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Computer Networks Lab

Basic Commands:

- ## For ipconfig:
  Shows basics information of adaptors.

```
C:\Users\AJJI>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

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

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  . : Home
   Link-local IPv6 Address . . . . . : fe80::6588:6fa5:5d5:82c2%15
   IPv4 Address. . . . . . . . . . . : 192.168.10.2
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::7612:bbff:fee0:f9c6%15
                                       192.168.10.1
```

- **For config-all:**

  Show detail information of network adaptors i.e Internet protocol routing, proxies etc.

```
C:\Users\AJJI>ipconfig/all

Windows IP Configuration

   Host Name . . . . . . . . . . . . : DESKTOP-1QMNED0
   Primary Dns Suffix  . . . . . . . :
   Node Type . . . . . . . . . . . . : Hybrid
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No
   DNS Suffix Search List. . . . . . : Home

Ethernet adapter Ethernet:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Realtek PCIe GBE Family Controller
   Physical Address. . . . . . . . . : 98-40-BB-3D-75-0F
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Local Area Connection* 1:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Microsoft Wi-Fi Direct Virtual Adapter
   Physical Address. . . . . . . . . : AA-6B-AD-6C-AE-21
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Local Area Connection* 2:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Microsoft Wi-Fi Direct Virtual Adapter #2
   Physical Address. . . . . . . . . : BA-6B-AD-6C-AE-21
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
```

- For v4:

```
C:\Users\AJJI>ipconfig /all | findstr /v 00-00-00 | findstr v4
   IPv4 Address. . . . . . . . . . . : 192.168.10.2(Preferred)
```

- For physical address:

```
C:\Users\AJJI>ipconfig /all | findstr /v 00-00-00 | findstr Physical
    Physical Address. . . . . . . . . : 98-40-BB-3D-75-0F
    Physical Address. . . . . . . . . : AA-6B-AD-6C-AE-21
    Physical Address. . . . . . . . . : BA-6B-AD-6C-AE-21
    Physical Address. . . . . . . . . : A8-6B-AD-6C-AE-21
```

- # For DNS:

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

Windows IP Configuration

    edgedl.me.gvt1.com
    ----------------------------------------
    Record Name . . . . . : edgedl.me.gvt1.com
    Record Type . . . . . : 1
    Time To Live  . . . . : 868
    Data Length . . . . . : 4
    Section . . . . . . . : Answer
    A (Host) Record . . . : 34.104.35.123


    array513.prod.do.dsp.mp.microsoft.com
    ----------------------------------------
    Record Name . . . . . : array513.prod.do.dsp.mp.microsoft.com
    Record Type . . . . . : 1
    Time To Live  . . . . : 1476
    Data Length . . . . . : 4
    Section . . . . . . . : Answer
    A (Host) Record . . . : 52.184.214.53


    flexstudent.nu.edu.pk
    ----------------------------------------
    Record Name . . . . . : flexstudent.nu.edu.pk
    Record Type . . . . . : 1
    Time To Live  . . . . : 10322
    Data Length . . . . . : 4
    Section . . . . . . . : Answer
    A (Host) Record . . . : 210.56.9.82


    google.com
    ----------------------------------------
```

- # For flush DNS:

-
```
C:\Users\AJJI>ipconfig /flushdns

Windows IP Configuration

Successfully flushed the DNS Resolver Cache.
```

- **For ip-config-help:**

  Internet protocol rules that how to communicate and configure with the other ips.

```
C:\Users\AJJI>ipconfig /?

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.
```

- For ip-output-to-result-text-file:

ipconfig-results - Notepad

File   Edit   Format   View   Help

Windows IP Configuration

    Host Name . . . . : DESKTOP-1QMNED0
    Primary Dns Suffix . . . . :
    Node Type . . . . : Hybrid
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No
    DNS Suffix Search List. . . . . . : Home

Ethernet adapter Ethernet:

    Media State . . . . : Media disconnected
    Connection-specific DNS Suffix . :
    Description . . . . : Realtek PCIe GBE Family Controller
    Physical Address. . . . . : 98-40-BB-3D-75-0F
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Local Area Connection* 1:

    Media State . . . . : Media disconnected
    Connection-specific DNS Suffix . :
    Description . . . . : Microsoft Wi-Fi Direct Virtual Adapter
    Physical Address. . . . . : AA-6B-AD-6C-AE-21
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Local Area Connection* 2:

    Media State . . . . : Media disconnected
    Connection-specific DNS Suffix . :
    Description . . . . : Microsoft Wi-Fi Direct Virtual Adapter #2
    Physical Address. . . . . : BA-6B-AD-6C-AE-21
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes

```
Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . : Home
    Description . . . . . . . . . . . . : Qualcomm QCA9377 802.11ac Wireless Adapter
    Physical Address. . . . . . . . . : A8-6B-AD-6C-AE-21
    DHCP Enabled. . . . . . . . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    Link-local IPv6 Address . . . . . : fe80::6588:6fa5:5d5:82c2%15(Preferred)
    IPv4 Address. . . . . . . . . . . : 192.168.10.2(Preferred)
    Subnet Mask . . . . . . . . . . . : 255.255.255.0
    Lease Obtained. . . . . . . . . . : Tuesday, September 14, 2021 9:21:42 PM
    Lease Expires . . . . . . . . . . : Thursday, September 16, 2021 3:13:19 AM
    Default Gateway . . . . . . . . . : fe80::7612:bbff:fee0:f9c6%15
                                        192.168.10.1
    DHCP Server . . . . . . . . . . . : 192.168.10.1
    DHCPv6 IAID . . . . . . . . . . . : 178809773
    DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-28-C9-96-EB-98-40-BB-3D-75-0F
    DNS Servers . . . . . . . . . . . : 192.168.10.1
    NetBIOS over Tcpip. . . . . . . . : Enabled
```

• **For nslookup:**

Nslookup (stands for "Name Server Lookup") is a useful command for getting information from

```
C:\Users\AJJI>nslookup google.com
Server:   Broadcom.Home
Address:  192.168.10.1

Non-authoritative answer:
Name:     google.com
Addresses:  2a00:1450:4019:800::200e
            172.217.19.14

C:\Users\AJJI>nslookup flexstudent.nu.edu.pk
Server:   Broadcom.Home
Address:  192.168.10.1

Non-authoritative answer:
Name:     flexstudent.nu.edu.pk
Address:  210.56.9.82
```

DNS server. It is used for finding domain name or internet protocol mapping.