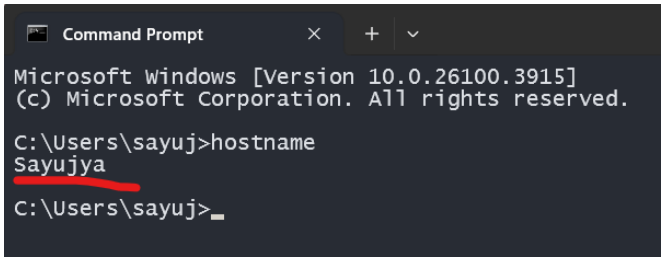
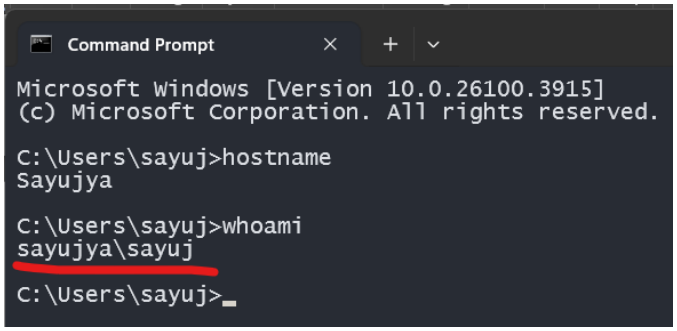
Lab Question 1: Network Scanning, Sniffing, and Identification in Windows and Linux

- Create a detailed lab report by researching and executing the following network-related commands in the Command Prompt (CMD). For each command, provide the purpose, the syntax, the output, and include screenshots of the results in your report. Use the commands below as a guideline:

Check computer name and username

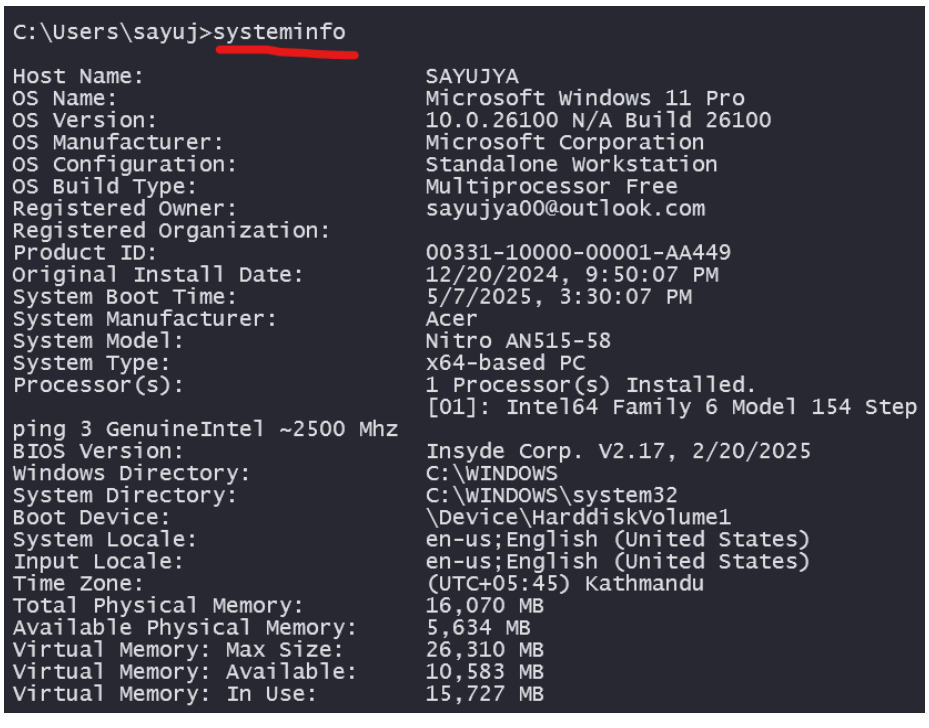
Command: hostname
Command: whoami
Objective : Check computer name and username

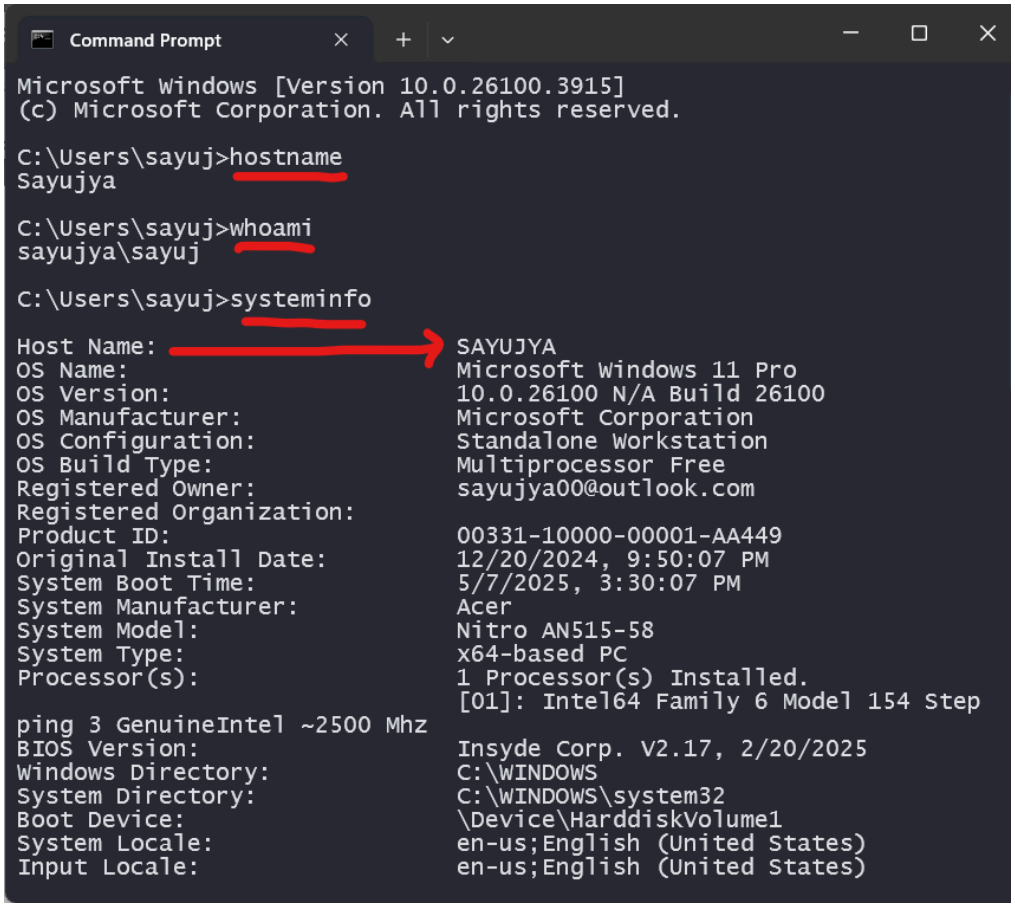




Detailed system info (OS, processor, BIOS, etc.):

Command: Systeminfo
Objective: Displays OS version, manufacturer, boot time, RAM, domain, etc





Network Information-View IP address, gateway, DNS:

Objective: To display the current network configuration details of all network adapters on a Windows machine. This includes: IP address ; Subnet mask ;Default gateway ; DNS server ; MAC address.

Command: ipconfig

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.

Used For:

- Check if the PC has an IP address assigned
- Identify network issues (e.g., no gateway = no internet)
- View DNS configuration

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

Windows IP Configuration

   Host Name . . . . . . . . . . . . : Sayujya
   Primary Dns Suffix  . . . . . . . :
   Node Type . . . . . . . . . . . . : Mixed
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No

Ethernet adapter Ethernet 2:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : VirtualBox Host-Only Ethernet
 Adapter
   Physical Address. . . . . . . . . : 0A-00-27-00-00-06
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . : fe80::607:c9cf:c416:1d91%6(Pr
eferred)
   IPv4 Address. . . . . . . . . . . : 192.168.56.1(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :
   DHCPv6 IAID . . . . . . . . . . . : 772407335
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-2C-F0-B8-4A-40-C2
-BA-14-20-C3
   NetBIOS over Tcpip. . . . . . . . : Enabled

Wireless LAN adapter Local Area Connection* 9:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Microsoft Wi-Fi Direct Virtua
```

```
C:\Users\sayuj>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 nam
es
       /displaydns      Display the contents of the DNS Resolver Cache.
       /showclassid     Displays all the dhcp class IDs allowed for adapte
r.
       /setclassid      Modifies the dhcp class id.
       /showclassid6    Displays all the IPv6 DHCP class IDs allowed for a
dapter.
       /setclassid6     Modifies the IPv6 DHCP class id.
```

Command: ping <hostname/IP>
Objective: Tests network connectivity to another host.

```
C:\Users\sayuj>ping sxc.edu.np

Pinging sxc.edu.np [103.90.87.172] with 32 bytes of data:
Reply from 103.90.87.172: bytes=32 time=4ms TTL=56
Reply from 103.90.87.172: bytes=32 time=17ms TTL=56
Reply from 103.90.87.172: bytes=32 time=3ms TTL=56
Reply from 103.90.87.172: bytes=32 time=3ms TTL=56

Ping statistics for 103.90.87.172:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 3ms, Maximum = 17ms, Average = 6ms
```

Command: ping /?
Objective: To view all ping command options (help menu) in Windows Command Prompt

```
C:\Users\sayuj>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 depre
cated
                   and has no effect on the type of service field in the I
P
                   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-onl
y).
                   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.
```

Command: ping youtube.com -t
Note: For stop/break the request use command: press at a time “ctrl+c” in your keyboard.

```
C:\Users\sayuj>ping sxc.edu.np -t

Pinging sxc.edu.np [103.90.87.172] with 32 bytes of data:
Reply from 103.90.87.172: bytes=32 time=4ms TTL=56
Reply from 103.90.87.172: bytes=32 time=4ms TTL=56
Reply from 103.90.87.172: bytes=32 time=4ms TTL=56
Reply from 103.90.87.172: bytes=32 time=4ms TTL=56
Reply from 103.90.87.172: bytes=32 time=3ms TTL=56
Reply from 103.90.87.172: bytes=32 time=3ms TTL=56

Ping statistics for 103.90.87.172:
    Packets: Sent = 6, Received = 6, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 3ms, Maximum = 4ms, Average = 3ms
Control-C
^C
C:\Users\sayuj>
```

Example Scenario:

- You're troubleshooting a slow internet connection.
- Run ping google.com -t to see if any packet loss or high latency occurs.
- Use ping google.com -l 1500 to check if large packets are being dropped.
- Use ping google.com -4 and -6 to test if the issue is with IPv4 or IPv6.

Command and their Use Case/When to Use

ping <IP>: To test if a device or website is reachable (e.g., ping 8.8.8.8 to check internet connection).
ping <IP> -t: To monitor network stability over time, useful for spotting intermittent connection drops.
ping <IP> -n <X>: To send a specific number of pings for controlled testing (e.g., test 10 responses with -n 10).
ping <IP> -l <X>: To test network packet handling or MTU size issues by sending larger or smaller packets.
ping <IP> -4: To ensure the ping uses an IPv4 address, especially in dual-stack networks (IPv4 + IPv6).
ping <IP> -6: To test IPv6 connectivity on networks where IPv6 is used or being configured.

User and Computer Details:

List all users on the system:
Command: net user

```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.26100.3915]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>net user

User accounts for \\SAYUJYA

-------------------------------------------------------------------------------
Administrator            DefaultAccount           Guest
sayuj                    WDAGUtilityAccount
The command completed successfully.
```

Command: net user sayuj

In cybersecurity, knowing User and Computer Details through command-line tools is essential for multiple tasks, such as monitoring, incident response, auditing, and securing systems. Here's how these commands are used in a cybersecurity context:

User and Computer Detail Commands (with Cybersecurity Uses)

Command	Use in Cybersecurity
whoami	Shows the **currently logged-in user** — useful to verify **privilege level** (e.g., admin vs standard).
net user	Lists all **user accounts** on the system — used to **detect unauthorized or suspicious users**.
net user <username>	Checks details like password policies, account status, and login info — helps **audit user configurations**.
hostname	Identifies the **machine name** — important for tracking incidents across multiple systems.
echo %username%	Quickly displays the current user — helpful in **batch scripting** and automation.
systeminfo	Provides OS, BIOS, and update info — used to check **patch levels** and **vulnerabilities**.
wmic computersystem get name,username	Shows currently logged-in user and computer name — useful for tracking **active sessions**.
set	Lists environment variables — can reveal **paths and configurations** useful to attackers or defenders.

```
C:\Windows\System32>net user sayuj
User name                    sayuj
Full Name                    SAYUJYA SATYAL
Comment
User's comment
Country/region code          000 (System Default)
Account active               Yes
Account expires              Never

Password last set            11/22/2023 11:35:08 PM
Password expires             Never
Password changeable          11/22/2023 11:35:08 PM
Password required            Yes
User may change password     Yes

Workstations allowed         All
Logon script
User profile
Home directory
Last logon                   Never

Logon hours allowed          All

Local Group Memberships      *Administrators       *ORA_ASMDBA
                             *ORA_DBA              *ORA_OraDB21Home1_SYSB
                             *ORA_OraDB21Home1_SYSD*ORA_OraDB21Home1_SYSK
                             *Users
Global Group memberships     *None
The command completed successfully.
```

```
C:\Windows\System32>whoami
sayujya\sayuj
```

```
C:\Windows\System32>whoami
sayujya\sayuj

C:\Windows\System32>echo %username%
sayuj

C:\Windows\System32>wmic computersystem get name, username
Name     UserName
SAYUJYA  Sayujya\sayuj
```

Command to Create a New User (Windows CMD)

Syntax: net user Test test@123 /add

Test = New username
test@123 = Password (you can customize it)
/add = Tells Windows to add the user

```
C:\Windows\System32>net user Test test@123 /add
The command completed successfully.


C:\Windows\System32>net user Test test@123 /add
The account already exists.

More help is available by typing NET HELPMSG 2224.
```

To Make the User an Administrator

Command: net localgroup administrators Test /add

Objective: Adds the user to the Administrators group, giving them admin privileges

```
C:\Windows\System32>net localgroup administrators Test /add
The command completed successfully.
```

Use Case: In cybersecurity, the command to create a new user and assign admin privileges has both defensive and offensive (ethical hacking or forensic) applications. Here's the purpose and use of these commands in cybersecurity:

Cybersecurity Uses of Creating a New User

1. **For Lab & Audit Setup (Defensive Use)**

- You create a user like Test to verify that a student or analyst is using their own system for lab work.
- Helps track user actions separately from the default system user.
- Used during forensic imaging or analysis, so the forensic examiner works in a separate user account.

2. **For Privilege Escalation Testing (Offensive / Ethical Hacking Use)**

- In penetration testing, attackers or ethical hackers may try to:
- Create a hidden admin user to maintain access.
- Escalate privileges by adding a user to the Administrators group.

3. **For Incident Response & Recovery**

- If a system is compromised and the main admin account is locked or damaged:
- An incident responder can create a new admin account to regain control.
- Quickly restore administrative access without reinstalling the OS.

Security Best Practice

- Audit all user creation and admin privilege changes using Event Viewer or logs.
- Disable or delete test/admin accounts like Sayujya after the lab or incident is done.

To hide a user account from the Windows login screen (e.g., for legitimate administrative or forensic purposes), you can do it via the Windows Registry Editor using Command Prompt. This is sometimes used by system administrators or forensic analysts to keep a user account hidden from casual users.

Important: This should only be done on systems you own or have explicit permission to modify. Unauthorized hiding of users can be considered malicious behavior.

Steps to Hide a User Account in Windows via CMD

1. Open Command Prompt as Administrator
2. Run the following command:

Command:
reg add "HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon\SpecialAccounts\UserList" /v Sayujya /t REG_DWORD /d 0 /f

- Test = The username you want to hide
- 0 = Hides the user from the login screen
- This modifies the Registry to hide the user under the UserList key.

🔍 Explanation of Each Flag & Component:

Part	Meaning
`reg add`	Adds a new registry key or value to the Windows Registry.
`"HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon\SpecialAccounts\UserList"`	This is the **registry path**. It tells Windows where to add the new entry. 🔹 `HKLM` = HKEY_LOCAL_MACHINE (global to all users) 🔹 `SpecialAccounts\UserList` = A special section that controls whether user accounts appear on the login screen.
`/v AnishBIM004`	Specifies the **name of the value** (in this case, the username) being added to that registry location.
`/t REG_DWORD`	Specifies the **type** of value. 🔹 `REG_DWORD` = A 32-bit number, used here to toggle visibility (0 or 1).
`/d 0`	The actual **data** or value you're setting. 🔹 `0` = **Hide** the user from the login screen. 🔹 `1` = **Show** the user again.
`/f`	**Force** overwrite without asking for confirmation. Useful for scripts or automation.

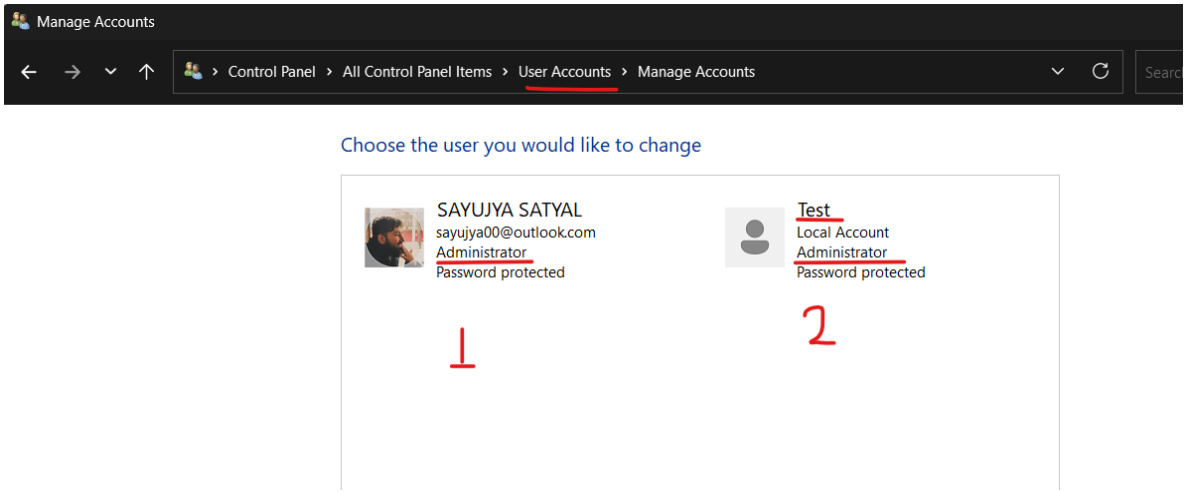
Example Use Case (Cybersecurity):

- In a cybersecurity lab or forensic setting, an investigator might use this command to:
- Hide a local admin or forensic account so it doesn't show up to the suspect.
- Create a clean environment to observe behavior without interfering.

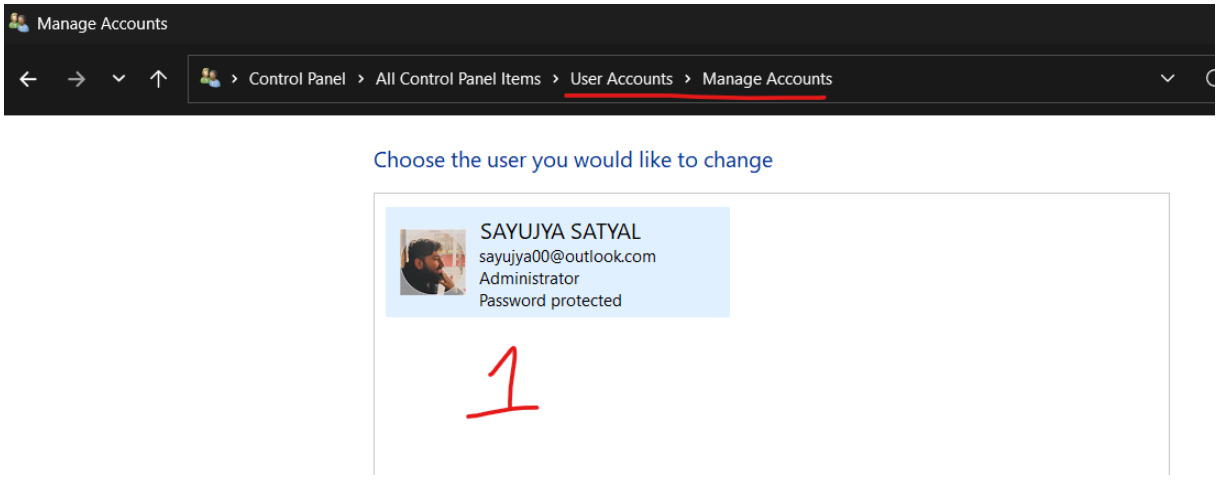
To Unhide the User Again:

Run the Command:
reg add "HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon\SpecialAccounts\UserList" /v Sayujya /t REG_DWORD /d 1 /f

```
C:\Windows\System32>net user

User accounts for \\SAYUJYA

-------------------------------------------------------------------------------
Administrator            DefaultAccount           Guest
sayuj                    Test                     WDAGUtilityAccount
The command completed successfully.


C:\Windows\System32>
```




```
C:\Windows\System32>reg add "HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon\SpecialAccount
s\UserList" /v Test /t REG_DWORD /d 0 /f
The operation completed successfully.
```



How to Log in to a Hidden User Account in Windows

Method 1: Manual Username Entry (Windows Login Screen)

1. On the login screen, press **Ctrl + Alt + Delete** (if required).
2. Click **"Other user"** or press **Esc** if your usual login options appear.
3. In the **username field**, manually type the hidden username (e.g., Sayujya).
4. Enter the password and press **Enter**.
   Even though the account is hidden from the welcome screen, it can still be used by **manually typing the credentials.**

Method 2: Switch User (If Already Logged In)

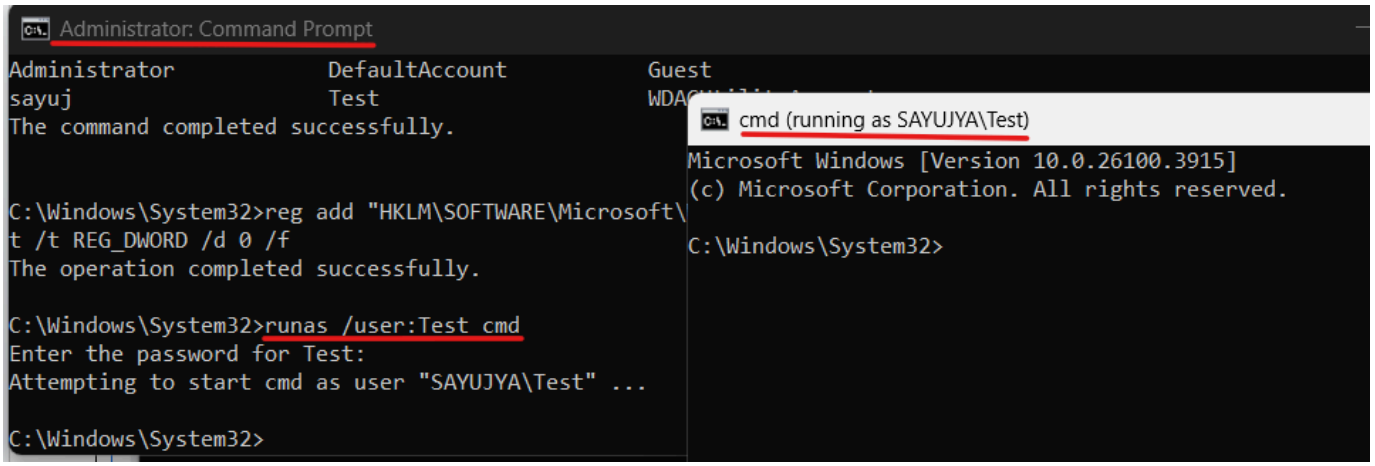
If you're logged in with another user:

1. Press **Ctrl + Alt + Delete** → choose **"Switch user"**
   .
2. Now you'll get the manual login screen where you can type:
   Username: Sayujya
   Password: (whatever you set)

Method 3: Login via Command Line (RunAs)

- If you're inside another account and want to run something as the hidden user:
- Command: runas /user:Test cmd

Command: runas /user:Test cmd



⚠️ What a Hidden Admin User Can Do (If Misused):

Action	Description
🛠️ **Bypass monitoring**	Operate without drawing attention since the user is hidden from the login screen.
🧪 **Install malicious software**	Install keyloggers, remote access tools (RATs), or backdoors.
🔑 **Extract or change passwords**	Use tools like `mimikatz` or access `Credential Manager` to steal saved credentials.
📂 **Access all user files**	As an admin, access all folders—even those of other users.
🧹 **Delete logs/traces**	Clear event logs or manipulate log files to cover tracks.
🚫 **Disable security features**	Turn off antivirus, firewall, UAC, or Windows Defender.
📤 **Exfiltrate data**	Upload confidential files to the internet or external drives.
🧬 **Create persistence**	Add scheduled tasks, registry entries, or startup items to regain access later.
🎯 **Sniff network traffic**	Install sniffers like Wireshark to capture network credentials or traffic.
🕵️ **Impersonate other users**	Add themselves to user groups or reset passwords to take over accounts.

Real-World Risk Example:

A rogue employee creates a hidden admin account before quitting. Months later, they log in remotely, access sensitive files, or sabotage systems—completely unnoticed, since their account doesn't appear on the login screen or in casual user management views.

From a Cybersecurity Training View: This scenario is often part of **Red Team exercises**, used to:

- Simulate insider threats.
- Train Blue Teams on detecting hidden persistence.
- Test incident response processes.

Defense Tip (Blue Team / Prevention):

- Monitor the registry key:
- HKLM\...\Winlogon\SpecialAccounts\UserList
- Regularly audit user accounts via:

- Regularly audit user accounts via:

```
cmd

net user
```

- Check for users in the **Administrators group**:

```
cmd

net localgroup administrators
```

- Use SIEM tools or Windows Event Logs to flag logins from unknown or hidden users.

Traceroute and Path Testing

Run tracert google.com.

- **Purpose:** Shows the path that packets take from your computer to a destination by listing all intermediate routers (hops).
- **Syntax:** tracert [hostname or IP address]

```
C:\Users\sayuj>tracert google.com

Tracing route to google.com [2404:6800:4009:831::200e]
over a maximum of 30 hops:

  1     2 ms     2 ms     2 ms  2404:7c00:44:3e41:72a5:6aff:fe7b:5cad
  2     3 ms     3 ms    21 ms  2404:7c00::10
  3     3 ms     2 ms     3 ms  2404:7c00:0:7::2
  4     4 ms     3 ms     3 ms  2404:7c00:0:6::2
  5    44 ms    44 ms    44 ms  2404:a800:3a00:2::279
  6    43 ms    43 ms    43 ms  2404:a800::92
  7    41 ms    41 ms    41 ms  2001:4860:1:1::674
  8    44 ms    44 ms    44 ms  2404:6800:8202:240::1
  9     *        *        *     Request timed out.
 10    52 ms     *       52 ms  2001:4860:0:1::8826
 11    51 ms    51 ms    51 ms  2001:4860::9:4001:b922
 12    66 ms    54 ms    55 ms  2001:4860::9:4002:d931
 13    51 ms    51 ms    51 ms  2001:4860:0:1::8711
 14    52 ms    51 ms    51 ms  2001:4860:0:1::5c07
 15    51 ms    51 ms    52 ms  bom12s21-in-x0e.1e100.net [2404:6800:4009:831::200e]

Trace complete.
```

Use pathping google.com.

- **Purpose:** Combines the functions of ping and tracert to show route and packet loss statistics for each hop.
- **Syntax:** pathping [hostname or IP address]

```
C:\Users\sayuj>pathping google.com

Tracing route to google.com [2404:6800:4009:831::200e]
over a maximum of 30 hops:
  0  Sayujya [2404:7c00:44:3e41:6da1:a895:8300:efc5]
  1  2404:7c00:44:3e41:72a5:6aff:fe7b:5cad
  2  2404:7c00::10
  3  2404:7c00:0:7::2
  4  2404:7c00:0:6::2
  5  2404:a800:3a00:2::279
  6  2404:a800::92
  7  2001:4860:1:1::674
  8  2404:6800:8202:240::1
  9     *        *        *
Computing statistics for 200 seconds...
            Source to Here   This Node/Link
Hop  RTT    Lost/Sent = Pct  Lost/Sent = Pct  Address
  0                                           Sayujya [2404:7c00:44:3e41:6da1:a895:8300:efc5]
                                     0/ 100 =  0%   |
  1    2ms     0/ 100 =  0%     0/ 100 =  0%  2404:7c00:44:3e41:72a5:6aff:fe7b:5cad
                                     0/ 100 =  0%   |
  2    5ms     0/ 100 =  0%     0/ 100 =  0%  2404:7c00::10
                                     0/ 100 =  0%   |
  3    6ms     0/ 100 =  0%     0/ 100 =  0%  2404:7c00:0:7::2
                                     0/ 100 =  0%   |
  4    4ms     0/ 100 =  0%     0/ 100 =  0%  2404:7c00:0:6::2
                                     0/ 100 =  0%   |
  5   42ms     0/ 100 =  0%     0/ 100 =  0%  2404:a800:3a00:2::279
                                     0/ 100 =  0%   |
  6   51ms     0/ 100 =  0%     0/ 100 =  0%  2404:a800::92
                                     0/ 100 =  0%   |
  7   56ms     0/ 100 =  0%     0/ 100 =  0%  2001:4860:1:1::674
                                   100/ 100 =100%   |
  8  ---     100/ 100 =100%     0/ 100 =  0%  2404:6800:8202:240::1

Trace complete.
```

Network Interface and Connections

Execute netstat -an and netstat -b

1. netstat -an

- **Purpose:** Displays all active network connections and listening ports in numerical form.
- **What It Shows:**
  - Active TCP and UDP connections
  - Local and foreign IP addresses
  - Port numbers
  - Connection states (e.g., LISTENING, ESTABLISHED)

```
C:\Users\sayuj>netstat -an

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    0.0.0.0:135            0.0.0.0:0              LISTENING
  TCP    0.0.0.0:445            0.0.0.0:0              LISTENING
  TCP    0.0.0.0:1521           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:1536           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:1537           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:1538           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:1539           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:1546           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:1566           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:1568           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:5040           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:5432           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:7680           0.0.0.0:0              LISTENING
  TCP    0.0.0.0:30518          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:44801          0.0.0.0:0              LISTENING
  TCP    0.0.0.0:57621          0.0.0.0:0              LISTENING
  TCP    127.0.0.1:1558         127.0.0.1:1559         ESTABLISHED
```

2. netstat -b

- **Purpose:** Shows which executables (programs) are using which network connections/ports.
- **What It Shows:**
  - Similar to netstat -an, but with executable names for each connection.
  - Useful for identifying which applications are using the network.

```
C:\Windows\System32>netstat -b

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    127.0.0.1:1562         Sayujya:1563           ESTABLISHED
 [WUDFHost.exe]
  TCP    127.0.0.1:1563         Sayujya:1562           ESTABLISHED
 [WUDFHost.exe]
  TCP    127.0.0.1:1569         Sayujya:1570           ESTABLISHED
 [WUDFHost.exe]
  TCP    127.0.0.1:1570         Sayujya:1569           ESTABLISHED
 [WUDFHost.exe]
  TCP    127.0.0.1:1576         Sayujya:1577           ESTABLISHED
 [NVDisplay.Container.exe]
  TCP    127.0.0.1:1577         Sayujya:1576           ESTABLISHED
 [NVDisplay.Container.exe]
  TCP    127.0.0.1:1608         Sayujya:1609           ESTABLISHED
 [ipfsvc.exe]
  TCP    127.0.0.1:1609         Sayujya:1608           ESTABLISHED
 [ipfsvc.exe]
  TCP    127.0.0.1:1640         Sayujya:40572          ESTABLISHED
 [NVIDIA Web Helper.exe]
  TCP    127.0.0.1:40532        Sayujya:65001          ESTABLISHED
 [nvcontainer.exe]
  TCP    127.0.0.1:40572        Sayujya:1640           ESTABLISHED
 [NVIDIA Share.exe]
  TCP    127.0.0.1:61798        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:61803        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:61808        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:61810        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:61811        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:61812        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:61813        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:61814        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:61815        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:61822        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:61823        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:61824        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:61825        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:61826        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:61827        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:61828        Sayujya:49350          TIME_WAIT
  TCP    127.0.0.1:65001        Sayujya:40532          ESTABLISHED
 [nvcontainer.exe]
  TCP    192.168.101.4:44801    atadevice20:3a:eb:db:99:1c:56390  ESTABLISHED
```

Run netstat -e.

- **Purpose:** Displays Ethernet statistics, including:Bytes sent/received, Unicast/multicast packets, Error counts
- **What It Shows:**
  - Total network traffic since the last boot
  - Useful for performance monitoring or detecting abnormal activity

```
C:\Users\sayuj>netstat -e
Interface Statistics

                           Received            Sent

Bytes                    1826803403      1360330361
Unicast packets            33510101        32663426
Non-unicast packets          157725           48665
Discards                          0               0
Errors                            0               0
Unknown protocols                 0
```

Use route print.

- **Purpose:** Displays the current routing table of the system, showing how network traffic is routed.

```
C:\Users\sayuj>route print
===========================================================================
Interface List
 18...40 c2 ba 14 20 c3 ......Killer E2600 Gigabit Ethernet Controller
  6...0a 00 27 00 00 06 ......VirtualBox Host-Only Ethernet Adapter
  3...a4 f9 33 a5 da 1c ......Microsoft Wi-Fi Direct Virtual Adapter
 15...a6 f9 33 a5 da 1b ......Microsoft Wi-Fi Direct Virtual Adapter #2
 12...5a 6f ed 84 db ef ......Killer(R) Wi-Fi 6 AX1650i 160MHz Wireless Network Adapter (201NGW)
  1...........................Software Loopback Interface 1
===========================================================================

IPv4 Route Table
===========================================================================
Active Routes:
Network Destination        Netmask          Gateway       Interface  Metric
          0.0.0.0          0.0.0.0      192.168.1.1      192.168.1.8     35
        127.0.0.0        255.0.0.0         On-link         127.0.0.1    331
        127.0.0.1  255.255.255.255         On-link         127.0.0.1    331
  127.255.255.255  255.255.255.255         On-link         127.0.0.1    331
      169.254.0.0      255.255.0.0         On-link   169.254.214.206    281
  169.254.214.206  255.255.255.255         On-link   169.254.214.206    281
  169.254.255.255  255.255.255.255         On-link   169.254.214.206    281
      192.168.1.0    255.255.255.0         On-link       192.168.1.8    291
      192.168.1.8  255.255.255.255         On-link       192.168.1.8    291
    192.168.1.255  255.255.255.255         On-link       192.168.1.8    291
     192.168.56.0    255.255.255.0         On-link      192.168.56.1    281
     192.168.56.1  255.255.255.255         On-link      192.168.56.1    281
   192.168.56.255  255.255.255.255         On-link      192.168.56.1    281
        224.0.0.0        240.0.0.0         On-link         127.0.0.1    331
        224.0.0.0        240.0.0.0         On-link      192.168.56.1    281
        224.0.0.0        240.0.0.0         On-link   169.254.214.206    281
        224.0.0.0        240.0.0.0         On-link       192.168.1.8    291
  255.255.255.255  255.255.255.255         On-link         127.0.0.1    331
  255.255.255.255  255.255.255.255         On-link      192.168.56.1    281
  255.255.255.255  255.255.255.255         On-link   169.254.214.206    281
  255.255.255.255  255.255.255.255         On-link       192.168.1.8    291
===========================================================================
Persistent Routes:
  None
```

Wireless Network and Firewall

Run netsh wlan show profiles.

- **Purpose:** This command lists all the Wi-Fi profiles saved on your system. It's useful for:
  - Identifying previously connected networks
  - Managing or deleting old/unused Wi-Fi profiles
  - Troubleshooting wireless connection issues

```
C:\Users\sayuj>netsh wlan show profiles

Profiles on interface Wi-Fi:

Group policy profiles (read only)
---------------------------------
    <None>

User profiles
-------------
    All User Profile     : AyjuYaas
    All User Profile     : UI
    All User Profile     : The5GTwo
    All User Profile     : mellowgarden_5
    All User Profile     : burgerhouse44_2.4
    All User Profile     : Juju cafe5G@ClassicTech
    All User Profile     : juju cafe4@ClassicTech
    All User Profile     : Meroma_restro
    All User Profile     : St. Xavier
    All User Profile     : ROJA-SHRESTHA05 6820
    All User Profile     : Ojha Cyber
    All User Profile     : 12345
    All User Profile     : LCR
    All User Profile     : Sultan
    All User Profile     : SAYU
    All User Profile     : Aq_5G
    All User Profile     : H196A_A51C
    All User Profile     : TP-LINK
    All User Profile     : sherap@vianet_5G
    All User Profile     : AdvancedCollege
    All User Profile     : 1
```

Execute netsh wlan show profile [profile name]

- **Purpose:** This command retrieves details about a specific Wi-Fi profile. It helps with:
  - Checking the security type and settings

- Retrieving the saved Wi-Fi password (when using the key=clear flag)

```
C:\Users\sayuj>netsh wlan show profile name="St. Xavier"

Profile St. Xavier on interface Wi-Fi:
=======================================================================

Applied: All User Profile

Profile information
-------------------
    Version                : 1
    Type                   : Wireless LAN
    Name                   : St. Xavier
    Control options        :
        Connection mode    : Connect automatically
        Network broadcast  : Connect only if this network is broadcasting
        AutoSwitch         : Do not switch to other networks
        MAC Randomization  : Disabled

Connectivity settings
---------------------
    Number of SSIDs        : 1
    SSID name              : "St. Xavier"
    Network type           : Infrastructure
    Radio type             : [ Any Radio Type ]
    Vendor extension          : Not present

Security settings
-----------------
    Authentication         : Open
    Cipher                 : None
    Security key           : Absent
    Key Index              : 1

Cost settings
-------------
    Cost                   : Unrestricted
    Congested              : No
    Approaching Data Limit : No
    Over Data Limit        : No
    Roaming                : No
    Cost Source            : Default
```

Use netsh advfirewall show allprofiles.

- **Purpose:** This command displays firewall settings for all network profiles (Domain, Private, and Public). It's useful for:
  - Verifying firewall status
  - Checking inbound/outbound rules
  - Ensuring your system is protected on all networks

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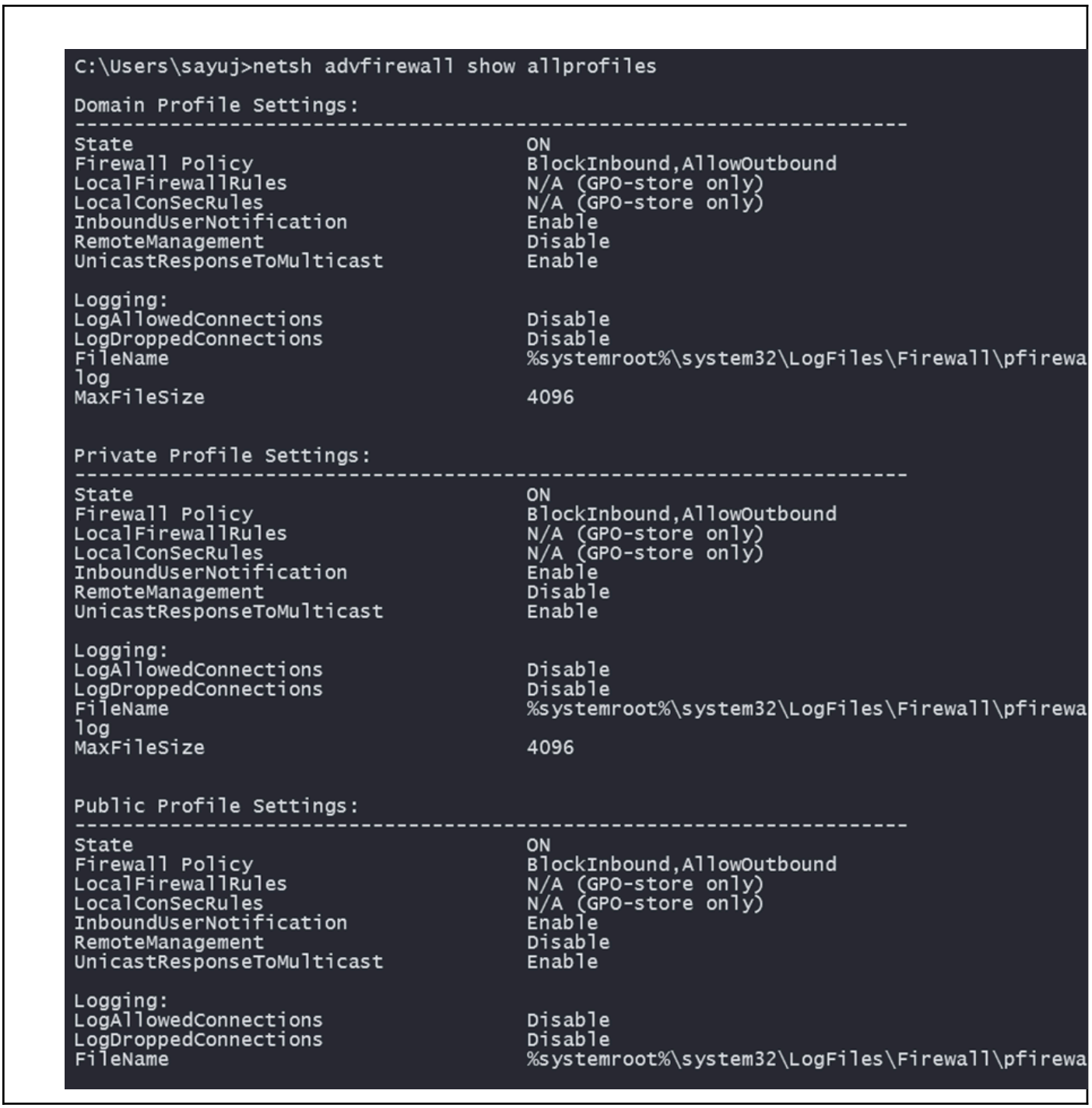

```
C:\Users\sayuj>netsh advfirewall show allprofiles

Domain Profile Settings:
----------------------------------------------------------------------
State                                 ON
Firewall Policy                       BlockInbound,AllowOutbound
LocalFirewallRules                    N/A (GPO-store only)
LocalConSecRules                      N/A (GPO-store only)
InboundUserNotification               Enable
RemoteManagement                      Disable
UnicastResponseToMulticast            Enable

Logging:
LogAllowedConnections                 Disable
LogDroppedConnections                 Disable
FileName                              %systemroot%\system32\LogFiles\Firewall\pfirewa
log
MaxFileSize                           4096


Private Profile Settings:
----------------------------------------------------------------------
State                                 ON
Firewall Policy                       BlockInbound,AllowOutbound
LocalFirewallRules                    N/A (GPO-store only)
LocalConSecRules                      N/A (GPO-store only)
InboundUserNotification               Enable
RemoteManagement                      Disable
UnicastResponseToMulticast            Enable

Logging:
LogAllowedConnections                 Disable
LogDroppedConnections                 Disable
FileName                              %systemroot%\system32\LogFiles\Firewall\pfirewa
log
MaxFileSize                           4096


Public Profile Settings:
----------------------------------------------------------------------
State                                 ON
Firewall Policy                       BlockInbound,AllowOutbound
LocalFirewallRules                    N/A (GPO-store only)
LocalConSecRules                      N/A (GPO-store only)
InboundUserNotification               Enable
RemoteManagement                      Disable
UnicastResponseToMulticast            Enable

Logging:
LogAllowedConnections                 Disable
LogDroppedConnections                 Disable
FileName                              %systemroot%\system32\LogFiles\Firewall\pfirewa
```