

Lab 01

Using PowerShell to Find IP Address, DNS and DHCP

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Introduction:

An IP address (Internet Protocol address) is a unique numerical label assigned to every device connected to the internet, essentially acting like an online address that allows data to be sent to the correct location on the network; it's a string of numbers that identifies a device so it can communicate with other devices online

Domain Name Server DNS is a system that translates domain name into IP address which are used by devices to locate each other on the internet. DNS works when a user enters a domain name into their browser, the browser queries a DNS server DNS server returns the IP address for the domain name, The browser uses the IP address to load the requested web page.

Dynamic Host Configuration Protocol DHCP: A network protocol that automatically assigns IP addresses to devices on a network. DHCP also provides other configuration information, such as subnet masks and default gateways.

Classes of IP address. Class C: 255.255.255.0, Class B: 255.255.0.0, Class A: 255.0.0.0. Every IP has two sections, Network portion and Host portion.

Assignment:

In this lab, we would be using common PowerShell to identify IP address, DNS and DHCP.

Requirements:

Windows 10 and above.

High Speed Internet

Estimated Time:

Varies

Activity:

1. Go to your Windows search tab on the Taskbar and type PowerShell. Open the PowerShell utility. Run as an Administrator.

```
Administrator: Windows PowerShell
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\windows\system32>
```

2. Run *ipconfig /all*

Go to section indicating Wireless LAN adapter wi-fi:

```
Wireless LAN adapter Wi-Fi 2:

Connection-specific DNS Suffix . : attlocal.net
Description . . . . . : TP-Link Wireless Nano USB Adapter
Physical Address. . . . . : 6C-5A-B0-38-D9-D7
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
IPv6 Address. . . . . : 2600:1700:12e0:2f50::3d(Preferred)
Lease Obtained. . . . . : Monday, February 10, 2025 7:55:22 AM
Lease Expires . . . . . : Monday, February 10, 2025 11:55:22 AM
IPv6 Address. . . . . : 2600:1700:12e0:2f50:b742:f870:e5a4:b694(Preferred)
Temporary IPv6 Address. . . . . : 2600:1700:12e0:2f50:f90e:7182:5fa:2887(Preferred)
Link-local IPv6 Address . . . . . : fe80::d6b6:a99d:3fd:add0%17(Preferred)
IPv4 Address. . . . . : 192.168.1.188(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Thursday, February 6, 2025 10:09:12 PM
Lease Expires . . . . . : Tuesday, February 11, 2025 7:57:27 AM
Default Gateway . . . . . : fe80::b663:6fff:fed2:4572%17
                          192.168.1.254
DHCP Server . . . . . : 192.168.1.254
DHCPv6 IAID . . . . . : 476863152
DHCPv6 Client DUID. . . . . : 00-01-00-01-2A-B5-07-88-EC-B1-D7-2C-E3-7D
DNS Servers . . . . . : 2600:1700:12e0:2f50::1
                          8.8.8.8
                          8.8.4.4
NetBIOS over Tcpip. . . . . : Enabled
Connection-specific DNS Suffix Search List :
                          attlocal.net
```

Ethernet adapter Bluetooth Network Connection:

3. Include screenshot of powershell and answer following:
 - a. What is the name of your DNS server?
 - b. What is your MAC address?
 - c. DHCP enabled, does that indicate static or dynamic IP address? Please elaborate.
 - d. What is your IP address and IP class do you have?
 - e. What is the difference between IPv4 and IPv6 IP address?
 - f. What is your host name?

Submit your response to INFO@DELOJIK.COM

SUBMIT BY Thursday February 13 at 6pm US CT.

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