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CNN Lab (EVEN 2023)

Assignment – 01 & 02

UNIX/Linux and Windows General and Networking Commands

Ping

```
Microsoft Windows [Version 10.0.19044.2251]
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N:\>netsat
'netsat' is not recognized as an internal or external command,
operable program or batch file.

N:\>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.
```

```
N:\>ping www.google.com

Pinging www.google.com [142.250.206.132] with 32 bytes of data:
Reply from 142.250.206.132: bytes=32 time=6ms TTL=58
Reply from 142.250.206.132: bytes=32 time=7ms TTL=58
Reply from 142.250.206.132: bytes=32 time=7ms TTL=58
Reply from 142.250.206.132: bytes=32 time=7ms TTL=58

Ping statistics for 142.250.206.132:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 6ms, Maximum = 7ms, Average = 6ms
```

Netstat

```
N:\>netstat

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    127.0.0.1:1253         cl3-49:2015            TIME_WAIT
  TCP    127.0.0.1:15881        cl3-49:15884           ESTABLISHED
  TCP    127.0.0.1:15883        cl3-49:2015            TIME_WAIT
  TCP    127.0.0.1:15884        cl3-49:15881           ESTABLISHED
  TCP    127.0.0.1:65233        cl3-49:2015            TIME_WAIT
  TCP    172.16.137.88:1115     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1116     JIIT128DC16:49668      TIME_WAIT
  TCP    172.16.137.88:1121     JIIT128DC16:49670      TIME_WAIT
  TCP    172.16.137.88:1142     JIIT128DC16:49670      TIME_WAIT
  TCP    172.16.137.88:1181     13.107.4.52:http       TIME_WAIT
  TCP    172.16.137.88:1182     a-0001:https           TIME_WAIT
  TCP    172.16.137.88:1200     172.16.120.10:8090     LAST_ACK
  TCP    172.16.137.88:1227     a184-86-250-24:http    SYN_SENT
  TCP    172.16.137.88:1325     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1326     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1327     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1328     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1329     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1330     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1331     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1332     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1333     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1334     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1335     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1336     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1337     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1338     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1339     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1340     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1341     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1342     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1343     JIIT128DC16:49670      TIME_WAIT
  TCP    172.16.137.88:1344     JIIT128DC16:epmap      TIME_WAIT
  TCP    172.16.137.88:1345     JIIT128DC16:49670      TIME_WAIT
  TCP    172.16.137.88:1346     JIIT128DC16:49670      TIME_WAIT
  TCP    172.16.137.88:1347     JIIT128DC16:49670      TIME_WAIT
  TCP    172.16.137.88:1348     JIIT128DC16:49670      TIME_WAIT
```

Arp

```
N:\>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.
```

```
N:\>arp -a

Interface: 172.16.137.88 --- 0xf
  Internet Address      Physical Address      Type
  172.16.136.1          cc-ed-4d-70-13-5f     dynamic
  172.16.137.31         48-9e-bd-9b-6c-d6     dynamic
  172.16.137.59         50-81-40-20-9a-3c     dynamic
  172.16.137.79         50-81-40-20-77-32     dynamic
  172.16.137.213        50-81-40-20-25-d9     dynamic
  172.16.139.255        ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
  224.0.1.60            01-00-5e-00-01-3c     static
  239.255.255.250       01-00-5e-7f-ff-fa     static
  255.255.255.255       ff-ff-ff-ff-ff-ff     static

Interface: 192.168.56.1 --- 0x23
  Internet Address      Physical Address      Type
  192.168.56.255        ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
  224.0.1.60            01-00-5e-00-01-3c     static
  239.255.255.250       01-00-5e-7f-ff-fa     static
  255.255.255.255       ff-ff-ff-ff-ff-ff     static
```

Nbtstat

```
N:\>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.
```

```
N:\>nbtstat -c

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

    No names in cache

Ethernet:
Node IpAddress: [172.16.137.88] Scope Id: []

    No names in cache

Ethernet 2:
Node IpAddress: [0.0.0.0] Scope Id: []

    No names in cache

Ethernet 3:
Node IpAddress: [192.168.56.1] Scope Id: []

    No names in cache
```

Hostname & Tracert

```
N:\>hostname
cl3-49

N:\>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.
```

```
N:\>tracert www.google.com

Tracing route to www.google.com [142.250.206.132]
over a maximum of 30 hops:

  1     1 ms    <1 ms    <1 ms  172.16.136.1
  2     1 ms     1 ms     1 ms  172.16.120.10
  3     2 ms     2 ms     1 ms  dsl-ncr-static-209.66.16.125.airtelbroadband.in [125.16.66.209]
  4    22 ms    12 ms     8 ms  aes-static-021.80.22.125.airtel.in [125.22.80.21]
  5     6 ms     6 ms     7 ms  72.14.243.0
  6     7 ms     7 ms     7 ms  74.125.244.193
  7     7 ms     7 ms     7 ms  142.251.76.197
  8     7 ms     6 ms     7 ms  del11s21-in-f4.1e100.net [142.250.206.132]
```

IPconfig & nslookup

```
N:\>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet 2:

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

Unknown adapter Local Area Connection:

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

Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : J128.PDC
   Link-local IPv6 Address . . . . . : fe80::352c:6054:c694:3286%15
   IPv4 Address. . . . . . . . . . . : 172.16.137.88
   Subnet Mask . . . . . . . . . . . : 255.255.252.0
   Default Gateway . . . . . . . . . : 172.16.136.1

Ethernet adapter Ethernet 3:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::ca9a:c86f:36a:e210%35
   IPv4 Address. . . . . . . . . . . : 192.168.56.1
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :

N:\>nslookup
Default Server:  JIIT128ADC16.j128.pdc
Address:  172.16.120.31

> route
Server:  JIIT128ADC16.j128.pdc
Address:  172.16.120.31
```

Pathping

```
N:\>pathping

Usage: pathping [-g host-list] [-h maximum_hops] [-i address] [-n]
                [-p period] [-q num_queries] [-w timeout]
                [-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.
    -4               Force using IPv4.
    -6               Force using IPv6.

N:\>getmac

Physical Address    Transport Name
=================== ==========================================================
50-81-40-20-68-B3   \Device\Tcpip_{DBFC0F73-FB01-44C1-BA5F-196CF23FE1E1}
00-FF-48-66-DE-C1   Media disconnected
N/A                 Media disconnected
0A-00-27-00-00-23   \Device\Tcpip_{6640C637-69EF-4DC9-97AE-002BF72EC7DD}

N:\>netsh
netsh>exit
```