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# COMPUTER NETWORKS LAB

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Roll No: 19p0012  
Name: Aitzaz Tahir Ch  
Section: Bs(CS)-5B  
Lab No: 1



## Ipconfig

```
Command Prompt

C:\Users\Aitzaz Tahir Ch>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

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

Wireless LAN adapter Local Area Connection* 9:

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

Wireless LAN adapter Local Area Connection* 10:

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

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::c13e:df5a:7ca2:99f2%10
    IPv4 Address. . . . . : 192.168.1.116
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

C:\Users\Aitzaz Tahir Ch>
```

## ipconfig/all

```
C:\Users\Aitzaz Tahir Ch>ipconfig/all

Windows IP Configuration

    Host Name . . . . . : DESKTOP-2BVRQ7U
    Primary Dns Suffix . . . . . :
    Node Type . . . . . : Hybrid
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No

Ethernet adapter Ethernet:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :
    Description . . . . . : Realtek PCIe GbE Family Controller
    Physical Address. . . . . : 98-FA-9B-D5-A4-47
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Local Area Connection* 9:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :
    Description . . . . . : Microsoft Wi-Fi Direct Virtual Adapter
    Physical Address. . . . . : 08-71-90-EB-35-C6
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Local Area Connection* 10:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :
    Description . . . . . : Microsoft Wi-Fi Direct Virtual Adapter #2
    Physical Address. . . . . : 0A-71-90-EB-35-C5
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Wi-Fi:
```

Wireless LAN adapter Wi-Fi:

```
Connection-specific DNS Suffix . :  
Description . . . . . : Intel(R) Wireless-AC 9560 160MHz  
Physical Address. . . . . : 08-71-90-EB-35-C5  
DHCP Enabled. . . . . : Yes  
Autoconfiguration Enabled . . . . : Yes  
Link-local IPv6 Address . . . . . : fe80::c13e:df5a:7ca2:99f2%10(Preferred)  
IPv4 Address. . . . . : 192.168.1.116(Preferred)  
Subnet Mask . . . . . : 255.255.255.0  
Lease Obtained. . . . . : Sunday, September 12, 2021 6:01:13 AM  
Lease Expires . . . . . : Thursday, September 16, 2021 4:22:09 PM  
Default Gateway . . . . . : 192.168.1.1  
DHCP Server . . . . . : 192.168.1.1  
DHCPv6 IAID . . . . . : 151548304  
DHCPv6 Client DUID. . . . . : 00-01-00-01-28-59-BC-8D-98-FA-9B-D5-A4-47  
DNS Servers . . . . . : 192.168.1.1  
NetBIOS over Tcpip. . . . . : Enabled
```

C:\Users\Aitzaz Tahir Ch>

**ipconfig/release**

C:\Users\Aitzaz Tahir Ch>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\* 9 while it has its media disconnected.  
No operation can be performed on Local Area Connection\* 10 while it has its media disconnected.

Ethernet adapter Ethernet:

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

Wireless LAN adapter Local Area Connection\* 9:

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

Wireless LAN adapter Local Area Connection\* 10:

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

Wireless LAN adapter Wi-Fi:

```
Connection-specific DNS Suffix . :  
Link-local IPv6 Address . . . . . : fe80::c13e:df5a:7ca2:99f2%10  
Default Gateway . . . . . :
```

C:\Users\Aitzaz Tahir Ch>

## ipconfig/release6

```
C:\Users\Aitzaz Tahir Ch>ipconfig/release6

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* 9 while it has its media disconnected.
No operation can be performed on Local Area Connection* 10 while it has its media disconnected.

Ethernet adapter Ethernet:

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

Wireless LAN adapter Local Area Connection* 9:

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

Wireless LAN adapter Local Area Connection* 10:

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

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::c13e:df5a:7ca2:99f2%10
    IPv4 Address. . . . . : 192.168.1.116
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

C:\Users\Aitzaz Tahir Ch>
```

## ipconfig/renew

```
C:\Users\Aitzaz Tahir Ch>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* 9 while it has its media disconnected.
No operation can be performed on Local Area Connection* 10 while it has its media disconnected.

Ethernet adapter Ethernet:

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

Wireless LAN adapter Local Area Connection* 9:

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

Wireless LAN adapter Local Area Connection* 10:

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

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::c13e:df5a:7ca2:99f2%10
    IPv4 Address. . . . . : 192.168.1.116
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

C:\Users\Aitzaz Tahir Ch>
```

## ipconfig/renew6

```
C:\Users\Aitzaz Tahir Ch>ipconfig/renew6

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* 9 while it has its media disconnected.
No operation can be performed on Local Area Connection* 10 while it has its media disconnected.
An error occurred while renewing interface Wi-Fi : The semaphore timeout period has expired.


Ethernet adapter Ethernet:

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


Wireless LAN adapter Local Area Connection* 9:

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


Wireless LAN adapter Local Area Connection* 10:

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


Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::c13e:df5a:7ca2:99f2%10
    IPv4 Address. . . . . : 192.168.1.116
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

C:\Users\Aitzaz Tahir Ch>
```

## ipconfig /all | findstr /v 00-00-00 | findstr Physical

```
C:\Users\Aitzaz Tahir Ch>ipconfig /all | findstr /v 00-00-00 | findstr Physical
    Physical Address. . . . . : 98-FA-9B-D5-A4-47
    Physical Address. . . . . : 08-71-90-EB-35-C6
    Physical Address. . . . . : 0A-71-90-EB-35-C5
    Physical Address. . . . . : 08-71-90-EB-35-C5

C:\Users\Aitzaz Tahir Ch>
```

## ipconfig /all | findstr IPv4

```
C:\Users\Aitzaz Tahir Ch>ipconfig /all | findstr IPv4
    IPv4 Address. . . . . : 192.168.1.116(Preferred)

C:\Users\Aitzaz Tahir Ch>
```

**ipconfig /displaydns**

```
C:\Users\Aitzaz Tahir Ch>ipconfig /displaydns
```

## Windows IP Configuration

1.0.0.127.in-addr.arpa

```
Record Name . . . . . : 1.0.0.127.in-addr.arpa.  
Record Type . . . . . : 12  
Time To Live . . . . . : 0  
Data Length . . . . . : 8  
Section . . . . . : Answer  
PTR Record . . . . . : localhost
```

chat-pa.clients6.google.com

```
Record Name . . . . . : chat-pa.clients6.google.com
Record Type . . . . . : 1
Time To Live . . . . . : 139
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . : 142.250.181.10
```

ssl.gstatic.com

```
Record Name . . . . . : ssl.gstatic.com
Record Type . . . . . : 1
Time To Live . . . . . : 103
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . . : 142.250.181.131
```

```
1.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.ip6.arpa
```

```
Record Name . . . : 1.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.ip6.arpa.  
Record Type . . . : 12  
Time To Live . . . : 0  
Data Length . . . : 8  
Section . . . . . : Answer  
PTR Record . . . . : localhost
```

localhost

```
Record Name . . . . . : localhost
Record Type . . . . . : 28
Time To Live . . . . . : 1200
Data Length . . . . . : 16
Section . . . . . : Question
AAAA Record . . . . . : ::1
```

mail.google.com

```
Record Name . . . . . : mail.google.com
Record Type . . . . . : 5
Time To Live . . . . . : 125
Data Length . . . . . : 8
Section . . . . . : Answer
CNAME Record . . . . . : googlemail.l.google.com
```

```
Record Name . . . . . : googlemail.l.google.com
Record Type . . . . . : 1
Time To Live . . . . . : 125
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . : 216.58.207.5
```

pixel.wp.com

```
Record Name . . . . . : pixel.wp.com
Record Type . . . . . : 1
Time To Live . . . . . : 605
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . . : 192.0.76.3
```

```
C:\Users\Aitzaz Tahir Ch>
```

## ipconfig/flushdns

```
C:\Users\Aitzaz Tahir Ch>ipconfig/flushdns

Windows IP Configuration

Successfully flushed the DNS Resolver Cache.

C:\Users\Aitzaz Tahir Ch>
```

**ipconfig /?**

```
C:\Users\Aitzaz Tahir Ch>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.
```

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

**ipconfig /all >D:\ipconfig-results.txt**

Command Prompt

```
C:\Users\Aitzaz Tahir Ch>ipconfig /all >D:\ipconfig-results.txt
```

```
C:\Users\Aitzaz Tahir Ch>
```

ipconfig-results - Notepad

File Edit Format View Help

Windows IP Configuration

```
Host Name . . . . . : DESKTOP-2BVRQ7U
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
```

Ethernet adapter Ethernet:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Description . . . . . : Realtek PCIe GbE Family Controller
Physical Address. . . . . : 98-FA-9B-D5-A4-47
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
```

Wireless LAN adapter Local Area Connection\* 9:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Description . . . . . : Microsoft Wi-Fi Direct Virtual Adapter
Physical Address. . . . . : 08-71-90-EB-35-C6
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
```

Wireless LAN adapter Local Area Connection\* 10:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Description . . . . . : Microsoft Wi-Fi Direct Virtual Adapter #2
Physical Address. . . . . : 0A-71-90-EB-35-C5
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
```

Wireless LAN adapter Wi-Fi:

```
Connection-specific DNS Suffix . :
Description . . . . . : Intel(R) Wireless-AC 9560 160MHz
Physical Address. . . . . : 08-71-90-EB-35-C5
DHCP Enabled. . . . . : Yes
```

<



nslookup google.com

```
C:\Users\Aitzaz Tahir Ch>nslookup google.com
Server:  UnKnown
Address:  192.168.1.1

Non-authoritative answer:
Name:     google.com
Addresses: 2a00:1450:4019:801::200e
          142.250.181.14

C:\Users\Aitzaz Tahir Ch>
```

nslookup 142.250.181.14

```
C:\Users\Aitzaz Tahir Ch>nslookup 142.250.181.14
Server:  UnKnown
Address:  192.168.1.1

Name:     fjr04s05-in-f14.1e100.net
Address:  142.250.181.14

C:\Users\Aitzaz Tahir Ch>
```