# Introduction

A **software package manager** is a tool that automates the process of installing, upgrading, configuring, and removing software on a Linux system. It simplifies dependency management and ensures that software is correctly installed with all required components.

On Debian-based distributions such as Ubuntu, the **APT (Advanced Package Tool)** is the default package manager. It interacts with the system’s package repositories to install and update software efficiently.

# Using APT for Package Management

## Installing Packages

To install a package, use:

sudo apt install <package-name>

Example:

sudo apt install vim

This installs the Vim text editor.

## Searching for Packages

To search for a package before installing it:

apt search <package-name>

Example:

apt search nginx

## Display Package Information

To get detailed information about a package:

apt show <package-name>

Example:

apt show curl

## Updating Package Lists

Before installing or upgrading packages, update the local package database:

sudo apt update

This refreshes package information from repositories.

## Upgrading Installed Packages

To upgrade all installed packages:

sudo apt upgrade

For a complete system upgrade, use:

sudo apt full-upgrade

## Removing Packages

To uninstall a package but keep its configuration files:

sudo apt remove <package-name>

Example:

sudo apt remove nano

To remove a package and its configuration files:

sudo apt purge <package-name>

Example:

sudo apt purge apache2

## Cleaning Up Unused Packages

To remove unused dependencies:

sudo apt autoremove

To clean the local package cache:

sudo apt clean

# Additional Notes

* Always update the package list before installing or upgrading software.
* Use sudo apt upgrade regularly to keep the system secure.
* Removing unnecessary packages with autoremove helps free up disk space.