EXPERIMENT NO: 05 **DATE:22-07-2019**

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AIM: Familiarization with basic networking commands and their variants on Windows platform

DISCRPTION:

The basic networking commands are :

1. ncpa.cpl
2. ipconfig
3. ping
4. arp
5. route print
6. tracert
7. pathping
8. nslookup

All above commands must be executed in command prompt only.

Ncpa.cpl:

- This command used to access network settings easily.
- It is a module belonging to Microsoft® Windows® Operating System from Microsoft Corporation
- By using this command you can unable or disable the network settings.

Syntax: ncpa.cpl

When you type this command in command prompt the result is displayed like

Output:

Ipconfig:

- This command is used to display the TCP/IP configuration of all adapters.

- Used to identify the machines in the network uniquely.
- Used to refresh Dynamic Host configuration protocol (DHCP) and Domain Name System (DNS) settings.

Syntax: ipconfig

Output:

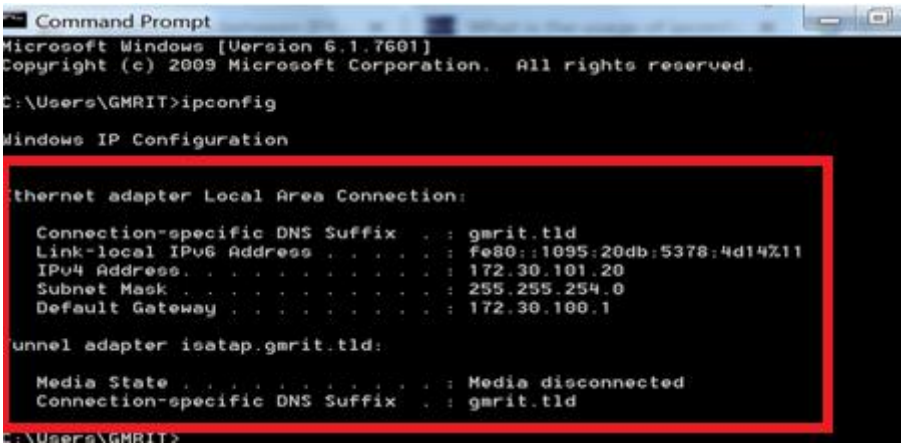


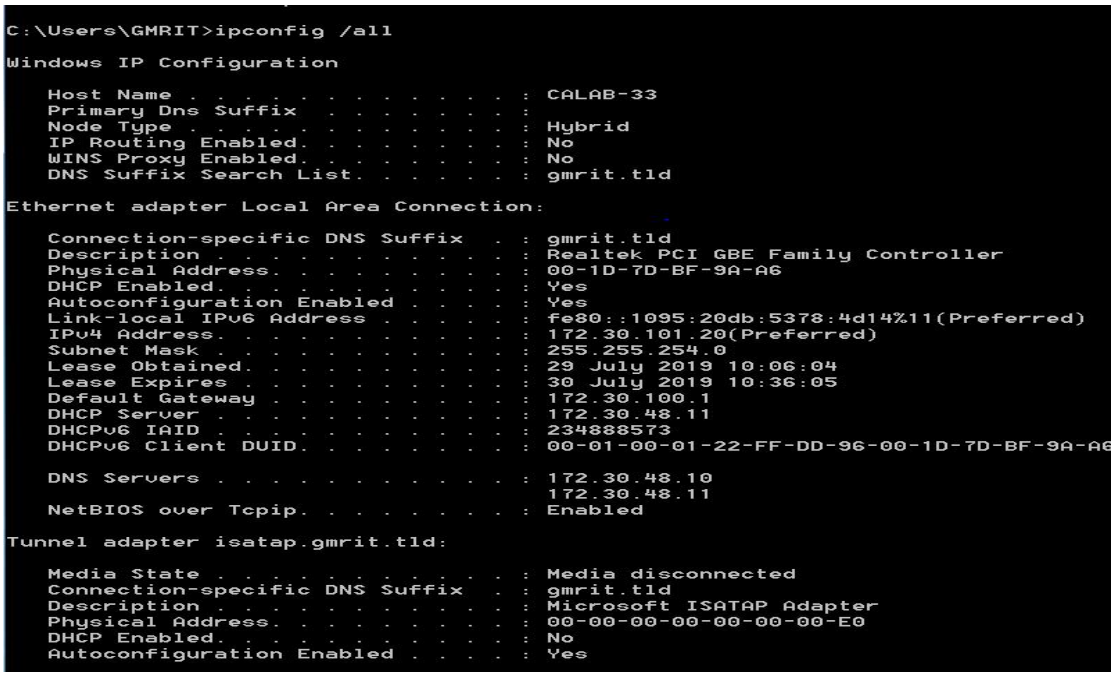
Fig:4.1

Ipconfig/all:

This command is used to display full TCP/IP configuration all adapters.

Syntax: ipconfig /all

Output:



Ipconfig /allcompartments:

It displays the information about all active commands.

Syntax: ipconfig /allcompartments

Output:

Command	Description
ipconfig /?	Displays help message
ipconfig /all	Displays full configuration information
ipconfig /release	Release IPV4 address to specific adapter
ipconfig /release6	Release IPV6 address to specific adapter
ipconfig /renew	Renew IPV4 address for specific adapter
Ipconfig /renew6	Release IPV6 address for specific adapter
Ipconfig /flushdns	Purges the DNS resolver cache
Ipconfig /showclassid	Displays all dhcp class ids allowed for adapter
Ipconfig /setclassid	Modifies the dhcp class ids

PING:

- Packet Internet Gopher
- This command is used to check the connectivity between the machines.

- It works based on Internet Control Message Protocol (ICMP)
- Default sends 4 packets.
- A packet is a unit of data that is shared between source and destination in a network.

Syntax: ping ip-address

Output:

```
C:\Users\GMRIT>ping 172.30.101.45

Pinging 172.30.101.45 with 32 bytes of data:
Reply from 172.30.101.20: Destination host unreachable.
Reply from 172.30.101.20: Destination host unreachable.
Reply from 172.30.101.20: Destination host unreachable.
Reply from 172.30.101.20: Destination host unreachable.

Ping statistics for 172.30.101.45:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

Ping –a:

This command is used to resolve address to host name.

Syntax: ping –a

Output:

```
C:\Users\GMRIT>ping -a 172.30.101.45

Pinging 172.30.101.45 with 32 bytes of data:
Reply from 172.30.101.20: Destination host unreachable.
Reply from 172.30.101.20: Destination host unreachable.
Reply from 172.30.101.20: Destination host unreachable.
Reply from 172.30.101.20: Destination host unreachable.

Ping statistics for 172.30.101.45:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

Some of ping commands and usage are:

```
C:\Users\GMRIT>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] [-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 Head
er).
    -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).
    -S srcaddr     Source address to use.
    -4             Force using IPv4.
    -6             Force using IPv6.
```

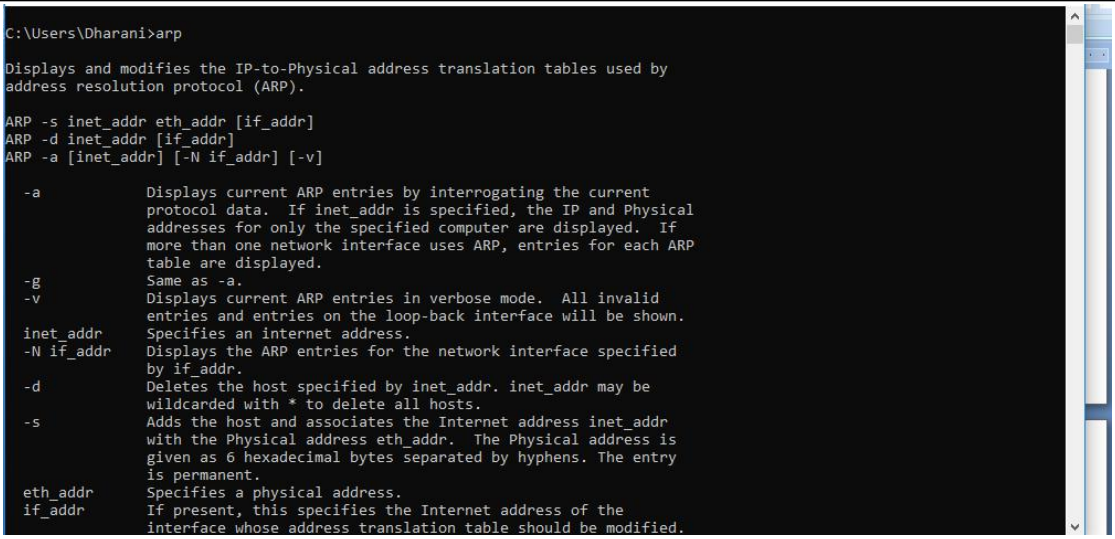
ARP:

- Address Resolution Protocol
- Displays and modifies the entries in address resolution protocol(ARP)
- ARP contains one or more tables used to store ip address.
- Used to convert ip address to physical address
- Used to map ip network address to hardware address used by data link protocol

Syntax:

arp [-a [InetAddr] [-N IfaceAddr]] [-g [InetAddr] [-N IfaceAddr]] [-d InetAddr [IfaceAddr]] [-s InetAddr EtherAddr [IfaceAddr]]

some of arp commands and their functions are:



```
C:\Users\Dharani>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.
```

OBSERVATION:

All the above commands are executed. these commands should be used in command prompt only. When the commands are typed the result is displayed as command syntax followed by result in above description.

REFERNCES:

Basic Networking commands with examples
https://www.computernetworkingnotes.com › Networking Tutorials

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