APT Debian package manager

START HERE

`sudo` **`apt update`**
Refresh package lists

`sudo` **`apt autoremove`**
Drop unused dependencies

`sudo` **`apt upgrade`**
Install available updates

`apt list --upgradeable`
See pending updates

`apt search` *`<term>`*
Find a package

`apt show` *`<pkg>`*
Read package details

`sudo` **`apt install`** *`<pkg>`*
Install a package

`sudo` **`apt remove`** *`<pkg>`*
Uninstall, keep config

Sources sources.list → `apt update` → **Package lists** local index → `apt install` → **Downloaded .deb** /var/cache/apt → `dpkg` → **Installed system** dpkg database

CONCEPTS

update only refreshes the lists; upgrade is what installs new versions. Run them in that order.

apt is the interactive front end; apt-get and apt-cache behave more stably and are better in scripts.

Debian and Ubuntu family only. Changing the system needs root, so prefix with sudo.

UPDATE AND UPGRADE

`sudo` **`apt update`**
Refresh the package lists

`sudo` **`apt upgrade`**
Upgrade, never remove packages

`sudo` **`apt full-upgrade`**
Upgrade, allow removals if needed
Use it when upgrade holds packages back; read the removal list first.

`apt list --upgradeable`
List packages with updates

`sudo` **`apt install --only-upgrade`** *`<pkg>`*
Upgrade one package only

`sudo` **`apt -s upgrade`**
Simulate, change nothing

UPDATE AND UPGRADE (cont.)

`sudo` **`apt -y upgrade`**
Answer yes to prompts

`sudo` **`apt-get dist-upgrade`**
Script-friendly full-upgrade

INSTALL AND REMOVE

`sudo` **`apt install`** *`<pkg>`*
Install a package

`sudo` **`apt install`** *`<pkg1>`* *`<pkg2>`*
Install several at once

`sudo` **`apt remove`** *`<pkg>`*
Remove, keep config files

`sudo` **`apt purge`** *`<pkg>`*
Remove including config files

`sudo` **`apt autoremove`**
Remove unneeded dependencies

`sudo` **`apt autoremove --purge`**
Also delete their config

`sudo` **`apt install ./`***`<file>`***`.deb`**
Install a local .deb with deps

`sudo` **`apt reinstall`** *`<pkg>`*
Reinstall a package

`sudo` **`apt install`** *`<pkg>`*`=`*`<version>`*
Install an exact version

`sudo` **`apt install -t`** *`<release>`* *`<pkg>`*
Install from another release

INSTALL AND REMOVE (cont.)

`sudo` **`apt install --no-install-recommends`** *`<pkg>`*
Skip recommended packages

`sudo` **`apt install -f`**
Repair broken dependencies

`sudo` **`apt build-dep`** *`<pkg>`*
Install build dependencies

`sudo` **`apt satisfy "`***`<dep-string>`***`"`**
Install from a dependency string

SEARCH AND INSPECT

`apt search` *`<term>`*
Search names and descriptions

`apt show` *`<pkg>`*
Show version, depends, size

`apt list --installed`
List installed packages

`apt list --installed | grep` *`<name>`*
Is it installed?

`apt list --all-versions` *`<pkg>`*
Show every available version

`apt policy` *`<pkg>`*
Installed, candidate, sources

`apt depends` *`<pkg>`*
What a package needs

SEARCH AND INSPECT (cont.)

`apt rdepends` *`<pkg>`*
What needs a package

`apt-cache pkgnames` *`<prefix>`*
Complete package names

`apt changelog` *`<pkg>`*
Show the package changelog

`apt download` *`<pkg>`*
Fetch the .deb without installing

HOLD AND MARK

`sudo` **`apt-mark hold`** *`<pkg>`*
Freeze at current version

`sudo` **`apt-mark unhold`** *`<pkg>`*
Allow upgrades again

`apt-mark showhold`
List held packages

`apt-mark showmanual`
List manually installed packages

`sudo` **`apt-mark manual`** *`<pkg>`*
Protect from autoremove

`sudo` **`apt-mark auto`** *`<pkg>`*
Let autoremove take it

`apt-mark showauto`
List auto-installed packages

Autoremove only removes packages marked auto. Mark a package manual to keep it.

SOURCES AND CACHE

`sudo` **`apt edit-sources`**
Edit the sources file

`sudo` **`apt modernize-sources`**
Convert .list to .sources

`ls /etc/apt/sources.list.d/`
See extra repositories

`sudo` **`apt clean`**
Delete all downloaded .deb files

`sudo` **`apt-get autoclean`**
Delete obsolete downloads only

`apt-get check`
Verify no broken dependencies

Add third-party repos with their signing key kept in /etc/apt/keyrings, not the old apt-key.

DPKG PAIRING

`dpkg -l`
List installed packages

`dpkg -l` *`<pattern>`*
Status of matching packages

`dpkg -L` *`<pkg>`*
Files a package installed

`dpkg -S` *`<path>`*
Which package owns a file

`dpkg -s` *`<pkg>`*
Installed status and details

DPKG PAIRING (cont.)

`sudo` **`dpkg -i`** *`<file>`***`.deb`**
Install a .deb, no deps
Does not fetch dependencies; follow with apt install -f if it fails.

`sudo` **`dpkg --configure -a`**
Finish interrupted installs

`dpkg --get-selections`
Dump package selections

`sudo` **`dpkg --add-architecture`** *`<arch>`*
Enable a foreign architecture

RECIPES

Routine system update

```
sudo apt update
apt list --upgradeable
sudo apt upgrade
sudo apt autoremove
```

Find which package provides a file

```
dpkg -S /usr/bin/<cmd>
# not installed yet? use apt-file
sudo apt install apt-file &&
sudo apt-file update
apt-file search <path>
```

Pin a package, then release it

```
sudo apt-mark hold <pkg>
apt-mark showhold
sudo apt upgrade   # skips it
sudo apt-mark unhold <pkg>
```

Fix a broken install

```
sudo dpkg --configure -a
sudo apt install -f
sudo apt update && sudo apt full-upgrade
```