

Network commands



1. ipconfig

ipconfig: View IP address and other network information. Layer 3 info.

`ipconfig /all` : shows detailed information including MAC addresses, DNS servers, DHCP status, etc layer 2 info.



2. ping

ping: Test connection to a server and checks if a network device is reachable by sending a request to the destination and waiting for a reply. It's useful for diagnosing connectivity issues.

- Example: ping google.com

Ping 192.168.1.5



3. nslookup

nslookup: command is used to query the DNS server for domain name to IP address mappings. It's helpful for diagnosing DNS-related issues.

- Example : nslookup google.com



4. Tracert

tracert: Trace the route packets take to reach a destination , shows the path packets take to reach a destination by listing each hop (router or gateway) along the way. This is useful to identify where network congestion or failures occur.

- Example: tracert google.com

- **Key Points:**

- **Hop:** Each step (router or device) the packet travels through.
- **Round-Trip Time (RTT):** Shows how long it takes for a packet to reach a specific router and return. Lower values indicate faster connections; higher values might point to slower connections or congestion.
- **IP Address/Hostname:** Shows the identity of each router the packet passes through.
- **Time-Outs:** If a hop times out, it could be because of a router's firewall settings or network issues.



5. pathping:

pathping : command is a combination of ping and tracert. It traces the route packets take to reach a destination and then provides detailed performance analysis for each hop.

- Example : pathping google.com



6. net :

The net command is used to manage network resources, connections, and services. It can be used for tasks like managing users, sharing resources, and connecting to remote devices.

- Example : Example 1 (View network devices on the local network):

`net view`



7. Color – change the font and background color

- You can change the background and font color in Windows (CMD) using this command
- Syntax : `color [background] [font]`
- Ex:
- `Color 1f`

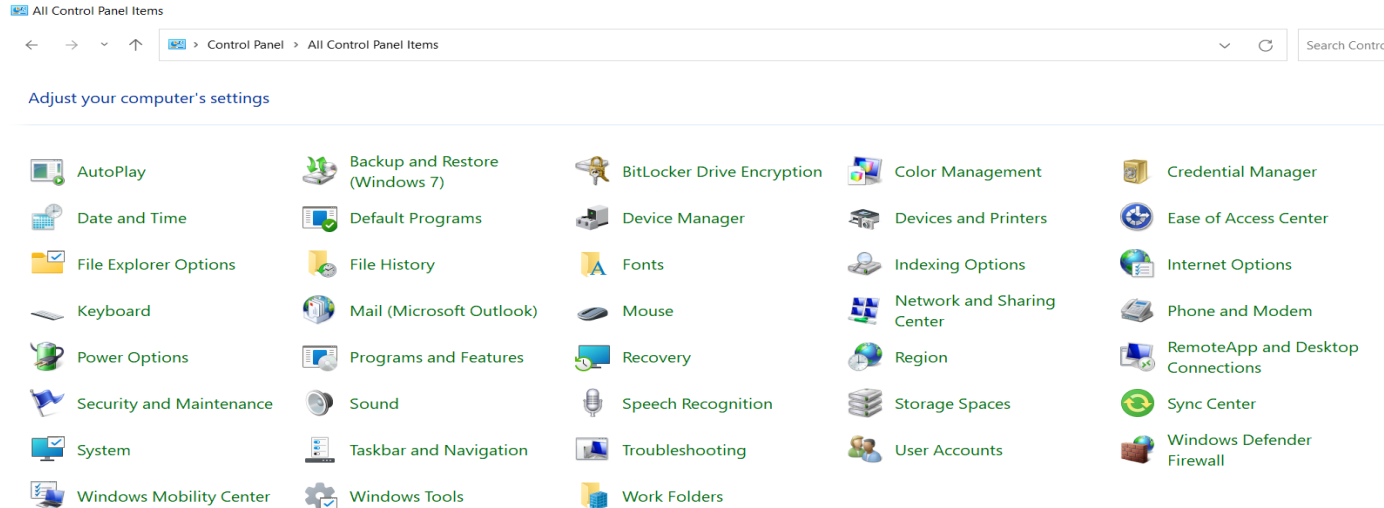


Control panel



Control panel definition :

The **Windows Control Panel** is a centralized interface in Microsoft Windows that allows users to manage system settings and configurations. It provides access to various tools and features for customizing the operating system's settings, managing hardware, and controlling user accounts.



Control panel categories :

- ***Common categories include:***
- **System and Security:** Manage system health, firewall, backup, and administrative tools.
- **Network and Internet:** Set up network connections, manage Wi-Fi settings, and control internet options.
- **Hardware and Sound:** Configure devices like printers, keyboards, and speakers.
- **Programs:** Install, uninstall, or repair programs on your system.
- **User Accounts:** Create, manage, or delete user profiles and change account control settings.
- **Appearance and Personalization:** Modify display settings, adjust themes, and manage desktop icons.
- **Clock and Region:** Change time, date, and region settings.
- **Ease of Access:** Adjust accessibility settings like screen readers or high contrast for visually impaired users.



Lab 1: Managing User Accounts

Objective: Learn how to create, modify, and delete user accounts, and set user permissions.

Navigate to User Accounts:

- In the Control Panel, select **User Accounts**. If you're in Category view, click on **User Accounts** and then **Manage another account**.

Create a New User Account:

- Click **Add a new user in PC settings** (or similar). This will redirect you to the settings menu.
- Click **Add someone else to this PC**.
- Select **I don't have this person's sign-in information** and then **Add a user without a Microsoft account**.
- Create a new user by entering a username and password.

4. Change Account Type:

- Go back to **Manage another account** in the Control Panel.
- Select the newly created user.
- Click **Change the account type** and select **Administrator** or **Standard** based on the permissions you want to give. Click **Change Account Type** to save changes.

5. Delete a User Account:

- To remove a user, select **Manage another account**, click on the user you want to delete, and choose **Delete the account**. You can choose whether to keep or delete the user's files.



Lab 2: Configuring Network Settings

Objective: Set up and troubleshoot network connections, share files, and view current network status.

Navigate to Network and Sharing Center:

- Click on **Network and Internet > Network and Sharing Center**.

Set Up a New Network Connection:

- On the left-hand side, select **Set up a new connection or network**.
- Choose **Manually connect to a wireless network** or **Connect to the Internet** depending on your setup.
- Follow the on-screen instructions to connect to your network.

View Current Network Status:

- In the **Network and Sharing Center**, you can see your active networks. Click on the network name (next to Connections) to see details like IP address, signal strength, and speed.

Share Files Over the Network:

- To share files, go to the **Advanced sharing settings** on the left sidebar.
- Turn on **Network discovery** and **File and printer sharing**.
- Go to a folder you want to share, right-click, and select **Properties > Sharing**.
- Click **Share**, select the users or groups, and set the permissions (Read/Write).

Troubleshoot a Network Connection:

- If you are facing connectivity issues, go to **Network and Sharing Center** and click **Troubleshoot problems**.
- Follow the prompts to diagnose and fix the problem.



Lab 3: Installing and Uninstalling Programs

Objective: Learn to manage installed programs, uninstalling, and repairing software.

Navigate to Programs and Features:

- Click on **Programs > Programs and Features**.

Uninstall a Program:

- Scroll through the list of installed programs.
- Select the program you want to uninstall and click **Uninstall**.
- Follow the prompts to complete the uninstallation process.

Repair a Program:

- If a program is not working correctly, select the program from the list in **Programs and Features**.
- Click **Repair** (if available). Follow the on-screen instructions to fix any issues with the program.



Lab 4: Device Management

Objective: Manage hardware devices.

- **Navigate to Hardware and Sound:**

Click on **Devices and printers**.

- **Access Devices and Printers:**

Step: Click on **Devices and Printers**.

you can see all connected devices, including printers, scanners, and other peripherals.

- **Add a Printer:**

Step: Click on **Add a printer**, Select the printer from the list or choose to add a network printer.

- **Set Default Printer:**

Step: Right-click on the newly added printer and select Set as default printer.

- **Update Device Drivers:**

Step: Back in the Devices and Printers window, right-click on a device and select Properties.



Lab 5: Using Troubleshooting Tools

Objective: using Windows troubleshooting tools to resolve common system issues.

Steps:

1. Open Troubleshooting Tools:

1. In Control Panel, go to System and Security > Troubleshoot common computer problems.

2. Run Hardware Troubleshooter:

1. Click Troubleshoot under Hardware and Sound.
2. Run the Hardware and Devices troubleshooter to detect and fix issues.

3. Fix Internet Problems:

1. Under Network and Internet, run the Internet Connections troubleshooter to resolve any connection issues.

4. Fix Windows Update Problems:

1. Under System and Security,



Lab 6: Configuring Security and Maintenance Settings

Objective: Students will learn how to adjust security settings and check for system health in Windows.

- **Steps:**

- 1. Access Security Settings:**

1. In Control Panel, go to System and Security > Security and Maintenance.

- 2. Review Security Notifications:**

1. Click the arrow next to **Security** to expand the list.
2. Check for notifications about antivirus, firewall, and Windows updates.

- 3. Change Security Settings:**

1. Click **Change security settings** in the Security section and adjust notifications for Windows Defender Firewall, antivirus, and UAC (User Account Control).

- 4. Check for Maintenance Issues:** The **Maintenance** option in Windows provides various tools and settings designed to help keep the system running smoothly by performing tasks , troubleshooting, and automatic updates. It automates several processes to maintain the system's performance, security, and reliability.

1. Expand the **Maintenance** section and click **Start maintenance** to run checks on your system's health.

