# User Management in Linux

## Introduction to User Management in Linux

Linux is a multi-user operating system, meaning multiple users can operate on a system simultaneously. Proper user management ensures security, controlled access, and system integrity.

Key files involved in user management:

- `/etc/passwd` – Stores user account details.

- `/etc/shadow` – Stores encrypted user passwords.

- `/etc/group` – Stores group information.

- `/etc/gshadow` – Stores secure group details.

## Creating Users in Linux

To create a new user in Linux, use:

### `useradd` Command (For most Linux distributions)

```bash

useradd username

```

This creates a user without a home directory.

To create a user with a home directory:

```bash

useradd -m username

```

To specify a shell:

```bash

useradd -s /bin/bash username

```

### `adduser` Command (For Debian-based systems)

```bash

adduser username

```

This is an interactive command that asks for a password and additional details.

## Managing User Passwords

To set or change a user’s password:

```bash

passwd username

```

### Enforcing Password Policies

- \*\*Password expiration\*\*: Set password expiry days

```bash

chage -M 90 username

```

- \*\*Lock a user account\*\*

```bash

passwd -l username

```

- \*\*Unlock a user account\*\*

```bash

passwd -u username

```

## Modifying Users

Modify an existing user with `usermod`:

- Change the username:

```bash

usermod -l new\_username old\_username

```

- Change the home directory:

```bash

usermod -d /new/home/directory -m username

```

- Change the default shell:

```bash

usermod -s /bin/zsh username

```

## Deleting Users

To remove a user but keep their home directory:

```bash

userdel username

```

To remove a user and their home directory:

```bash

userdel -r username

```

## Working with Groups

### Creating Groups

```bash

groupadd groupname

```

### Adding Users to Groups

```bash

usermod -aG groupname username

```

### Viewing Group Memberships

```bash

groups username

```

### Changing Primary Group

```bash

usermod -g new\_primary\_group username

```

## Sudo Access and Privilege Escalation

### Adding a User to Sudo Group

On Debian-based systems:

```bash

usermod -aG sudo username

```

On RHEL-based systems:

```bash

usermod -aG wheel username

```

### Granting Specific Commands with Sudo

Edit the sudoers file:

```bash

visudo

```

Then add:

```bash

username ALL=(ALL) NOPASSWD: /path/to/command

```