

Task 2: System Fundamentals – Basic Commands

This document covers essential system and network commands used in Windows and Linux environments. These commands are commonly used for troubleshooting, monitoring, and basic system administration.

Windows Commands

1. ipconfig

Purpose: Displays IP configuration details of the system.

What it shows:

- IP address

- Subnet mask

- Default gateway

- DNS servers

Common usage:

```
ipconfig
```

```
ipconfig /all
```

Use case: Troubleshooting network connectivity issues and verifying IP settings.

2. netstat

Purpose: Displays active network connections and listening ports.

What it shows:

- Active TCP/UDP connections

- Listening ports

- Routing information

Common usage:

```
netstat -an
```

```
netstat -b
```

Use case: Identifying open ports and detecting suspicious network activity.

3. tasklist

Purpose: Lists all currently running processes on the system.

What it shows:

Process name

Process ID (PID)

Memory usage

Common usage:

tasklist

Use case: Monitoring running applications and detecting unusual processes.

Linux Commands

1. ifconfig

Purpose: Displays and configures network interface parameters.

What it shows:

Network interfaces

IP addresses

MAC addresses

Common usage:

ifconfig

Use case: Checking network interface status and IP configuration.

2. netstat

Purpose: Displays network connections, routing tables, and interface statistics.

What it shows:

Active connections

Listening ports

Network statistics

Common usage:

netstat -tuln

Use case: Monitoring open ports and network services.

3. ps

Purpose: Displays information about active processes.

What it shows:

- Process ID (PID)
- Running user
- Command being executed

Common usage:

```
ps  
ps aux
```

Use case: Monitoring system processes and resource usage.

Users & Permissions

Understanding users and permissions is critical for system security and access control.

Windows – Users & Permissions

User Management

Command: net user

Purpose: Displays or manages user accounts.

Common usage:

```
net user  
net user username
```

Use case: Viewing existing users and account details.

Permissions & Groups

Command: net localgroup

Purpose: Displays or manages local groups.

Common usage:

```
net localgroup  
net localgroup administrators
```

Use case: Checking which users have administrative privileges.

Linux – Users & Permissions

User Management

Command: whoami

Purpose: Displays the currently logged-in user.

Common usage:

`whoami`

Command: `id`

Purpose: Displays user ID (UID), group ID (GID), and groups.

Common usage:

`id`

File Permissions

Command: `ls -l`

Purpose: Displays file permissions.

Permission format:

Read (r)

Write (w)

Execute (x)

Example:

`-rwxr-xr--`

Modifying Permissions

Command: `chmod`

Purpose: Changes file permissions.

Common usage:

`chmod 755 file`

Changing Ownership

Command: `chown`

Purpose: Changes file owner and group.

Common usage:

`chown user:group file`