

# PACKAGE MANAGMENT



**How can I find a package in my distro?**

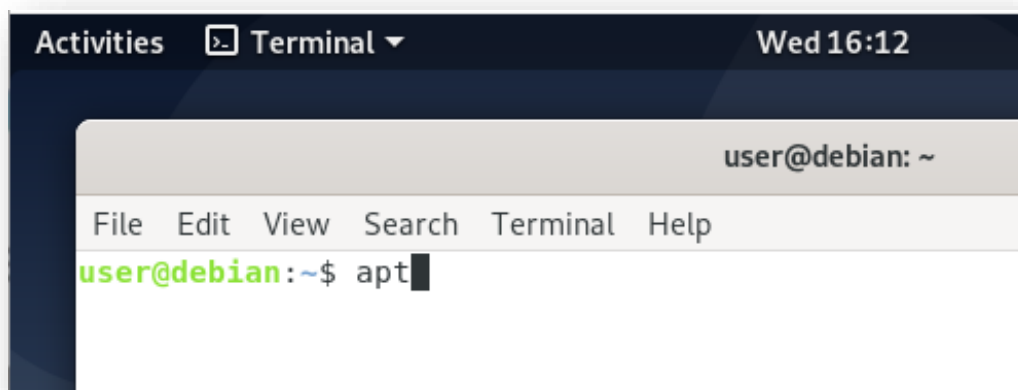
**How can I install that package?**

**Can I remove it if I don't want it anymore?**

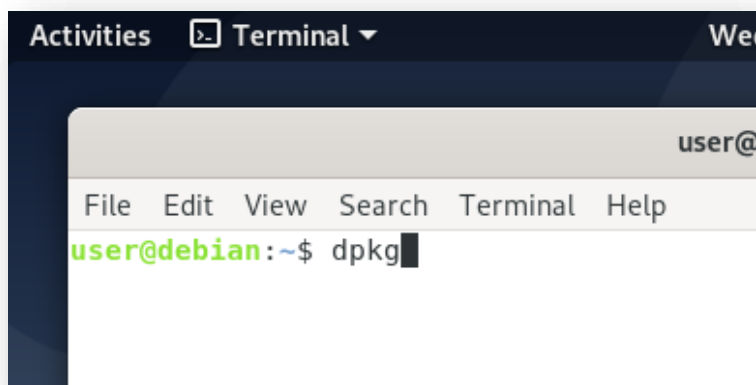
Eventually, in the normal use of our Linux distributions, we will need to add different types of packages. For that, we have several ways to find information about the package and then install it. If for some reason we no longer want to continue with the installed package, we can also remove it and everything from our terminal.

Let's talk about our distro, Debian. In this case we can use different commands:

1. **apt**: "Advance Package Tool" that search and download packages from the official repositories. It handles packages and their dependencies.

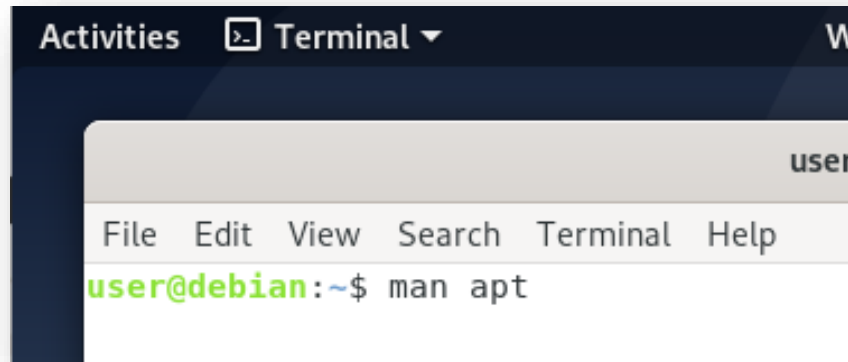
A screenshot of a Linux terminal window. The title bar shows 'Activities', 'Terminal', and 'Wed 16:12'. The terminal content shows the prompt 'user@debian: ~' followed by a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. Below the menu bar, the prompt 'user@debian:~\$' is followed by the command 'apt' and a cursor.

2. **dpkg**: "Debian Package": It interacts directly with the .deb package. It is often used to install packages that have already been downloaded.

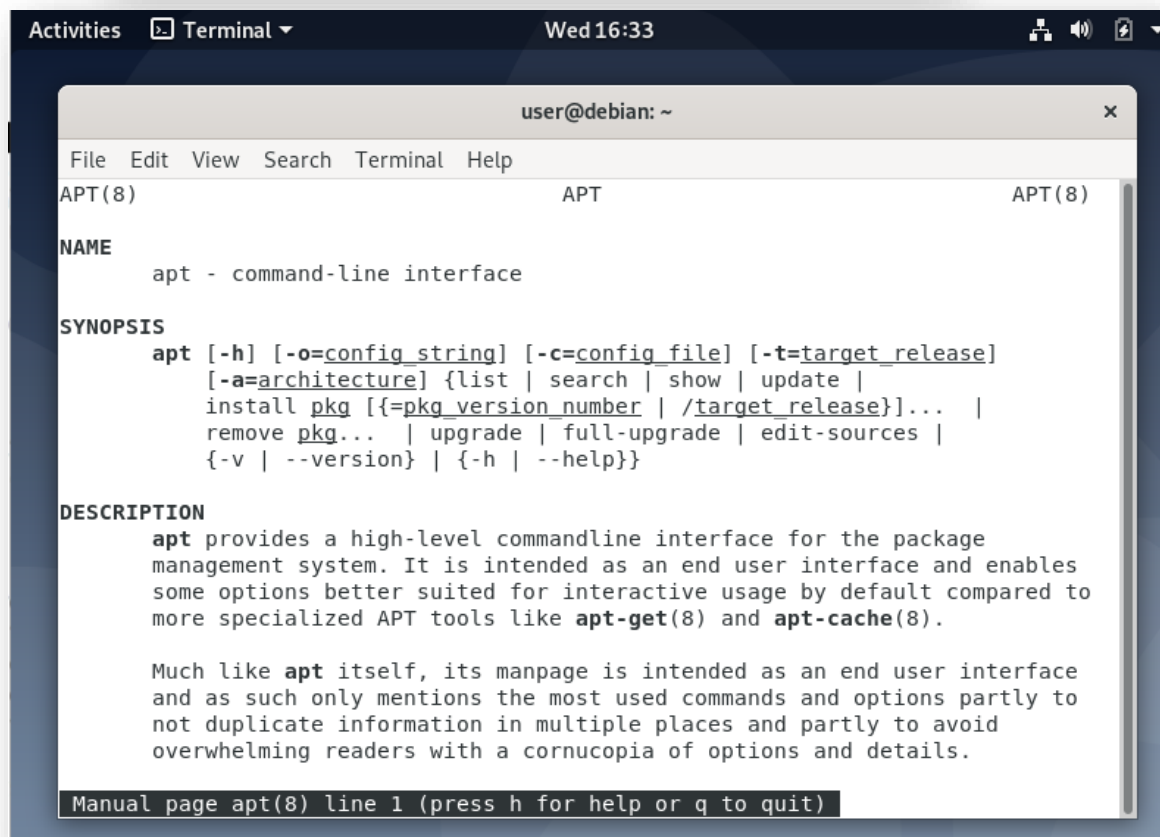
A screenshot of a Linux terminal window. The title bar shows 'Activities', 'Terminal', and 'Wed'. The terminal content shows the prompt 'user@' followed by a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. Below the menu bar, the prompt 'user@debian:~\$' is followed by the command 'dpkg' and a cursor.

Let's dive into apt with options

We can go to the internal documentation of apt through the command **man apt**



```
Activities Terminal ▾
user@debian: ~$ man apt
```



```
Activities Terminal ▾ Wed 16:33
user@debian: ~
File Edit View Search Terminal Help
APT(8) APT APT(8)

NAME
  apt - command-line interface

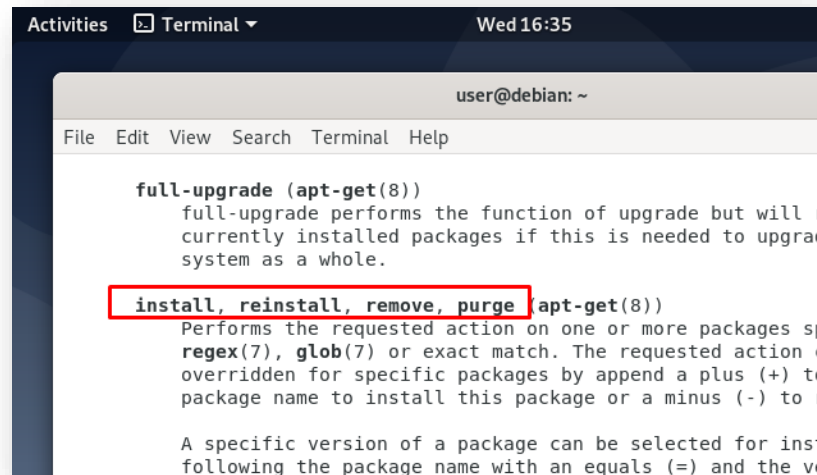
SYNOPSIS
  apt [-h] [-o=config_string] [-c=config_file] [-t=target_release]
    [-a=architecture] {list | search | show | update |
    install pkg [{=pkg_version_number | /target_release}]... |
    remove pkg... | upgrade | full-upgrade | edit-sources |
    {-v | --version} | {-h | --help}}
```

**DESCRIPTION**

**apt** provides a high-level commandline interface for the package management system. It is intended as an end user interface and enables some options better suited for interactive usage by default compared to more specialized APT tools like **apt-get(8)** and **apt-cache(8)**.

Much like **apt** itself, its manpage is intended as an end user interface and as such only mentions the most used commands and options partly to not duplicate information in multiple places and partly to avoid overwhelming readers with a cornucopia of options and details.

Manual page apt(8) line 1 (press h for help or q to quit)



```
Activities Terminal Wed 16:35
user@debian: ~
File Edit View Search Terminal Help

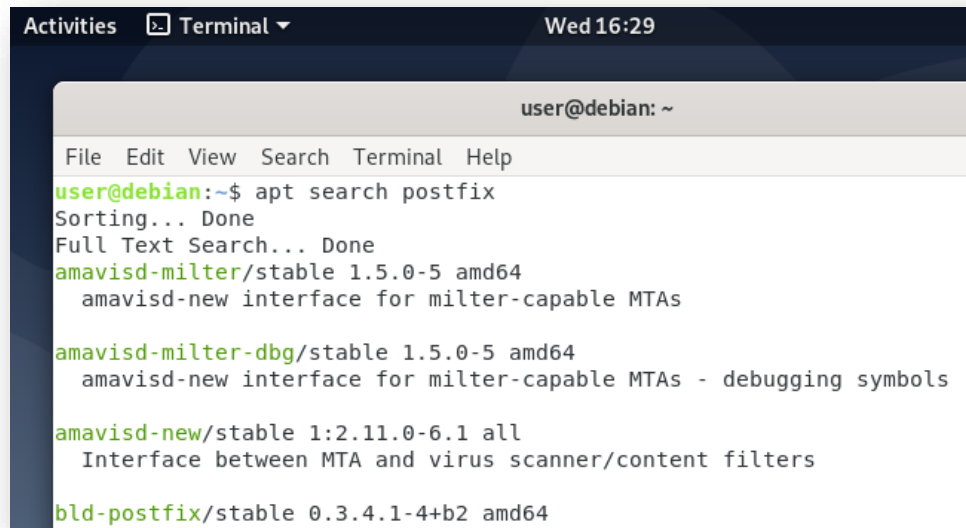
full-upgrade (apt-get(8))
full-upgrade performs the function of upgrade but will not
remove currently installed packages if this is needed to upgrade
the system as a whole.

install, reinstall, remove, purge (apt-get(8))
Performs the requested action on one or more packages specified by
a regular expression (regex(7)), glob(7) or exact match. The requested action can be
overridden for specific packages by append a plus (+) to the package name to
install this package or a minus (-) to remove it.

A specific version of a package can be selected for installation by
following the package name with an equals (=) and the version number.
```

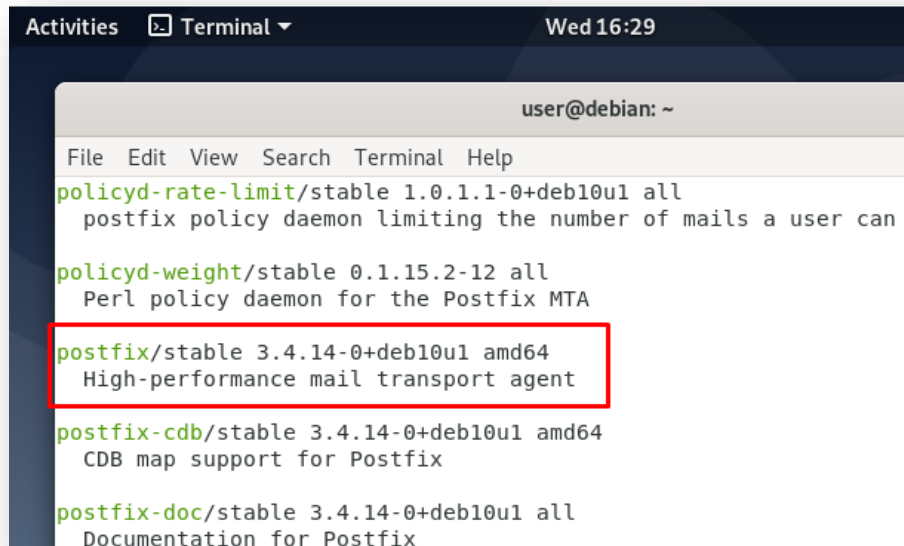
As we can see, we have different types of options in apt

**apt search:** when you need a specific package but you don't know if it is available in the repositories, you can go to apt search. In this example we'll search postfix.



```
Activities Terminal Wed 16:29
user@debian: ~
File Edit View Search Terminal Help

user@debian:~$ apt search postfix
Sorting... Done
Full Text Search... Done
amavisd-milter/stable 1.5.0-5 amd64
  amavisd-new interface for milter-capable MTAs
amavisd-milter-dbg/stable 1.5.0-5 amd64
  amavisd-new interface for milter-capable MTAs - debugging symbols
amavisd-new/stable 1:2.11.0-6.1 all
  Interface between MTA and virus scanner/content filters
bld-postfix/stable 0.3.4.1-4+b2 amd64
  Postfix mail system
```

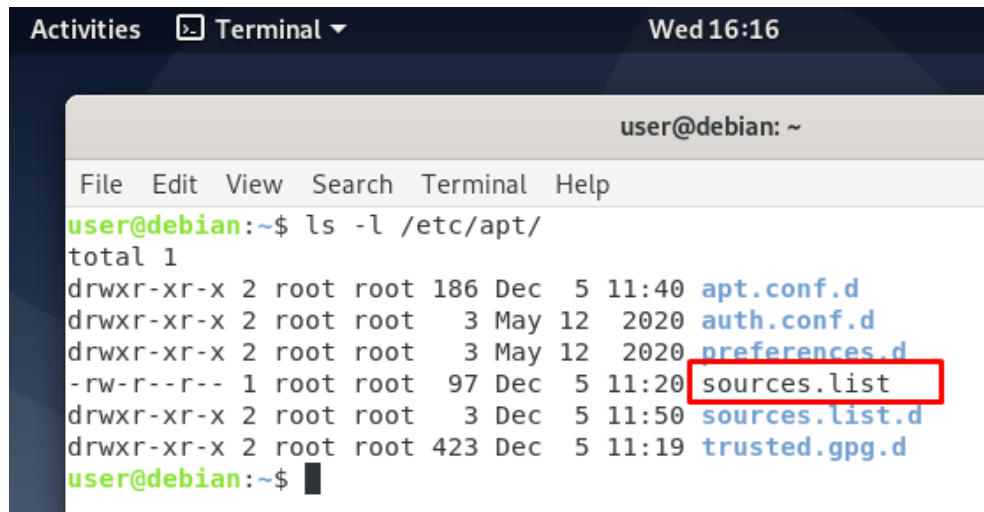


```
Activities Terminal Wed 16:29
user@debian: ~
File Edit View Search Terminal Help
policyd-rate-limit/stable 1.0.1.1-0+deb10u1 all
  postfix policy daemon limiting the number of mails a user can s
policyd-weight/stable 0.1.15.2-12 all
  Perl policy daemon for the Postfix MTA
postfix/stable 3.4.14-0+deb10u1 amd64
  High-performance mail transport agent
postfix-cdb/stable 3.4.14-0+deb10u1 amd64
  CDB map support for Postfix
postfix-doc/stable 3.4.14-0+deb10u1 all
  Documentation for Postfix
```

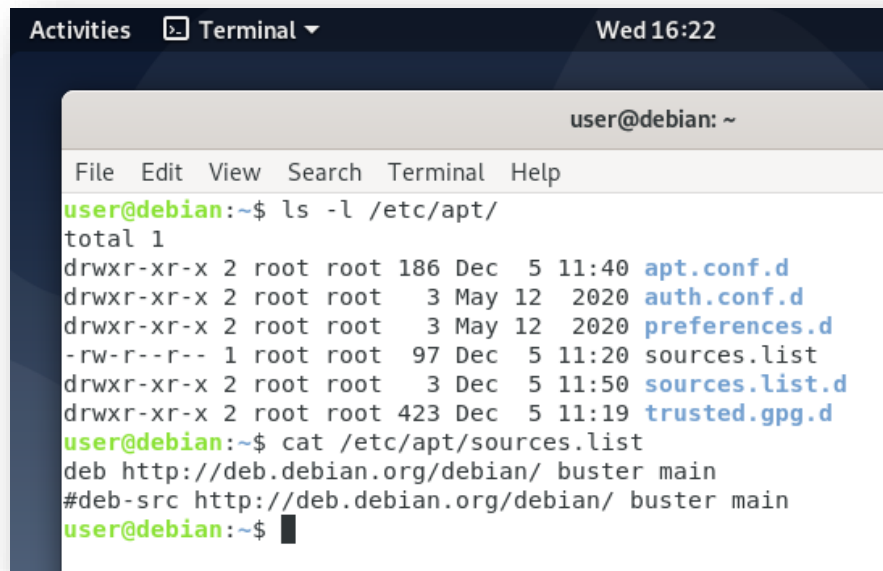
As we can see **apt search** found the package.

But, Where are those searches consulted? from where are the packages installed?

all these configurations are set in the sources.list file inside the /etc/apt directory.



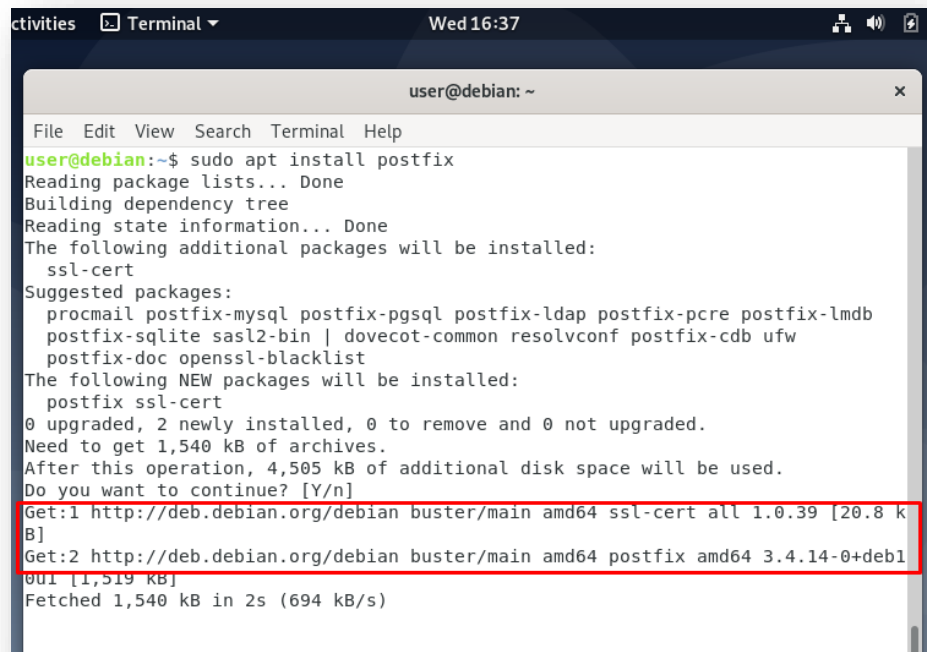
```
Activities Terminal Wed 16:16
user@debian: ~
File Edit View Search Terminal Help
user@debian:~$ ls -l /etc/apt/
total 1
drwxr-xr-x 2 root root 186 Dec  5 11:40 apt.conf.d
drwxr-xr-x 2 root root  3 May 12 2020 auth.conf.d
drwxr-xr-x 2 root root  3 May 12 2020 preferences.d
-rw-r--r-- 1 root root  97 Dec  5 11:20 sources.list
drwxr-xr-x 2 root root  3 Dec  5 11:50 sources.list.d
drwxr-xr-x 2 root root 423 Dec  5 11:19 trusted.gpg.d
user@debian:~$
```



```
user@debian: ~  
File Edit View Search Terminal Help  
user@debian:~$ ls -l /etc/apt/  
total 1  
drwxr-xr-x 2 root root 186 Dec  5 11:40 apt.conf.d  
drwxr-xr-x 2 root root  3 May 12 2020 auth.conf.d  
drwxr-xr-x 2 root root  3 May 12 2020 preferences.d  
-rw-r--r-- 1 root root  97 Dec  5 11:20 sources.list  
drwxr-xr-x 2 root root  3 Dec  5 11:50 sources.list.d  
drwxr-xr-x 2 root root 423 Dec  5 11:19 trusted.gpg.d  
user@debian:~$ cat /etc/apt/sources.list  
deb http://deb.debian.org/debian/ buster main  
#deb-src http://deb.debian.org/debian/ buster main  
user@debian:~$
```

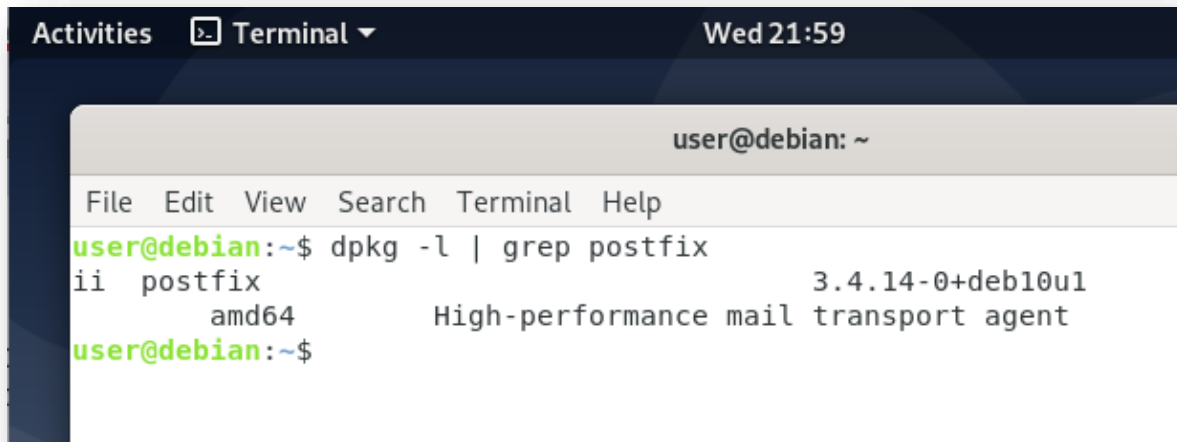
In that file are the url where the official repositories of our distribution are located

Now it's time to install the package (Postfix) through “**apt install postfix**” and we will see the requests that are made to those url defined in the source.list.



```
activities Terminal Wed 16:37  
user@debian: ~  
File Edit View Search Terminal Help  
user@debian:~$ sudo apt install postfix  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following additional packages will be installed:  
  ssl-cert  
Suggested packages:  
  procmail postfix-mysql postfix-pgsql postfix-ldap postfix-pcre postfix-lmdb  
  postfix-sqlite sasl2-bin | dovecot-common resolvconf postfix-cdb ufw  
  postfix-doc openssl-blacklist  
The following NEW packages will be installed:  
  postfix ssl-cert  
0 upgraded, 2 newly installed, 0 to remove and 0 not upgraded.  
Need to get 1,540 kB of archives.  
After this operation, 4,505 kB of additional disk space will be used.  
Do you want to continue? [Y/n]  
Get:1 http://deb.debian.org/debian buster/main amd64 ssl-cert all 1.0.39 [20.8 kB]  
Get:2 http://deb.debian.org/debian buster/main amd64 postfix amd64 3.4.14-0+deb1  
0ui [1,519 kB]  
Fetched 1,540 kB in 2s (694 kB/s)
```

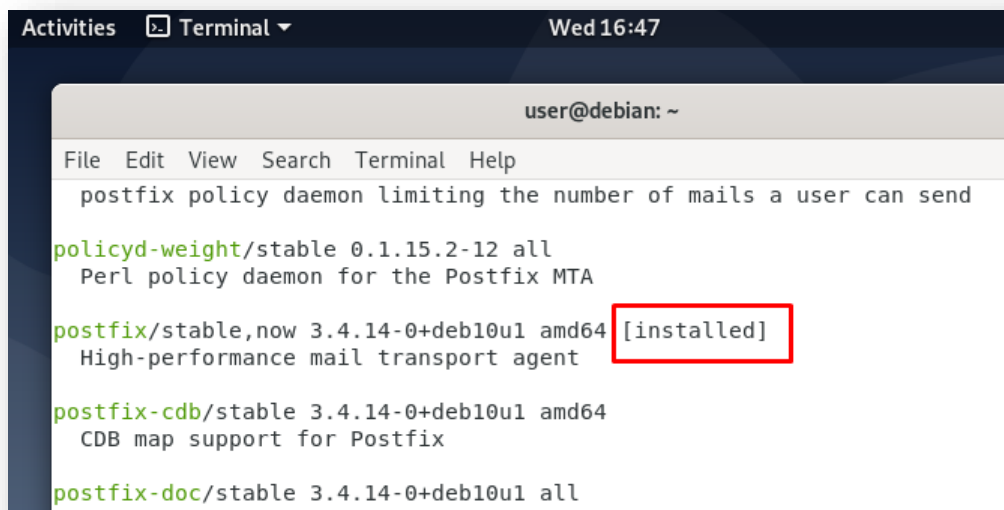
Once the installation is done, we are going to validate that we actually have the package using the command `dpkg -l | grep postfix`



A terminal window titled 'Terminal' with a dark blue header bar showing 'Activities', a terminal icon, and 'Wed 21:59'. The prompt is 'user@debian: ~'. The command `dpkg -l | grep postfix` has been executed, resulting in the following output:

```
ii postfix 3.4.14-0+deb10u1  
amd64 High-performance mail transport agent
```

If we try to search postfix one more time, we will notice a difference: “**apt search postfix**”



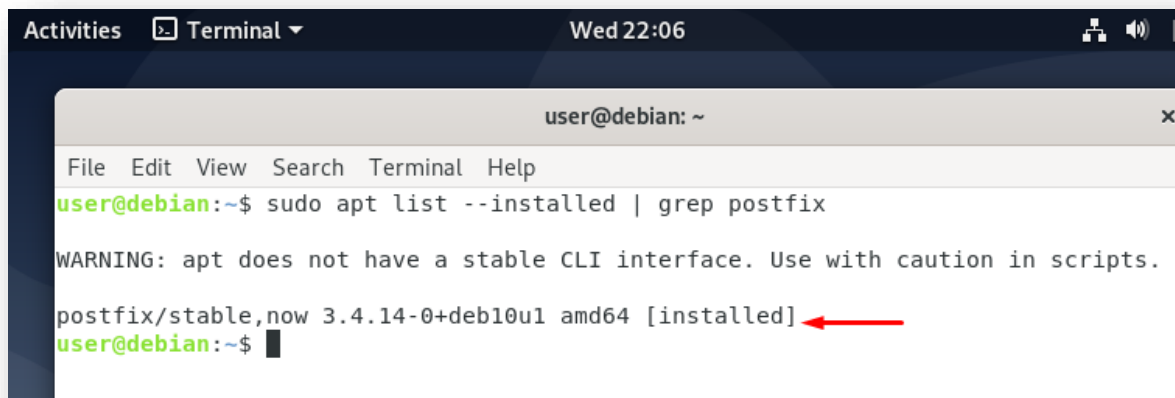
A terminal window titled 'Terminal' with a dark blue header bar showing 'Activities', a terminal icon, and 'Wed 16:47'. The prompt is 'user@debian: ~'. The command `apt search postfix` has been executed, resulting in the following output:

```
postfix policy daemon limiting the number of mails a user can send  
  
policyd-weight/stable 0.1.15.2-12 all  
Perl policy daemon for the Postfix MTA  
  
postfix/stable,now 3.4.14-0+deb10u1 amd64 [installed]  
High-performance mail transport agent  
  
postfix-cdb/stable 3.4.14-0+deb10u1 amd64  
CDB map support for Postfix  
  
postfix-doc/stable 3.4.14-0+deb10u1 all  
Documentation for Postfix
```

The word `[installed]` in the output for the `postfix/stable,now` package is highlighted with a red rectangular box.

Now, when it finds the package, it classifies it as installed.

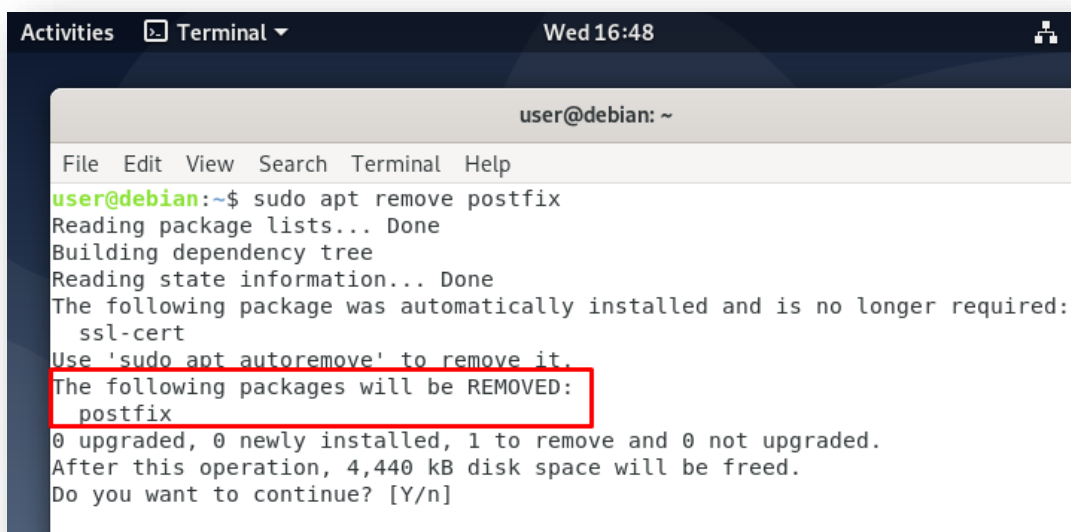
We can also check if we have a package through “**apt list --installed**” and we can filter by `| grep postfix`.



```
Activities Terminal Wed 22:06
user@debian: ~
File Edit View Search Terminal Help
user@debian:~$ sudo apt list --installed | grep postfix
WARNING: apt does not have a stable CLI interface. Use with caution in scripts.
postfix/stable,now 3.4.14-0+deb10u1 amd64 [installed]
```

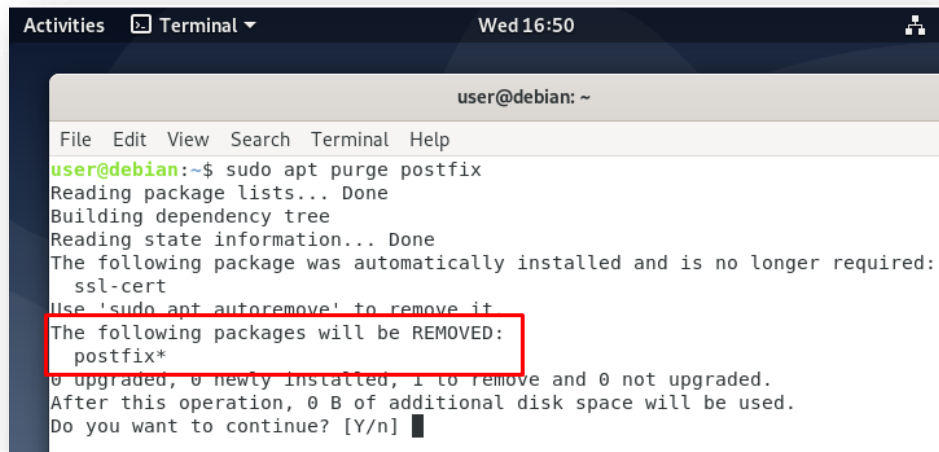
If for some reason, we no longer want to keep the package installed, we have alternatives to uninstall the package.

- **apt remove postfix** to uninstall the package, but maybe some files remain in our system as prevention for accidental uninstallation.
- **apt purge postfix** We use it when we want to completely remove any configuration level records and leftover files from the package.



```
Activities Terminal Wed 16:48
user@debian: ~
File Edit View Search Terminal Help
user@debian:~$ sudo apt remove postfix
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  ssl-cert
Use 'sudo apt autoremove' to remove it.
The following packages will be REMOVED:
  postfix
0 upgraded, 0 newly installed, 1 to remove and 0 not upgraded.
After this operation, 4,440 kB disk space will be freed.
Do you want to continue? [Y/n]
```

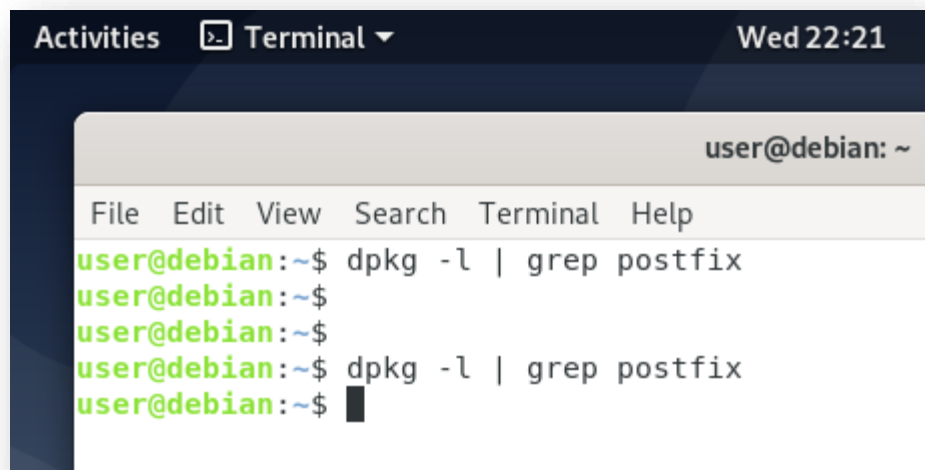




```
Activities Terminal Wed 16:50
user@debian: ~
File Edit View Search Terminal Help
user@debian:~$ sudo apt purge postfix
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  ssl-cert
Use 'sudo apt autoremove' to remove it.
The following packages will be REMOVED:
 postfix*
0 upgraded, 0 newly installed, 1 to remove and 0 not upgraded.
After this operation, 0 B of additional disk space will be used.
Do you want to continue? [Y/n]
```

In both cases, the system asks if we are really sure to execute this action to prevent mistakes.

Let's check if the package is actually uninstalled



```
Activities Terminal Wed 22:21
user@debian: ~
File Edit View Search Terminal Help
user@debian:~$ dpkg -l | grep postfix
user@debian:~$
user@debian:~$ dpkg -l | grep postfix
user@debian:~$
```

Indeed, the package was completely uninstalled. I Hope you learned something new today. thanks