

# Arch

## Package Management

### Pacman

First, you should check to verify your `pacman-mirrors` are configured to the nearest location. Do this manually by editing `/etc/pacman.d/mirrorlist`, or run `sudo pacman-mirrors -g` -

```
[kapper@kanjaro ~]$ sudo pacman-mirrors -g
INFO Downloading mirrors from repo.manjaro.org
::INFO User generated mirror list
::-----
::INFO Custom mirror file saved: /var/lib/pacman-mirrors/custom-mirrors.json
::INFO Using default mirror file
::INFO Querying mirrors - This may take some time
0.772 United_States : https://repo.ialab.dsu.edu/manjaro/
0.756 United_States : http://repo.ialab.dsu.edu/manjaro/
::INFO Writing mirror list
::United_States : https://repo.ialab.dsu.edu/manjaro/testing
::INFO Mirror list generated and saved to: /etc/pacman.d/mirrorlist
```

Now, you should have much faster download speeds when updating or grabbing packages.

To install a package, run `sudo pacman -Syu <package>`. For example, to install `htop`, run `sudo pacman -Syu htop`. This will not only install `htop`, but first it will check that your package list and installed packages are up to date to ensure you get the latest version.

If you are used to the `apt` package manager, this is basically like running `sudo apt update && sudo apt upgrade`, `pacman` can run these updates alongside every new package installation with the `-Syu` parameters.

### Partial Upgrade Cleanup

Sometimes a run of `pacman -Syu` will complete normally, but later you may notice that certain packages were either upgraded incorrectly or not upgraded at all. One reason this may happen is a hiccup in PGP key validation by pacman during the upgrade. The commands below may help in fixing such a problem -

```
# Refresh all PGP keys installed on the system
sudo pacman-key --refresh-keys

# Reinstall all packages on the system
sudo pacman -Qqn | sudo pacman -S
```

These two commands will either print errors providing further information on the broken packages or complete and fix the broken packages. After running, you may need to reboot.

## AUR Packages

AUR = arch user repository

Sometimes a package may exist within the community but not in any official repository. To manage these, we have AUR helpers.

This [list of AUR helpers](#), AKA community / AUR packages, is useful in selecting the best tool to suit your needs.

Using [yay](#), some basic commands are seen below -

```
# Search foreign package db for package
yay -q pycharm

# Will prompt for install with list of results and descriptions

# To upgrade yay alongside pacman, run the following
yay -S yay-bin
sudo pacman -Syu
yay -S yay
```

After installation, the `/opt/<PackageName>` will contain the new files created for the installed package.

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