | COMPUTER | CONFIG | CONTINUE | FILE | GROUP | HELP |
      HELPMSG | LOCALGROUP | NAME | PAUSE | PRINT | SEND | SESSION |
      SHARE | START | STATISTICS | STOP | TIME | USE | USER | VIEW ]

NET ACCOUNTS Adjust account settings.
[/FORCELOGOFF:{minutes | NO}] [/MINPWLEN:length]
[/MAXPWAGE:{days | UNLIMITED}] [/MINPWAGE:days]
[/UNIQUEPW:number] [/DOMAIN]

NET COMPUTER Add other networked computers with Windows Domain Controller.
\\computername {/ADD | /DEL}

NET CONFIG Displays your current server and/or workgroup settings.
[SERVER | WORKSTATION]

NET CONTINUE Continues the use of service.
[service]

NET FILE Display opened shared files on the server.
[id [/CLOSE]]

NET GROUP Add, delete, view, and otherwise manage network workgroups.
[groupname [/COMMENT:"text"]] [/DOMAIN]
groupname {/ADD [/COMMENT:"text"] | /DELETE} [/DOMAIN]
groupname username [...] {/ADD | /DELETE} [/DOMAIN]

NET LOCALGROUP Add, delete, view, and otherwise manage network groups.
[groupname [/COMMENT:"text"]] [/DOMAIN]
groupname {/ADD [/COMMENT:"text"] | /DELETE} [/DOMAIN]
groupname name [...] {/ADD | /DELETE} [/DOMAIN]

NET NAME Create or delete name used for messaging.
[name [/ADD | /DELETE]]

NET PAUSE Pause the specified network service.
[service]

NET PRINT Manage network print jobs.
\\computername\sharename
[\\computername] job# [/HOLD | /RELEASE | /DELETE]

NET SEND Sends messages to other users, computers, or messaging names on the network.
The Messenger service must be running to receive messages.
You can send a message only to an name that is active on the network.
If the message is sent to a username, that user must be logged on and running the
Messenger
service to receive the message.
{name | * | /DOMAIN[:name] | /USERS} message

NET SESSION Display all sessions connected to the computer and deletes them if
specified.
[\\computername] [/DELETE]

NET SHARE Create and manage a local network share.
sharename
sharename=drive:path [/USERS:number | /UNLIMITED]
[/REMARK:"text"]
[/CACHE:Manual | Documents| Programs | None ]
sharename [/USERS:number | /UNLIMITED]
```

```
[/REMARK:"text"]
[/CACHE:Manual | Documents | Programs | None]
{sharename | devicename | drive:path} /DELETE

NET START Start the specified network service.
[service]

NET STATISTICS Display network statistics of the workstation or server.
[WORKSTATION | SERVER]

NET STOP Stop the specified network service.
service

NET TIME Display the time and date of another network computer.
[\\computername | /DOMAIN[:domainname] | /RTSDOMAIN[:domainname]] [/SET]
[\\computername] /QUERYSNTP
[\\computername] /SETSNTP[:ntp server list]

NET USE Connects or disconnects your computer from a shared resource or displays
information
about your connections.
[devicename | *] [\\computername\sharename[\volume] [password | *]]
[/USER:[domainname\]username]
[/USER:[dotted domain name\]username]
[/USER:[username@dotted domain name]
[/SMARTCARD]
[/SAVECRED]
[[/DELETE] | [/PERSISTENT:{YES | NO}]]
NET USE {devicename | *} [password | *] /HOME
NET USE [/PERSISTENT:{YES | NO}]

NET USER Displays users on the computer and/or domain.
[username [password | *] [options]] [/DOMAIN]
username {password | *} /ADD [options] [/DOMAIN]
username [/DELETE] [/DOMAIN]

NET VIEW Displays a list of computers in a specified workgroup or the shared resources
available
on a specified computer.
[\\computername [/CACHE] | /DOMAIN[:domainname]]
NET VIEW /NETWORK:NW [\\computername]
```

Netsh

Click Here

Netstat

Displays active TCP connections, ports on which the computer is listening, Ethernet statistics, the IP routing table, IPv4 statistics (for the IP, ICMP, TCP, and UDP protocols), and IPv6 statistics (for the IPv6, ICMPv6, TCP over IPv6, and UDP over IPv6 protocols). Used without parameters, netstat displays active TCP connections.

```
Displays protocol statistics and current TCP/IP network connections.

NETSTAT [-a] [-b] [-e] [-n] [-o] [-p proto] [-r] [-s] [-v] [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.
  -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.
  -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.
  -v            When used in conjunction with -b, will display sequence of
                components involved in creating the connection or listening
                port for all executables.
  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.
```

Nslookup

Nslookup is a command-line administrative tool for testing and troubleshooting DNS servers.

```
Commands:   (identifiers are shown in uppercase, [] means optional)
NAME            - print info about the host/domain NAME using default server
NAME1 NAME2     - as above, but use NAME2 as server
help or ?       - print info on common commands
set OPTION      - set an option
    all                 - print options, current server and host
    [no]debug           - print debugging information
    [no]d2              - print exhaustive debugging information
    [no]defname         - append domain name to each query
    [no]recurse         - ask for recursive answer to query
    [no]search          - use domain search list
    [no]vc              - always use a virtual circuit
    domain=NAME         - set default domain name to NAME
    srchlist=N1[/N2/.../N6] - set domain to N1 and search list to N1,N2, etc.
    root=NAME           - set root server to NAME
    retry=X             - set number of retries to X
    timeout=X           - set initial time-out interval to X seconds
    type=X              - set query type (ex. A,ANY,CNAME,MX,NS,PTR,SOA,SRV)
    querytype=X         - same as type
    class=X             - set query class (ex. IN (Internet), ANY)
    [no]msxfr           - use MS fast zone transfer
    ixfrver=X           - current version to use in IXFR transfer request
server NAME     - set default server to NAME, using current default server
lserver NAME    - set default server to NAME, using initial server
finger [USER]   - finger the optional NAME at the current default host
root            - set current default server to the root
ls [opt] DOMAIN [> FILE] - list addresses in DOMAIN (optional: output to FILE)
    -a          -  list canonical names and aliases
    -d          -  list all records
    -t TYPE     -  list records of the given type (e.g. A,CNAME,MX,NS,PTR etc.)
view FILE           - sort an 'ls' output file and view it with pg
exit            - exit the program
```

Pathping

This utility enables a user to find network latency and network loss.

```
Usage: pathping [-g host-list] [-h maximum_hops] [-i address] [-n]
                [-p period] [-q num_queries] [-w timeout] [-P] [-R] [-T]
                [-4] [-6] target_name

Options:
    -g host-list     Loose source route along host-list.
    -h maximum_hops  Maximum number of hops to search for target.
    -i address       Use the specified source address.
    -n               Do not resolve addresses to hostnames.
    -p period        Wait period milliseconds between pings.
    -q num_queries   Number of queries per hop.
    -w timeout       Wait timeout milliseconds for each reply.
    -P               Test for RSVP PATH connectivity.
    -R               Test if each hop is RSVP aware.
    -T               Test connectivity to each hop with Layer-2 priority tags.
    -4               Force using IPv4.
    -6               Force using IPv6.
```

Ping

Ping is the single most powerful troubleshooting tool for networked computers. The Ping tool can at different times verify that TCP/IP is installed correctly on a computer, that a computer has joined the network successfully, that a computer can reach the internet, that a remote web site or computer is responding, and that computer name resolution is working.

```
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] 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.
    -i TTL         Time To Live.
    -v TOS         Type Of Service.
    -r count       Record route for count hops.
    -s count       Timestamp for count hops.
    -j host-list   Loose source route along host-list.
    -k host-list   Strict source route along host-list.
    -w timeout     Timeout in milliseconds to wait for each reply.
```

Route

Another advanced network administration tool on Windows XP, route supports manipulation and viewing of a computer's routing table. Route can be used on school or corporate networks to diagnose cases where a computer cannot reach another computer on the LAN.

```
Manipulates network routing tables.

ROUTE [-f] [-p] [command [destination]
                  [MASK netmask]  [gateway] [METRIC metric]  [IF interface]

  -f           Clears the routing tables of all gateway entries.  If this is
               used in conjunction with one of the commands, the tables are
               cleared prior to running the command.
  -p           When used with the ADD command, makes a route persistent across
               boots of the system. By default, routes are not preserved
               when the system is restarted. Ignored for all other commands,
```

```
              which always affect the appropriate persistent routes. This
              option is not supported in Windows 95.
  command     One of these:
                PRINT     Prints  a route
                ADD       Adds    a route
                DELETE    Deletes a route
                CHANGE    Modifies an existing route
  destination Specifies the host.
  MASK        Specifies that the next parameter is the 'netmask' value.
  netmask     Specifies a subnet mask value for this route entry.
              If not specified, it defaults to 255.255.255.255.
  gateway     Specifies gateway.
  interface   the interface number for the specified route.
  METRIC      specifies the metric, ie. cost for the destination.

All symbolic names used for destination are looked up in the network database
file NETWORKS. The symbolic names for gateway are looked up in the host name
database file HOSTS.

If the command is PRINT or DELETE. Destination or gateway can be a wildcard,
(wildcard is specified as a star '*'), or the gateway argument may be omitted.

If Dest contains a * or ?, it is treated as a shell pattern, and only
matching destination routes are printed. The '*' matches any string,
and '?' matches any one char. Examples: 157.*.1, 157.*, 127.*, *224*.
Diagnostic Notes:
    Invalid MASK generates an error, that is when (DEST & MASK) != DEST.
    Example> route ADD 157.0.0.0 MASK 155.0.0.0 157.55.80.1 IF 1
             The route addition failed: The specified mask parameter is invalid.
 (Destination & Mask) != Destination.

Examples:

    > route PRINT
    > route ADD 157.0.0.0 MASK 255.0.0.0  157.55.80.1 METRIC 3 IF 2
              destination^      ^mask      ^gateway     metric^    ^
                                                        Interface^
      If IF is not given, it tries to find the best interface for a given
      gateway.
    > route PRINT
    > route PRINT 157*          .... Only prints those matching 157*
    > route CHANGE 157.0.0.0 MASK 255.0.0.0 157.55.80.5 METRIC 2 IF 2

      CHANGE is used to modify gateway and/or metric only.
    > route PRINT
    > route DELETE 157.0.0.0
    > route PRINT
```

Tracert

Tracert (pronounced "traceroute") sends a test network message from a computer to a designated remote host and tracks the path taken by that message. Specifically, Tracert displays the name or IP address of each intermediate router or other network gateway device the message passes through to reach its destination. Tracert is especially useful when diagnosing connectivity problems on the Internet or within a school or corporate network.

```
Usage: tracert [-d] [-h maximum_hops] [-j host-list] [-w timeout] 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.
    -w timeout         Wait timeout milliseconds for each reply.
```